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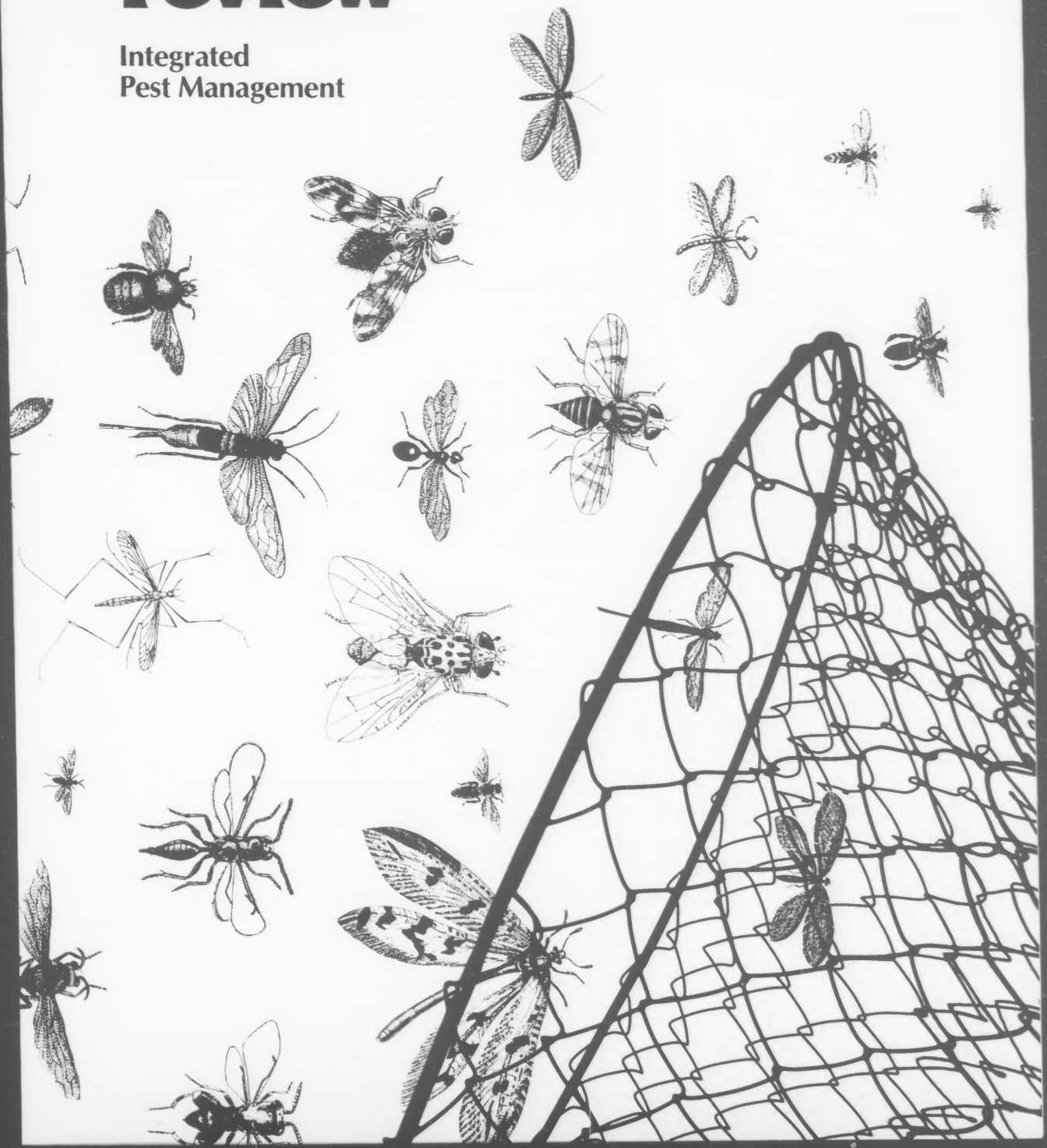
extension review

Integrated Pest Management



review

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IPM— It Works

Crop losses in the United States from pests exceed one-third of the potential crop harvest each year, with a further 9-percent lost to pests after harvest.

To combat these losses, Cooperative Extension Services in all 50 states and three protectorates have set up integrated pest management programs (IPM), often working with the private sector in establishing and developing such programs. Recent studies show that losses would be greater without these programs—ranging from 67 cents more per acre of soybeans to $42 per acre of apples. We lack comparable aggregate figures for livestock, but losses to predators, insects and other pests are heavy.

Integrated pest management, commonly known as IPM, means the use of a combination of tactics in an overall management strategy of pest control. The goal is to produce food and fiber efficiently while minimizing the overall unfavorable effects of controlling and managing the pests.

Beginning

Extension's IPM programs began with two single-crop pilot projects in 1971. Since then, measurable benefits have included higher net income for producers, educational materials (manuals, movies, slide sets, videotapes, and others), new training programs, delivery systems (including computers, newsletters, and telephone advice), development of staff for implementation of educational programs in the field, combining of staff from various disciplines into teams, bringing people together who have differing interests within the same state, working across state lines, and involvement of the private sector.

In this issue of the *Review*, we highlight significant IPM programs that, by their innovativeness and ongoing success, could be catalysts in starting new programs or improving already existing ones.

For example, in one article, we'll see how urban IPM programs across the country help homeowners care for their lawns and gardens themselves, saving money and increasing their personal satisfaction. Urban IPM also shows people how to rid their homes of cockroaches. Other Extension urban IPM programs help grounds maintenance staff and commercial horticulturists increase their expertise.

Stored grain on farms around the country represents money in the bank to farmers. The IPM program in Kentucky helps farmers protect their investment by use of scouts who check for moisture, temperature, and insects. We'll look at the country's first pilot grain bin inspection program, begun in Todd County, Ky., in 1978.

Before the grain hits the bins, how do farmers protect it? We'll show how a Virginia soybean farmer and his county agent developed an IPM program that saves the farmer money, uses ecologically beneficial methods, and reduces soybean losses due to pests.

Food Production

Insects, rodents, birds, and other pests attack poultry, swine, cattle, and horses, and they contaminate their shelter and feed areas. Producers not only face reduced production as a result but also must make expensive repairs to confinement units and other buildings. We focus on IPM projects for livestock and poultry producers in Nebraska, California, and North Carolina, and the horse industry in Florida that illustrate current control methods.

IPM is important at every stage of food production, including processing. An Extension entomology specialist in Virginia explains for us the pest management program he and others are developing for seafood processing plants. Until recently, food processors controlled insect and rodent pests almost entirely with chemical pesticides. Now, because of species resistant to the pesticides, changes in Federal regulations, and other developments, these processors need many methods of control.

Computers are helping farmers and Extension agents manage IPM programs across the country. We'll see how, in different States, IPM managers have tailored computer capability to their own needs, whether it's for historical data on crops and varieties, frequency and type of cultural practices, daily weather forecasts, daily communications among staff members, or a host of other uses.

The Future

We just scratch the surface with these stories. Many other successful IPM programs exist around the country. Future food and fiber production management systems are expected to include IPM as an essential feature. Grower organizations and agricultural consultants will continue to deliver IPM services, and they will continue to seek input from the Cooperative Extension Service. In turn, Extension staffers will provide educational materials, train personnel, and prepare packages that include IPM recommendations from all disciplines involved, and results from surveys assessing value of and need for IPM programs.

The results? Safe, efficiently produced, economical food and fiber; healthy farm incomes; and a protected, well-managed environment.

contents

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Farmers Scout Stored Grain Investment

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Farmers storing grain should think of their full bins like bank accounts: since they wouldn't put $50,000 in the bank and forget about it, they shouldn't store grain without checking it now and then.

That's how Earl Wiles, a farmer from Todd County, Kentucky, describes the importance of inspecting stored grain. But checking grain in storage requires time, equipment, and experience many farmers may not have. So Wiles and several other Kentucky farmers pay scouts to inspect their stored grain as part of an integrated pest management (IPM) program. The scouts probe the grain to check for moisture, temperature, and insects, and they help farmers spot potential problems which could result in spoilage and discounts at sale time.

Inspecting grain after harvest has become more important as onfarm storage has increased rapidly in central and western Kentucky over the past few years. Sixty percent or more of all grain produced in the state is stored on the farm, according to Dr. Harley Raney, Extension entomologist in the University of Kentucky College of Agriculture and coordinator of the university's IPM program.

Adding grain bin inspection to IPM was a logical move, Raney said. "We needed to take integrated pest management services beyond crop production to crop storage," he said. "A farmer's entire production efforts for a year are concentrated in one or two locations. We wanted to help farmers manage their stored grain to optimize economic returns."

Pilot Grain Inspection Program

Raney and county Extension agent Marvin Davidson began a pilot grain bin inspection program in Todd County in 1978—the first such program in the country. That year, 15 farmers paid to have 400,000 bushels of corn, soybeans, and wheat inspected. This past winter, six counties in central and western Kentucky conducted programs inspecting more than 900,000 bushels of grain—653,000 bushels of corn, 195,000 bushels of beans, and 56,000 bushels of wheat.

The number of farmers participating and the amount of grain inspected has varied from year to year, depending on yields and on market prices. In 1980, for example, drought and heat reduced yields, and there were fewer bushels to inspect. This year, IPM staff members predict that current depressed prices will mean more grain in storage, and more to be scouted.

The grain bin inspection program provides winter work for four full-time Extension IPM agents. They are hired by nonprofit farmer cooperatives which administer county IPM programs and decide whether to offer bin inspection services.

Extension IPM agents, helped sometimes by part-time scouts, inspect bins according to varying schedules. Some counties schedule 6 to 10 regular inspections from October through March, while others schedule inspections at farmer's requests, perhaps only once or twice a season.

"How many times we inspect depends on the condition of the grain," says Daryl Templeman, Todd County's IPM agent. There, inspections are made on call from producers. "We usually do a minimum of four inspections, but we may check a bin more often, maybe weekly, if the grain has problems we need to monitor."

Grain bin inspection after harvest has become more essential as Kentucky onfarm storage has increased. Here, Extension IPM inspectors work in a grain bin to check for moisture, probe for insects, and spot spoilage problems so sales yields will not be reduced.

After each visit, agents provide reports and recommendations for clearing up any problems that can cause spoilage, such as wet grain, high temperatures, or "hotspots," and insects like weevils, moths, and beetles.

The amount farmers pay for the service varies, depending on the number of bins, the size, and their location. Costs range from about a penny to a nickel per bushel, according to Raney.

Inspection Service Worth Low Cost

Farmers say the service is well worth its low cost, especially if scouts detect problems that could mean an unpleasant surprise at the market otherwise. Howard Martin, a Todd County resident with 50,000 bushels of corn inspected by scouts the last few years, has found the program helpful every year. He's had problems in at least one bin each season, usually with condensation: moisture moves to the top of the grain and forms a crust that prevents air from moving through.

Last fall an inspection turned up a condensation problem in a bin where Martin was storing 25,000 bushels of corn. "We aerated the grain—took out the center portion and turned it around some," he says. "I may have saved $1,000 just by catching it early enough."

Earl Wiles reports that scouts found a hotspot in one of his corn bins last year. He moved out some of the grain and ran fans to cool down the rest. "If I hadn't had it checked, I could have had a lot of corn ruined," he says. "The scouts found the problem quick enough that I didn't even get docked on the corn I pulled out and sold."

Both Wiles and Martin also discovered insect problems—weevils—when scouts inspected stored wheat early last fall. They fumigated bins and prevented their wheat from being discounted at sale time.

Scouts Manage Inspections

With corn, soybeans, and wheat stored in 12 different bins—6 on his farm and 6 on others—Wiles likes the convenience of having scouts manage the inspections. He checks his stored grain some of the time, usually in the winter when he's not as busy. But, like many producers, he doesn't have the special equipment he needs. He has probes, but they aren't as long as he needs and they don't test temperatures.

Scouts use 15-foot probes to check grain in 10 or more spots in a bin, at different depths in each spot. They remove samples and carefully label them. "We can check temperatures all the way to the floor of the bin," states Todd County's agent Templeman.

An inspection may take up to 2 hours. Two scouts, hooked up with ropes for safety, go up in a bin together to minimize hazards inherent in working with grain.

To many farmers, inspecting grain in storage is a time-consuming and somewhat risky job that's better left to trained scouts. But others accompany scouts into the bin to see what problems to watch for and how they can do some checking themselves.

Learning from scouts is a long-term benefit of the grain bin inspection program that many farmers appreciate. Martin, for example, checks his grain occasionally, relying on techniques learned from inspectors. "It's an inexpensive way to learn something that will benefit you for all time," he states.

The expansion of the grain bin inspection program to other Kentucky counties depends on farmers' interest and on their financial picture, according to Raney.

"Some farmers see the service as a cost they don't want to incur," he states. "But a farmer can get his money back many times over if a scout discovers a problem in time." ■

Soybean IPM

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Soybeans are becoming big business in Virginia. Between 1976 and 1980, harvested acreage in the state rose over 50 percent. Integrated pest management (IPM) is helping Virginia's farmers handle and profit from these increases. IPM is saving them money and also improving the environment.

Before he discovered integrated pest management, Lloyd Mundie, a Richmond County, Virginia, soybean farmer used a hit-or-miss approach to insect control.

Then, in the mid-seventies, he learned about IPM from Z. L. "Pete" Newsome, his county agent. At first, Mundie tried to be his own scout and ended up producing only 10 bushels of soybeans per acre. "I didn't get the chemical down soon enough to control the worms," Mundie said, "and one field was not worth harvesting."

Scouts

By the 1980 growing season, Mundie was using scouts, people who check the fields for pests. Consequently, he had to spray only one 60-acre field that year based on what the scouts found. He said, "It was a borderline case and I might have made a good crop without spraying, but I didn't want to take a chance." Mundie farms about 700 acres on his father-in-law's farm and 400 acres on his own farm.

Scouting cost Mundie $2 a field, plus 13 cents an acre for a weekly check. Fields are scouted for 6 weeks during the growing season, and Mundie pays for the whole service in advance. County agent Newsome recruits, trains, and schedules the scouts, and the county office of the Virginia Farm Bureau handles fees and payments to them.

In scouting Mundie's fields, workers report their findings on a form developed at Virginia Polytechnic Institute and State University. At the end of the day, the scouts take their reports to Newsome who checks them that evening. If he finds any serious problems, like a buildup of insects, Newsome immediately calls Mundie so he can spray as soon as possible, often the next day.

Robert McPherson uses a net to sweep a soybean field. His "catch" is dumped onto a cloth so the insects can be counted.

This year, Virginia Tech analysts will feed the scout information from many of the 650 fields in the program into a computer on the campus at Blacksburg, according to William A. Allen, Extension pest management specialist. Data include the size of the insects at various stages, how many insects, degree days, and con-

Top: Lloyd Mundie, Richmond County soybean farmer (left), and Robert McPherson, check the number of insects caught on a shaker cloth in one of Mundie's soybean fields. The cloth is laid between two rows of soybeans and the plants of either side are shaken over it. Both beneficial and damaging insects that fall on the cloth are identified and counted. When the number of damaging insects reach a certain level, spraying is recommended.

Bottom: Richmond County Extension agent Z.L. "Pete" Newsome (right), works with new IPM scouts Troy Mothershead and Mark Bryant.

dition of the beans. Summaries will be made for the Mexican bean beetle, the bean leaf beetle, stink bugs, and corn earworms.

Computer Program

The idea behind the computer program, developed by Virginia Tech systems analyst William R. Ravlin, is to assemble the data in one place where the information can be accessed by both county agents and farmers, either at the county office or on their own computer terminals if they own them. Farmers will know what is happening in their fields, county agents will learn what is happening in their counties, and both farmers and agents will know what is happening in the surrounding counties.

Pest management specialist Allen said farmers are motivated to participate in IPM because they gain more control over insects in their soybeans and they have found IPM feasible economically. "Farmers want ideas that will make them money," Allen said, "and IPM is doing that."

Before IPM, Virginia soybean farmers used three guidelines to help them decide about spraying. First, assuming their soybeans would need spraying around Labor Day, the farmers would contract in the winter for a plane to spray on a given day around that time. On that actual day, however, there might not be any insects in the soybean fields. Second, when they saw a neighbor spraying, they might spray too, and third, if they saw a spray plane in the area they might arrange to have their own fields sprayed.

A study in the early seventies showed that, of the insecticides applied to 1,700 acres of soybeans, nearly 90 percent were applied prematurely. By 1974, Extension programs and scouting had reversed this trend and premature applications in two survey counties dropped to zero. The result: a $5-per-acre saving for the farmers.

In August 1978, Robert M. McPherson, Extension pest management specialist, assumed leadership of the soybean IPM program developed at Virginia Polytechnic Institute and State University. By 1979, use of IPM had cut soybean acres still needing treatment solely by sprays to 35,000 and saved farmers an estimated $700,000. Also, 90,000 fewer pounds of insecticide were being used.

Other Practices

Virginia soybean farmers make use of several kinds of pest management practices. They plant insect-resistant varieties such as Shore, use closer row spacing and biological control, spray less to permit more beneficial insects to survive, and plant trap crops.

Closer rows produce a dense canopy between rows and cut down on corn earworm damage. In biological control, farmers are controlling bean beetles with a parasitic wasp imported from India. In trap cropping, a relatively new program in Virginia, a small percentage of the soybean acreage is planted 2 weeks earlier than the main acreage. This small acreage, sometimes an acre or less, attracts large numbers of overwintering Mexican bean beetles and bean leaf beetles. The farmer treats the trap crop with a granular systemic insecticide at planting or sprays the foliage later to kill beetles before they infest the surrounding fields. Later in the season, the trap crop, which blooms ahead of the plants in the other fields, lures stink bugs to it.

Until last season, the Richmond County soybean IPM program covered only insects. Last summer, David E. Babineau, a recent Ph.D. graduate of the University of Maryland, was added to the staff to develop an IPM program in nematology and plant pathology. A weed IPM program being developed will also be added to Richmond County's program. ■

Computer Uses in Pest Management

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During crop growing seasons Integrated Pest Management (IPM) programs can generate a large amount of information that farmers need to make pest management decisions on their farms. During the formative years of the IPM program, it became quickly apparent that the use of computers was the only way to rapidly analyze and transfer all the pest, crop, and weather information critical to on-farm decisionmaking.

IPM Data in Kentucky

In Kentucky, the 1981 IPM program employed 84 investigative field scouts. They worked in 32 counties monitoring 4,300 fields, scouting through 150,000 acres of alfalfa, corn, soybeans, small grains, and grain sorghum on a weekly basis and recording data on insects, weeds, and diseases.

The Kentucky scouts also collected information on crop growth stage, the date and time of their observations, and cropping history of the field. The history data included previous crops and varieties, the frequency and type of tillage or cultural practices, and pesticide and fertilizer formulations and rates used.

The scouts in this one state program, in one crop season, used 50,000 forms to record information about fields. Some of the Kentucky farmers received more than 500 forms during the growing season. It is impractical, to say the least, for any farmer to summarize this much data for future management decisions.

To help eliminate such data summarization problems, Grayson Brown, of the University of Kentucky Entomology Department, developed a computer data base management system in 1979 which rapidly processes IPM information.

A copy of each of the 50,000 scouting forms is sent to the university for entry into the system. All the information is used to update pest and crop forecast models, and in developing crop, field, farm, county or state summaries.

A new county-based microcomputer system is being tested in Kentucky. The data can be entered at the county level, and the county agent, supervisor, or farmer can request various summaries at any time.

The county information can then be sent via telephone lines to the main-frame computer on the University of Kentucky campus to serve as a backup, to produce state summaries, or for IPM research uses. The county information processed by Extension thus contributes to state IPM research that ultimately feeds back through Extension to increase the efficiency of Kentucky farmers' overall operations and reduce their IPM costs.

Multiple Computers Used in Indiana

Indiana's Purdue Pest Management Program (PPMP) uses five different computer systems in varying degrees. The large main-frame university computer system (a CDC 6500 and a CDC 6600) is used mainly for the analysis of research data.

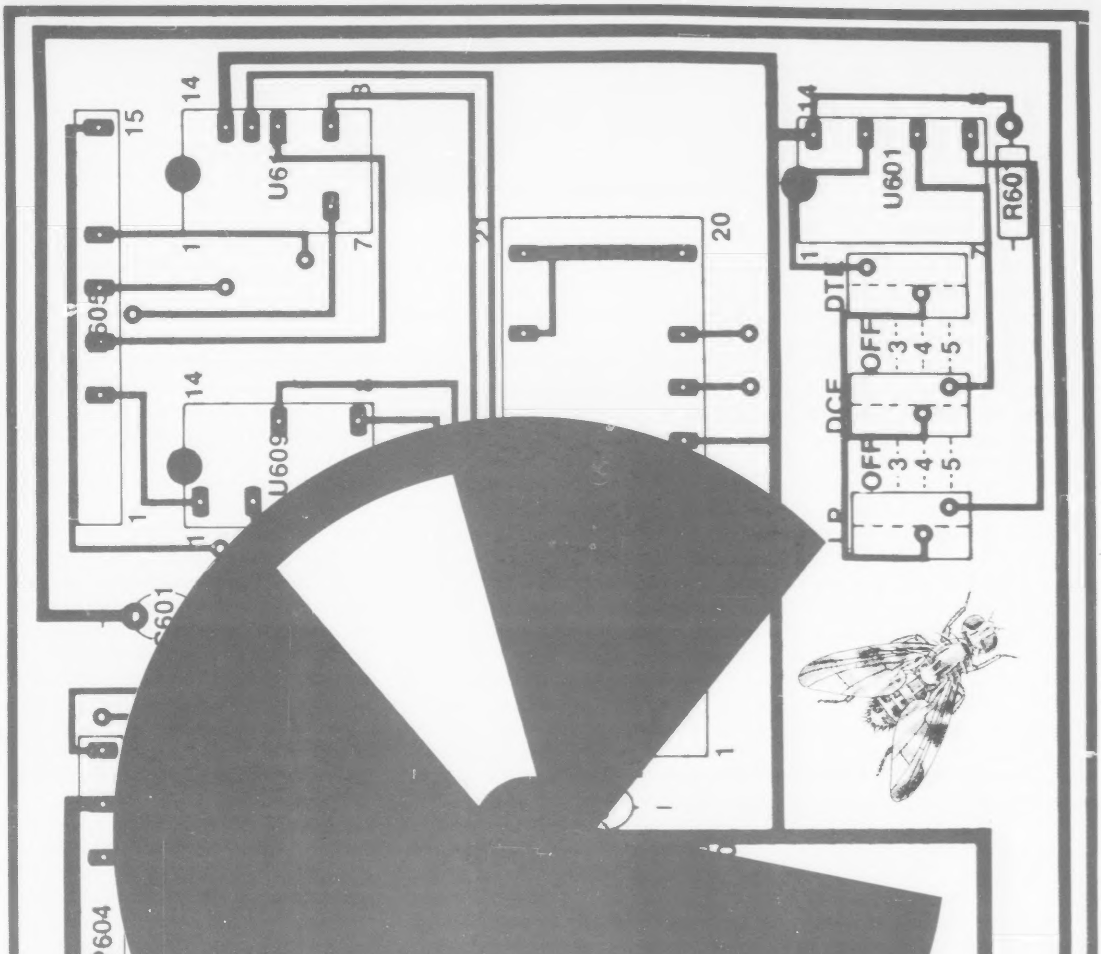
Purdue uses an IBM 360 to maintain the National Pesticide Information Retrieval System. The School of Agriculture at Purdue maintains a computer system known as the Agricultural Data Network. The computers are two PDP 11-45's and a PDP 11-15.

Along with research uses, the National Weather Service offices located at Purdue use the Agricultural Data Network to provide detailed weather information. The PPMP uses this computer system to retrieve daily weather forecasts for all areas of Indiana; 5-, 10-, and 30-day outlooks; and for agricultural advisories that are updated twice daily.

Perhaps the most valuable information the National Weather Service provides includes data on temperature ranges, precipitation, evaporation, and solar radiation gathered from 31 stations in Indiana and surrounding states. This information is used to calculate heat units, growing degree days, and degree days—all the backbone of the PPMP's predictive models.

The Indiana Cooperative Extension Service has established a unique statewide distributed processing computer system called the Fast Agricultural Communications Terminal System (FACTS). The system is made up of a stand-alone computer in each of the state's 92 county Extension offices, the 10 area offices, each of the departments in the school of agriculture, and a PDP 11-70 (known as the front-end processor).

Communications are possible among all of the terminals used in FACTS through the front-end processor at Purdue. The system is also used to transmit regular newsletters and special alerts. The PPMP has also developed a series of stand-alone programs, available in each county, dealing with pest management. These include programs for corn, soybeans, and alfalfa. They also include scouting procedures, scouting calendars, insect keys, diagnostic guides for all kinds of crop problems, and some pest control information.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The departments of entomology, botany, and plant pathology use a program on the FACTS system to store information on all of the samples that come in to their respective diagnostic clinics. This program allows researchers to examine trends in samples submitted, date of first occurrence, area of greatest frequency, and other trends.

The Indiana PPMP recently added a fifth computer system, an Apple microcomputer system. It includes two microcomputers and a shared printer, and is used to develop software, text processing, and research. Development of software is underway to be made available by the PPMP. This aids in pest management decisionmaking at the onfarm level where many farmers are using the small computers.

Cornell's SCAMP IPM Computer System

In early 1978, a computer system became operational at Cornell University under the acronymn SCAMP (System for Computer-Aided Management of Pests). SCAMP is based in the New York State Agricultural Experiment Station computer center at Geneva.

SCAMP links together the Geneva research facility, the Cornell University campus, 27 county Extension offices, and research centers in the Hudson Valley and on Long Island.

The users of the SCAMP system include Extension agents, research and Extension faculty, and scouts. In addition, portions of the computer system are available to employees of the various state agencies, and individuals in the private sector such as growers, field staff, and commercial technical representatives.

SCAMP serves the IPM program in New York in several ways. First, it contains an executive program which identifies the user as a specific type, and allows that user access to certain information. SCAMP also contains data collection programs that allow scouts and IPM personnel the opportunity to store field data about pests and crops. Summary and analysis programs display the data in a form for immediate interpretation.

For example, SCAMP reports field data on the occurrences of apple scab infection periods to a data collection program which moves this information into a program displaying raw data or summarized information. An immediate "picture" of infection periods across a wide region of the state is presented to the user.

Electronic mail is also a feature of SCAMP which permits Extension agents, scouts, IPM coordinators, and other users the opportunity to converse with one another without spending a great deal of time tracking one another down by frequent telephone calls. For example, IPM scouts and Extension agents report pest observations and general crop conditions in a brief narrative form to a program called FIELD.

Research and Extension faculty use these reports to offer interpretation of trends or IPM strategies to agents and scouts through programs called NEWS and STRATEGY. Personal or specific messages are also sent through the electronic mail. For example, an IPM scout with an insect identification problem can send a query directly to the Extension entomologist without entering the general information programs.

Weather programs are among the most frequently used set of programs in SCAMP. Data from the NOAA National Weather Service wire, from volunteer observers, and from a historical climate weather base provide information on weather forecasts and degree-day summaries. Other programs provide information on weather in a raw form from each weather station.

In addition, the weather data base helps form the insect and disease prediction models which are also stored in SCAMP. These models track and predict biological events such as potato late-blight infections, alfalfa weevil development, and the occurrence and development of approximately seven fruit insects. These programs alert Extension agents and IPM scouts to potential problems or pest outbreaks.

Finally, Cornell's SCAMP contains reference information in a program called LIBRARY. This program serves as an on-line source of pest control and agricultural information. Its subject matter is divided into several texts and includes pest control recommendations, monitoring techniques, pest life histories, notification of special phenological events, and the latest pesticide labels from the U.S. Environmental Protection Agency and New York's Department of Environmental Conservation.

From a communication perspective, the SCAMP system allows busy people the opportunity to send and retrieve useful crop protection information in a short period of time.

A $60,000 IPM Computer Program—For Free?

That's what happened in New Hampshire. Federal leadership and funding, coupled with that of IPM specialists and research personnel, created the necessary environment for development of the IPM computer program in New York.




New York personnel developed three documents that included a users manual, an operation systems manual, and a program manual for the SCAMP IPM computer system. The New York personnel also duplicated the master operational tape for SCAMP and delivered the package to IPM Coordinator Alan T. Eaton at the University of New Hampshire.

The same kinds of computers, similar pest problems, and other considerations made the SCAMP program directly applicable for New Hampshire conditions. *Within 20 minutes, New Hampshire had the new free program operational*—and used it successfully during the 1981 growing season.

Tool for Iowa Agriculturalists

The programmable calculator has enormous value for decisionmaking guidance in many areas of crop production, as well as numerous applications in other aspects of agriculture. The Texas Instruments TI-59 calculator was adopted first for use in livestock management at Iowa State University, and applications quickly spread to other areas of agriculture.

The success of the livestock efforts was closely followed by extensive application in fertilizer batching, with much of the leadership coming from the Tennessee Valley Authority. Iowa cooperatives, farms, and agribusinesses have adopted the programmable calculator as a business tool.

Dr. S. Elwynn Taylor, Extension agronomist, has developed 28 programs in crop production and pest management. The programs are used in the TI-59, or Hewitt-Packard 41C programmable calculator. Examples of some of the programs are crop yield calculation, universal soil loss equation, growing degree days (a Weather Service method), center pivot irrigation for applying pesticides and fertilizers, black cutworm damage potential, first-generation European corn borers, corn rootworm beetles sequential sampling, and grain bin management.

Such programs provide farmers, field scouts, crop consultants, and agri-industry personnel a fast, accurate method of answering common questions. The pest management programs provide advice on the value of replanting, loss due to pests if treatments are not made, gain in yield if treatment is applied, and other similar information.

The cost for programmable calculators runs from slightly under $300 to more than $600 when they are equipped with extended memory modules, card readers, and printers. They are ideal for field personnel. They can be easily transported to the field and provide on-the-spot advice concerning crop production and management recommendations. Twelve area crop production specialists, three area IPM associates, and many county Extension staff now have programmable calculators for use in teaching Extension clientele and answering questions with Extension clients.

The annual Iowa Integrated Pest Management Workshop offers an in-depth programmable calculator course in agriculture for a registration fee of $500. The fee for participants includes a Hewitt-Packard 41C calculator and a card reader for it as well as all the programs

The 1981 program was filled with 60 participants who purchased the hardware, programs, and notebooks for use in their own businesses, offices, and on their farms.

IPM At Work Nationwide

Computers in one size or another, in various levels of complexity, are being used in the IPM programs nationwide. IPM is more than chemical pesticide management. It also uses environmentally sound techniques compatible with the production of agricultural commodities and the user's objectives. In many cases, IPM includes biological and cultural controls for all pests.

IPM projects are conducted in all 50 states, in 3 protectorates, and for more than 50 agricultural commodities. Some of the IPM programs are entirely Cooperative Extension Service programs, with advisory committees at the state and county levels. In others, Extension provides the leadership, the education for personnel, and assistance to private consultants.

State IPM coordinators or IPM supervisors keep track of all this activity. The five state examples of computer uses in pest management programs were provided by Harley Raney, Kentucky; William E. Chaney, Indiana; Jim Tette, New York; Jerry DeWit, Iowa; and Alan T. Eaton, New Hampshire.

All five contributors and the others IPM coordinators and supervisors in the other states and territories agree that computer use in their IPM activities allow busy people the opportunity to send and retrieve crop protection information that is meaningful to farmers and other users in a short period of time. And when a rapid pest infestation is confronting a farmer's best cash crop, there is not much time before that farmer must decide what to do about it. ■

Urban IPM—Blooming Across the Country

William E. Carnahan
Agricultural Extension Specialist
Extension Service, USDA

Urban integrated pest management is a people-related program.

Nancy Scoville, a Prince Georges County, Md., school teacher and homeowner, used to employ a lawn service. She dropped it a couple of years ago when she signed up for the Maryland Cooperative Extension Service's urban integrated pest management (IPM) program.

"I figured I could care for the lawn myself at less money than the lawn service was costing," she says.

For $50, a Maryland IPM scout checks Scoville's lawn, shrubs, trees and vegetable garden 15 times during the growing season for insects, diseases and other pests.

The Scovilles then follow the Extension Service recommendations.

Scoville says the IPM program has "taken the guess work out of gardening" for her. She has saved some money by using fewer chemicals, but more important she says, "I have saved some large shrubs that otherwise might have been lost."

John Davidson, Extension entomologist who heads up urban IPM at Maryland, says "the homeowner must be willing to cooperate and to follow our recommendations." He says Scoville has been very good about this and "one look at her yard tells you the program is working."

Map Project

At the start of the program, an IPM scout draws a rough map of the participant's property. The map shows the location of the house and all the shrubs, trees, and other plantings. The scout also takes a soil sample.

Maryland is one of the few states with IPM scouts that make house calls.

On followup visits, usually weekly, the scout checks all plants on the property. The scout also notes poor planting locations and may recommend that some plants be replaced or relocated.

A photo copy of the map is sent each week to Scoville, who keeps all records in 3-ring notebook provided by the program. On the map, the scout notes the pest problems and an Extension specialist makes recommendations for Scoville to follow.

The homeowner also receives a weekly newsletter and gardening publications. The notebook has pages to keep records of spraying, pruning, fertilizing, watering, mowing, and other information. Davidson says, "the notebook provides an excellent history of the person's yard and is most useful the next season."

Top: Patton and Scoville examine insect problems on a landscape map of her property.

Bottom: Urban IPM scout Terry Patton (right), an entomology graduate student at the University of Maryland, and homeowner Nancy Scoville examine a holly bush for insects and disease.

Above: Rose Nolan clips a twig from a maple tree to check for scale insects.

Top right: Nolan, an entomology graduate student at the University of Maryland, checks for insect damage. Scouts wear this IPM T-shirt for identification.

Educational Media

Three thousand miles away in Seattle, Wash., King County, Extension agent Sharon Collman has an urban IPM program too, but she uses no scouts. She keeps her audience up to date on pest management in the garden primarily through short courses, the mass media, and recorded telephone messages.

Using these educational media, Collman reaches homeowners, nurseries, garden centers, and pesticide applicators. The agent also writes a newsletter and columns for trade journals and newspapers.

"I don't expect to have a scout program," she says. "I'm trying to reach my audience with educational materials."

Collman believes nurseries and garden centers are putting less emphasis on chemicals. She said, "there is more precise timing and more precise selection of pesticides, so that those pesticides that are used are used properly."

Extension agent Collman was one of 85 people from 35 states who met in Dallas last November for a 2½-day workshop on urban integrated pest management. She and five others were interviewed about their urban IPM programs. Here's what they had to say.

Gary Bennett and Phil Koehler, Extension entomologists in Indiana and Florida, are concentrating their urban IPM on cockroaches in low-income housing projects in Indianapolis and Orlando.

An integrated approach to fighting cockroaches means getting families to cooperate by sealing access routes such as cracks and crevices, and around doors, windows, and pipes, and other places roaches enter.

Before the program, surveys showed an average of 120 roaches per week in the Florida apartments and as many as 200 per night in the Indianapolis apartments. After 18 months, the Florida roach count was down to fewer than 20 per week and, in Indianapolis, the count dropped to about 25 per night.

Another aspect of the integrated approach is to get all the tenants in an apartment building to cooperate in the control program. In some extreme cases where tenants will not cooperate, they are evicted if the roaches constitute a health problem. In others, peer pressure works to get the cooperation.

Turf Care

Arthur Bruneau, Nebraska Extension IPM turf specialist, uses an integrated approach to turf and lawn care in his state. This includes the use of improved grass varieties, proper mowing, watering, and fertilizing to help prevent pest problems, and the use of chemicals only when necessary.

Bruneau says some major lawn care companies are looking at IPM because their goal is to produce an acceptable turf. He says it is to their benefit and their customers' too, if they can get by with only one or two chemical applications a year rather than three or four.

Sharon Collman, King County Extension agent, Washington

Gary Bennett, Extension entomologist, Purdue University

Arthur Bruneau, Extension IPM turf specialist, Nebraska

One lawn care company is monitoring pest activity and putting the data into a computer. The data are recorded weekly and listed by zip code. Bruneau says this method gives a good fix on areas where problems are developing.

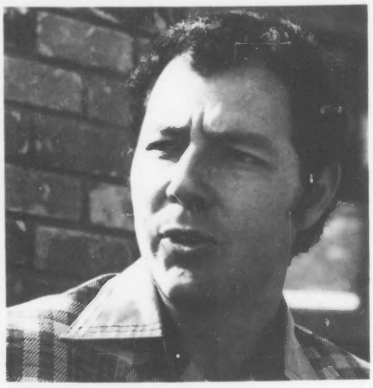
Like most Extension specialists, Bruneau uses mass media regularly. He participates in a live, hour-long television program on home horticulture called, "Backyard Farmer." During the show, viewers are invited to call in questions.

John Hartman, Kentucky Extension plant pathologist, combines turf IPM with a program for landscape ornamentals. His program, underway since 1980, aims at managers of institutional landscapes and commercial horticulturists such as lawn care companies, arborists, nursery owners, landscape contractors, and garden centers.

Hartman says grounds maintenance personnel and commercial horticulturists "benefit from this IPM program because their competence and confidence have increased." This transfer of expertise, he says, has resulted in maintenance of better plant health, and hopefully will reduce plant replacement costs.

"The key to a successful IPM program is the county Extension agent," Hartman says. The agents supervise the scouts, make reports and recommendations to users, and write and distribute newsletters. They also get the word out on IPM via newspapers, radio, and television.

Philip Koehler, Extension entomologist, Florida



John Hartman, Extension plant pathologist, Kentucky

Nancy Adams, agricultural agent in Rockingham County, N.H., does not have an urban IPM program, but plans to start one this spring.

She has a commercial IPM program for sweet corn, apples, and cole crops, and believes it will be easy to expand on these crops in home gardens since "we have pretty good monitoring techniques already set up."

Adams plans to work with a dozen homeowners and will train them to be their own scouts. With these homeowners, she conducts evening training sessions in crop culture, and pest identification and control.

Adams will visit homes weekly to get the homeowners started, then visit them about once a month as the season develops. She plans to hire no scouts.

In addressing the Dallas workshop, Texas Extension Director Daniel C. Pfannstiel said, "One of our main

Nancy Adams, Rockingham County (N.H.) Extension agent

challenges is to serve with educational programs the diverse user groups found in the urban sector. The challenge is to adapt educational programs which benefit the most people through traditional county Cooperative Extension Service offices.

Urban IPM is doing that. ■

Working Cows

Ed Bible
Communications Director
American Polled Hereford Association
Kansas City, Mo.

Morgan Jones claims he's a "farmer by trade," but his is no ordinary farm. It is a model of how intense management can mean success in the commercial cow business.

Nestled in the heart of Tennessee's picturesque Sweetwater Valley, Jones began shaping his cattle operation 18 years ago, buying parcels of farmland near the town of Sweetwater. He and his wife have purchased some 350 acres since then. Their business uses a program based on sound forage management, performance testing, and Hereford bulls.

"I was raised around white-face cattle," Jones says, "and decided 'way back that I wanted to develop the best herd of commercial white-face cows I could. We started with a bunch of scrub cows back in '63 and just kept building the herd with better and better bulls."

"We started on the Tennessee Beef Cattle Improvement Program in 1977," Jones says, "and it's the one single thing that has helped me make money. My county Extension agent, Robert Sliger, helped us set up the program, and it's made a big difference. For instance, I sold this year's calves at an average weight of 525 pounds. Last year they weighed 470."

The herd now numbers around 75 head, and Jones is still working toward his goal of "having bigger calves to sell in the fall." His calves are marketed through the local Smoky Mountain Feeder Calf Sale, with replacement heifers retained from within the herd. And every cattle decision is based on performance records recommended by the county agent.

Agent Contact

Agent Sliger frequently calls on Jones because of the cattle producer's willingness to accept and demonstrate recommended production practices.

"Morgan always uses performance-tested Polled Hereford bulls because he knows the value of identifying top animals," says Sliger. "We've also conducted demonstrations here on implanting, worming, and fly control. The results from this farm are helpful in our education effort throughout the county."

Performance testing is used in every phase of the cattle operation. But selection, cow culling, and replacement heifer selection are all based on what Jones can see in black and white.

"We haven't bought any cattle, except bulls, since 1974," Jones says. "And when we buy or lease a bull, we're looking for one that will give us more pounds to sell and heifers that will milk."

Selection Process

Sliger explains that heifers go through their first selection step at weaning. "We start with the heifers that are above average on weaning weight. Then we sort out the 'shorts' and other problems, taking a close look at frame and soundness. Then the heifers that are kept are assigned to either group A, B, or C."

Jones wrings all the information possible out of his cows with this system. Group A cows are those which have produced calves with the highest weaning weights, and of the three bulls he uses each year, the top performer goes with this group. Group B cows are average and he breeds them to the bull whose records aren't quite so good. C cows, the bottom cut, are bred to produce terminal calves. Jones keeps no replacements from the C cows.

Expansion Plans

Jones says the kind of cow he likes best is "one that gets old here on the place. That means she's a good producer.

"I keep cutting the bottom end off, but I'd like to expand to around 90 cows. With my son away at seminary, I've got to make every move count."

Jones has found that implanting steers gives him a 20-pound-per-head increase in weight and that worming jumped his calves' daily gain by three-tenths of a pound, compared to the untreated calves.

"I want to wean 600-pound calves," Jones says. "I'm staying with a program that I hope will develop the kind of cow that will do that—just plain workin' cows. But to do it, I've got to use the right kind of bull. I've used bulls out of the University of Tennessee Tested Bull Sale, the local bank's bull leasing program and from area Polled Hereford breeders. They've got to show good weaning weights and we particularly need frame."

Sliger says that the county's cattle producers have seen the framey calves bring a dime (per pound) more than the shorts. "That's 50 bucks on a 500-pound calf, and Morgan was one of the first to start using bulls that would give him the right kind," the agent says.

Jones bases his future on this "right kind of cow." He's optimistic about the long-range future of the cattle business. He also knows that the best way to market the grass from his place is through cattle and he's depending on Hereford bulls and a strong farm management program to keep him in business. ■

IPM: Attacking Animal Pests

James K. Wolfe
Writer/Editor
Extension Service, USDA

IPM is involved in the long war between farmers and consumers and certain species of insects, rodents, and other pests that infest our domestic animals as well as compete for our crops.

About 10 years ago, the concept of integrated pest management (IPM) began to gain acceptance as an effective strategy. IPM is generally conceived as a combined use of chemical, cultural, genetic, mechanical and biological methods for effective, economical pest suppression. These control techniques must be environmentally sound and compatible with production and user objectives. The IPM approach brings together many disciplines—combining extension and research functions—to economically suppress pest infestations.

Pest control for domestic animals based on the IPM approach is assuming increasing importance in the states. Cooperative Extension Services' IPM programs are developing successful techniques for controlling pests on livestock and poultry.

Swine Pest Project

One of the IPM projects of the Nebraska Cooperative Extension Service, University of Nebraska-Lincoln, focuses on the rodents and birds that consume and contaminate livestock feed, cause structural damage to buildings, and spread diseases to livestock and humans.

Program personnel have given particular attention to house mice and Norway rats around swine confinement units. The rodents destroy insulation with their incessant gnawing, tunneling, and nest-building, necessitating, in many cases, expensive repairs. The Extension scientists collect and summarize information on the extent of damage these rodents can cause in various situations and are developing guidelines to aid pork producers.

Various control methods have been evaluated in onsite studies. Publications containing control techniques have been developed for distribution to producers through county extension offices. Techniques of preventive control include rodent- and bird-proof construction plans; reduction of feed, water, and nesting sites; and such timely applications of population reduction methods as trapping and poisioning.

Cattle Pests

A recent pilot project at the University of Nebraska demonstrated the feasibility of pest management at cattle feedlots and dairies. The program was aimed at preventing or reducing fly breeding at feedlots in Dawson and Lincoln Counties, and sanitation was the major fly control element.

Fly population reduction was accomplished by cleanup and removal of breeding sites and also by feedlot design modification and by redesign of drainage systems.

Dense fly populations are implicated in the spread of disease. They also cause cattle to go off feed, and lead to reduction daily weight gain. Additionally, flies can cause cattle to bunch, and this can be dangerous in hot, humid weather.

In Riverside, Calif., a CES-integrated pest management program at the University of California has been aimed at the control of filth flies (the housefly, lesser house flies, stable flies, and blow flies) associated with animal confinement operations.

Cooperating with counterparts responsible for fly control on urban and industrial wastes, the university began an Agricultural Sanitation Program, which includes "FOD" (flies, odors, and dusts) problems associated with animal wastes.

Studies developed from the Agricultural Sanitation Program showed that, with proper stocking rates, dusts and odors could be controlled in feedlots without increasing the production of filth flies.

Other studies demonstrated that the need for frequent use of insecticides for fly control by livestock operators has resulted in resistance to chemicals by numerous fly pests. A monitoring center for fly resistance to insecticides, established at Riverside, Calif., has been producing data that have guided recommendations for insecticide use in critical areas and on certain livestock and poultry operations.

The Agricultural Sanitation Program operates on a local level. Fly control and nuisance control committees, representing major commodity groups, governmental agencies, and university farm advisors, cooperate on issues that concern waste management methods, and make recommendations for IPM procedures. University scientists and specialists may be called upon for advice on special problems. As a result of the program, livestock owners are finding that it pays to improve the health, welfare, and living environment of their livestock.

Poultry Pests

North Carolina State University CES is using an integrated approach to manage pests of concern to the poultry industry in the state.

The objectives of the IPM program are to develop effective controls against external parasites biting

flies, mosquitoes, filth flies, rodents, and feral birds.

North Carolina Extension staff members are attempting to measure the economic costs and benefits of the program for producers. And, to ensure that continual pest management services are available to the producer, they are training cooperative producer groups and members of private farm organizations in IPM principles.

A key element in the North Carolina IPM program is accurate and timely monitoring. A pest management agent visits each farm weekly or biweekly.

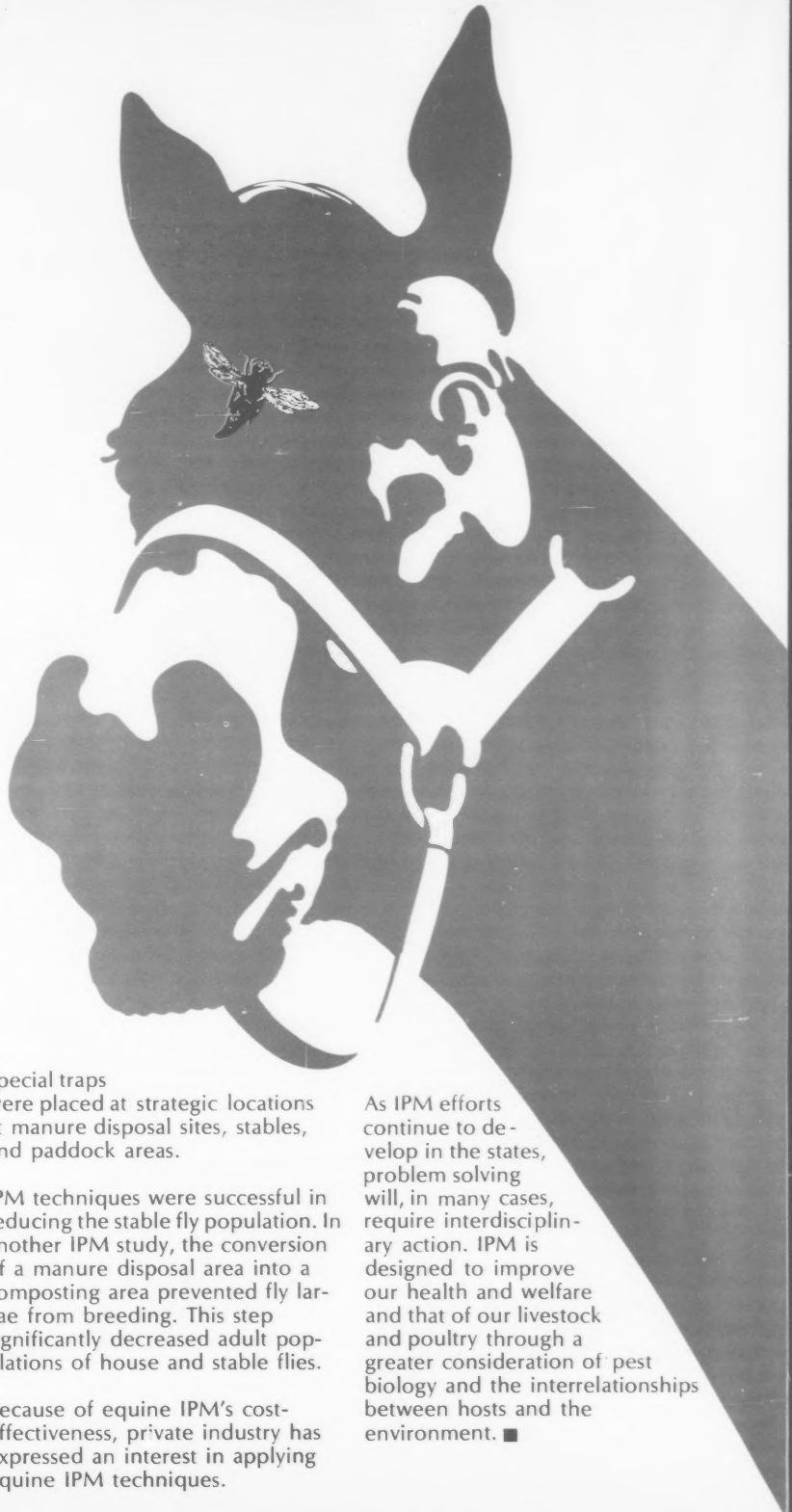
During these visits, the agent inspects the birds, buildings, feeding equipment, watering systems, and manure. The pests are identified, their population densities are determined, and recommendations on control and pest management are made.

IPM for Horses

Florida's horse industry has been rapidly expanding in the past 10 years; there are currently 238,000 horses in the state. In Florida, and throughout the United States, large equine facilities may provide ideal breeding habitats for both stable and house flies that threaten the health of horses and people.

In 1979, an IPM program was established and implemented at a large equine facility in South Florida. The program was a cooperative effort between the University of Florida CES and the Agricultural Research Service of the U.S. Department of Agriculture.

The IPM program was initiated to determine the prevalence of stable and house flies and the effectiveness of different fly control strategies.



Special traps were placed at strategic locations at manure disposal sites, stables, and paddock areas.

IPM techniques were successful in reducing the stable fly population. In another IPM study, the conversion of a manure disposal area into a composting area prevented fly larvae from breeding. This step significantly decreased adult populations of house and stable flies.

Because of equine IPM's cost-effectiveness, private industry has expressed an interest in applying equine IPM techniques.

As IPM efforts continue to develop in the states, problem solving will, in many cases, require interdisciplinary action. IPM is designed to improve our health and welfare and that of our livestock and poultry through a greater consideration of pest biology and the interrelationships between hosts and the environment. ■

Seafood Processors Practice Pest Control

William H. Robinson
Extension Entomology Specialist
Virginia Polytechnic Institute and State University

Insect and rodent pests pose serious threats to the sanitation and quality-control standards necessary in seafood processing. Each establishment has its own special quality-control standards and the means to achieve them. Many seafood plant operators and managers prefer to assign one or two staff members to handle pest control (inhouse program). Others employ a professional pest control service (professional program) to handle this task. Whether plant staff or outside professionals provide the service, the most important consideration is that a pest control program be chosen.

At Virginia Polytechnic Institute and State University, our staff has begun work on an integrated pest management (IPM) program for seafood processing plants. The program, funded by the Virginia Sea Grant Program, integrates the principles of sanitation, physical/mechanical control, and chemical control through educational materials and training sessions.

Modern seafood processing establishments must comply with high standards of sanitation and pest control because of regulations and consumer expectations. Consumers expect pure, wholesome seafood products that are prepared, processed, stored, and served in a sanitary and pest-free environment. Failure of seafood processing plants to meet proper sanitation and pest control standards and other food and health regulations may incur costly regulatory action, unwanted publicity, and loss of revenue.

We held a pilot training session with seafood processors on the Virginia Eastern Shore to get their feedback before having further training workshops for other seafood processors. At this workshop, led by Marine Extension agent Tim Rippen, stationed in Hampton, I talked with the processors about their methods, showed them new types of equipment, and explained new methods of pest control. The processors later said they found the information practical and said that they had not gotten this from anywhere else.

Our program contains a set of training-resource manuals for seafood processing plant managers and pest control personnel. These manuals accompany a training session for managers and persons who will be handling pest control.

Pest Management in Seafood Processing, completed and available, presents the principles and benefits of IPM, contains a brief review of pests common to food processing plants, and lists the best chemical and nonchemical methods of control. The manual details how to select a professional pest control service and design an inhouse pest management program. Single copies are available from Chieko Hebard, Department of Food Science and Technology, Virginia Polytechnic Institute and State University, Blacksburg, Va., 24061.

Pest Management Programs for Seafood Processing and the accompanying training session, both being developed, will help the personnel responsible for the prevention and control of pests in the seafood processing plants. Emphasis will be on helping these staff members design and carry out pest management programs. The manual will contain extensive details on pests, application methods, safe use (mixing and storage), toxicology of commonly used insecticides, and graphics illustrating how and where to spray.

We plan for the two manuals and training materials to be used in local, regional, and national training sessions. Marine Extension agents in Virginia are helping to organize groups of small, family-owned operations, and large processors for the training sessions.

Control of insect and rodent pests of food processing operations has depended almost entirely upon the use of chemical pesticides. Changes in Federal regulations, in material costs, in safety standards, and in some cases, in the pest species or the behavior of existing pests require re-evaluation of the strategies and tactics of pest control. For example, several cockroach species are *resistant* to standard insecticides used for years, and some cockroaches display *avoidance* to some of the new insecticide formulations.

Controlling cockroaches and other pests with chemicals alone is becoming increasingly more difficult. Continued dependence on chemicals for control of pests will increase the occurrence of insecticide and rodenticide resistance in the pest population—and may result in an uncontrollable increase in that population. The traditional approach to pest control—chemical pesticides—must yield to a pest management approach. ■

Marketing Cattle Board Auction Style

Daniel Linton, Jr.
Cooperative Extension Service
Auburn University

Last year, Alabama cattle producers saved approximately $850,000 by merchandising their cattle board auction style.

The board auction system, a joint program of the Alabama Cooperative Extension Service and the Alabama Cattlemen's Association, provides producers with a vehicle to demand and receive top market dollar for superior produced, packaged, and merchandised animals.

"There must be a better way to market feeder cattle than selling them one at a time," said Harold Johnson, as he took a seat in my office. As president of the Alabama Cattlemen's Association, Johnson had traveled throughout the United States visiting with producers to discuss the industry's problems and opportunities. The cattle producer heard about and saw sick cattle arriving from Alabama. He was also aware that these animals were not sick when loaded out from the farm.

Our challenge to the Alabama Cattlemen's Association and Extension was to change the feeder cattle marketing system to benefit buyers, sellers, and livestock.

Beginning

Our first meeting centered on volume sales of farm-fresh feeder cattle of uniform weight, quality, breed, and sex. Since Alabama's cattle industry is made up of small family farms with brood cow herds of less than 25 head, volume merchandising was needed. This detail didn't worry Johnson. He had an answer—invite a group of central Alabama cattle producers with large operations to merchandise cooperatively. We met with seven cattlemen and together fashioned a set of guidelines and regulations to merchandise feeder cattle directly from the farm in volume lots. Considerable resistance was raised from the traditional marketing industry, but it did little to change the direction of the seven innovators.

Here's how the board auction works: A couple of days before the sale, sellers escort prospective buyers to their farms to view sale cattle sorted into uniform lots according to sex, weight, and grade. Buyers want cattle in truckload volumes, so 60 head is usually the minimum consignment.

During the sale, cattle remain on the farm and bidding takes place in either a local auditorium or motel, or the Alabama Cattlemen's Association headquarters in Montgomery.

During the bidding, many buyers keep telephone connections open to feedlot operators in the Midwest. Buyers can attend one sale and have the opportunity to do a week's worth of buying in an hour.

Within a few days after the sale, successful buyers send a truck directly to the farm and pick up the cattle. Within 12 to 14 hours after the calves leave the farm, most of them are eating in a midwestern feedlot. The buyer saves a big veterinary and drug bill for sick, off-feed calves.

And, buyers are willing to pay a premium for these calves.

Since the first sale, over 35,000 head of feeder cattle have been sold by this association. Savings of this group have been conservatively figured at $50 per head or $1,750,000 during the past 10 years.

Contributions to value, which increased producer income were: animals of superior quality, conditioned feeder cattle, farm-fresh, uniform size, uniform packaging, large sales, truckload lots, expeditious selling, alternative shipping dates, and cattle of high reputation.

In relation to traditional marketing, the board auction sales have given the innovators the following advantages: 2- to 5-cents-per-pound price advantage, 4- to 6-percent shrink advantage, marketing charges of only $1 per head, no transportation charges, and alternative shipping dates.

The first organization, the Southeast Alabama Cattle Marketing Association, went it alone against many odds for the first 5 years, and it originated the board merchandising system in Alabama. Now, the seven original members serve as

resource people to assist Extension in helping other cattlemen who want to change their marketing system. To date, five specialized feeder cattle organizations involving 140 members are in operation in Alabama and other groups are presently getting organized. In 1981, 17,000 head of quality feeders were merchandised through the board system from April 28th to May 29th. To refine the program further, Extension provided the guidance to organize the associations into a state marketing organization so that economics could be gained in advertising and other operational methods.

Spinoff

As Extension refined the cattle board merchandising technique, new avenues were open towards expanded assistance. A new program called Stocker 700 was initiated to provide cattlemen with the know-how to take lightweight animals (300 to 400 pounds) to heavier weights (650-850 pounds) on cool-season grazing. Interest was developed in planting wheat, rye, ryegrass, and clovers during the fall and winter to provide feed for feeder cattle. Health programs, including a health seminar which about 200 attended, were expanded to provide knowledge and technical advice to producers on care for young animals to eliminate stress and to provide a more valuable, healthier animal at time of marketing. ■

We Organized By The Numbers

Ted B. Smith
Dale County Agent
Alabama

Thinking about organizing a board auction cattle sale? You can't do it overnight. You have to start at least 12 to 18 months in advance. Extension Livestock Marketing Specialist Dan Linton in Alabama has a schedule of things to be done 12 months before a board sale.

The first move is to contact cattlemen in your county or area who might be interested in finding a way to better market their 600- to 800-pound animals for $20 to $40 more per head. Explain to them what a board sale is.

If enough interest is available to move further, encourage cattlemen and some agribusinessmen to attend a board auction. This will give cattlemen a chance to see how the auction operates, and an opportunity to talk with their counterparts who have experience in dealing with this type of sale.

Be sure to involve your agribusinessmen in the effort. You can't succeed if you don't have their support. Wendall Murrah, Wiregrass Production Credit Association president, and his field men have been most helpful in our efforts.

In organizing our sale, a group of cattlemen who participated in the Central Alabama Marketing Association came and explained the program to our producers. Wiregrass PCA sponsored the meeting. They gave the pros and cons of a board sale. This would be a good idea for you to use in promoting the idea of a board sale. Then if there is still enough interest, form an organization. Elect officers and get the ball rolling. We found 20 producers from six Wiregrass counties who were interested in the program. The Wiregrass Cattle Marketing Association was organized, and April 9, 1980 was set as the date of the first sale.

One of the main reasons a sale of this type is made in the summer is that cattlemen must administer special treatment to livestock from fall until sale time the following spring. A special health program is a must. To emphasize its importance, we held an animal health workshop for all producers.

Our producers realize that organizing as a group and selling a large number of feeder cattle in uniform lots will attract feedlot buyers. Therefore, their cattle will bring 2 to 3 cents more per pound—$15 to $20 more per head. ■

Extension Goes Cable— in Suffolk County, N.Y.

Betty Fleming
Program Leader, Communications
Extension Service, USDA

The lights are on, the cameras are rolling, and there is plenty of action in Suffolk County, N.Y., where Extension staffers are using their resources and imagination to produce a television program seen by thousands of viewers.

The show is called "C. E. News," and according to Suffolk County Coordinator Dan Fricke it is reaching 40 to 50 percent of the total population of Long Island, both Nassau and Suffolk counties.

Produced in a news-style format, "C. E. News" is 30 minutes in length with four to five segments ranging from 2 to 8 minutes for each biweekly show. Topics have included tips on renting apartments, a 4-H International Festival, a group discussion on stress, and a bantam rooster contest with music.

"We recognized 5 years ago that most of our traditional-type Extension programs went only to traditional groups," says Dan Fricke. "We had to break out of the mold and reach more of Suffolk County's 1,300,000 increasingly urbanized and suburbanized population. We decided we needed high impact programs that were more visible and we needed to do a better public information job. We have 32 radio stations, one daily and 75 weekly newspapers, and seven cable systems on Long Island. We're trying to make the best use of them we can."

Media Method

These concentrated efforts began in the late seventies when the county hired a communications specialist. He purchased an inexpensive home video-type camera but little was done with the camera at first. A CETA aide, Louis Turner, hired to do layouts and art for publications, volunteered to try some video production. In 3 months, he was producing shows. Turner grew up in a video-oriented home. His father is in TV service work and there was a home video camera in the Turner home which Louis Turner used for hands-on experience. The Extension TV opportunity continues to open new doors for Turner and everyone who comes in contact with the "C. E. News" show.

A communications specialist, Bob DeMattina, hired in 1980, looked at the single-topic 15-, 20-, and 30-minute shows that Turner was doing and suggested that they take a news approach. They decided to do a visual panorama of what's going on in Extension to inform people, encouraging them to contact Extension for more information.

There is no commercial broadcast TV on Long Island, although some networks now have limited news bureaus there. New York City is 70 miles away and people living in Suffolk County need cable TV to get good commercial TV reception. Suffolk County has fewer cable offerings than Nassau County, which is closer to New York City, more urbanized, and in a more competitive TV situation. The opportunities for Extension to get in on the ground floor in Suffolk County were (and are) tremendous.

Financially, Suffolk County Extension is in good shape. Part of the million-dollar budget comes from local sources, including a county farm where Extension conducts recreational and educational activities, provides vocational employment training for inmates in county correctional facilities, and produces food for distribution to local agencies. Suffolk County Extension has the largest staff (68) in the state. There are 20 professionals on the staff, many with specialist ranking.

Producing a regular, biweekly cable TV show is not easy. Getting the staff committed to such a large venture is a major challenge. The production budget can be described as "shoestring," but maybe that's what makes this such a remarkable story.

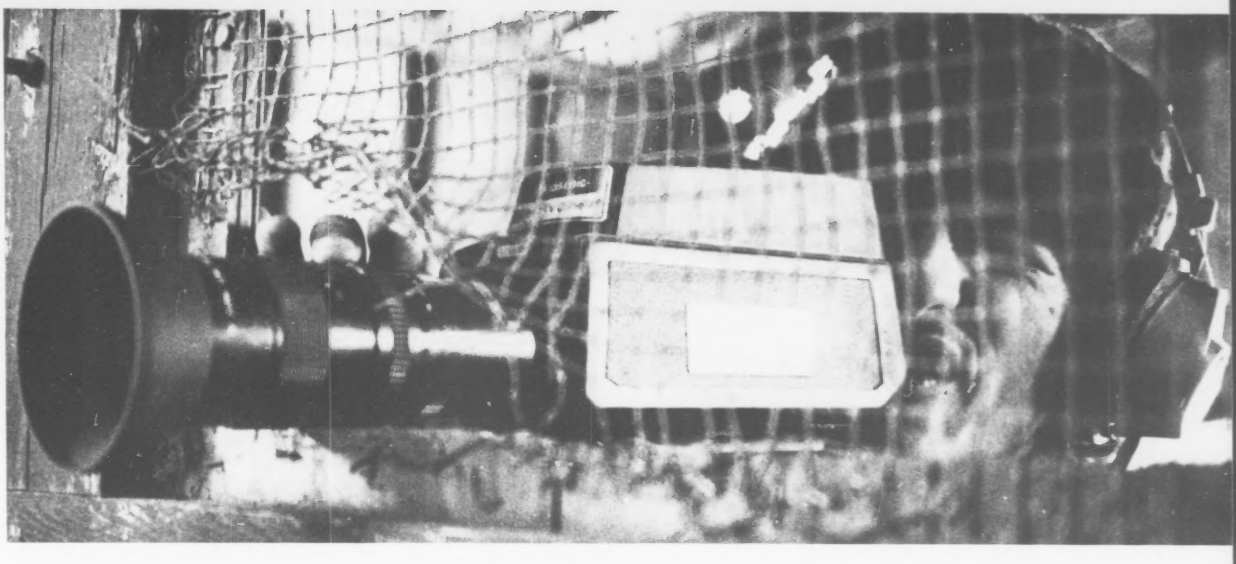
To do the first program, Turner used the cheap camera that was on hand (and is still the mainstay of the operation), a set of four lights, and a portable recording and playback video unit borrowed from Cornell University. The first program took a lot of staff orientation time, a simple outline (no script), 2 day's shooting, and a day of editing at Cornell (which involved 2 days of travel because Cornell is 325 miles away). Turner says, "We're doing a regular show that cable stations like and use with the cheapest equipment you can get."

Recent improvements include the purchase of a bottom-of-the-line editing setup with an editing controller so Turner can edit in his crowded basement office (which also serves as a hastily assembled studio).

Planning and scripting "C. E. News" now takes 2 to 3 days, plus 3 to 4 days of shooting, and 3 to 4 days of editing because there are more topics and the show is faster paced than before.

C. E. News Content

The shows are targeted to the general public so each show must contain information to appeal to many people. "We can't promote current or advance events because the shows air over a period of months," says Turner. He likes to take a traditional or familiar subject and find a new or surprise angle to it.



Some recent topics include: a flower clock auction, solar heating tips, car care, bike safety, nutrition for young people, toy safety, jeans buying, new tire regulations, master gardeners, and activities from the county farm such as a goat or poultry show.

The Process

The process for doing "C. E. News" is simple. Staff go to Turner with their ideas based on current programs.

Next, either the agent or Turner (or both) complete a script or outline. Turner then plans a production schedule and prepares cue cards (if necessary), shoots the tape (directing as he goes), edits the finished product and "markets" it, with Bob DeMattina's assistance, to cable companies.

The Budget

Dan Fricke estimates that Suffolk County now has almost $25,000 in TV production hardware, they spend $5,000 to $6,000 each year on tape, and another $5,000 to $6,000 on new equipment or repairs, although Turner is handy there. Turner works full time on the project. DeMattina spends 5 to 10 percent of his time on it. About $100 worth of tape and other incidental expenses go into each show.

C. E. News Promotion

Extension promotes its cable TV show through three of its own publications: "Suffolk Living," "4-H Sounder," and "Suffolk County Agricultural News." These get the word to 14,500 families. Cable outlets publicize the show in their publications such as "Cablevision" which goes to 180,000 homes. Suffolk agents all spread the word about the show through news releases and personal contacts, and they get support from a nonprofit group called "Teli-Community," designed to encourage the use of public access TV.

Other Media, Too?

Suffolk County Extension has a strong commitment to cable TV, but it also plans to use other media. Bob DeMattina has radio broadcasting in his background (along with teaching and PR experience). He surveyed local radio stations and now has a "network" of eight stations that have adopted their very own exclusive Extension "voice." Each of the eight assigned agents prepares one or two pieces of radio copy (30 to 60 seconds), each month.

In addition, DeMattina has taken on a leadership role in developing the county's new dial access system, called "Tele-C.U.E." "I see my role in things like this as developmental," he says. "I train others to take over and move on to other ideas."

To plan these efforts, plus the special events that go on in public places, he works with an administrative group made up of Fricke and the Suffolk County program leaders to set priorities. "We also work out communications plans (and problems) in monthly staff meetings," he says.

C. E. News Spinoffs

When the county interviews candidates for positions, board members and staff look for people who are willing and eager to do media work. "They don't always have to have experience," Fricke says, "but it would probably be a good idea to make sure that's included in every job description/advertisement in the future."

Another spinoff of the project was the 1981 "video annual report" shown to a packed hall of 500 people, including the county's board of directors and advisory committees.

Evaluation

Evaluating any media effort is a tough job. Each "C. E. News" is aired a minimum of 20 to 25 times on the seven cable systems in Long Island. It is shown a dozen or more times in Riverhead alone, where 21,000 of the 50,000 residents have cable.

Top: Samuel Sabin, state horse Extension specialist in New York, films a recent segment of C. E. News in which he offers some tips in buying horses.

Bottom: Louis Turner moves in close for a shot of Wanda Mead, home economics program leader (left) and Margaret Happel, a nutrition expert.

Dreams for the Future

Suffolk County staff listed their ideas for the future. Here are a few:

- Sponsors for the show. (Suffolk staff members are talking to other states about their experience in this.)

- Grants.

- A low-power UHF station to produce *and* air shows.

- Volunteers to help promote the shows, maybe produce the shows.

- A broadcast-quality camera in the $15,000 range, plus other new equipment to speed up the shooting and editing process.

- A statewide (New York) show with other counties participating and preparing topics, some of which could be useful to all.

- Portable TV delivery equipment so that staff can use pretaped video segments from "C. E. News" at meetings.

- A New Jersey, Connecticut, Pennsylvania, and New York pool of funds and other resources to do more cable TV on a regional metropolitan area basis.

- Regional production facilities (maybe in southeast New York) supported by contributions from counties and states. The idea is that more counties could get access to TV equipment and production facilities for production of cable TV programming, and library tape could be shared for all to use.

- Shared public service announcements. Suffolk staff has used many Cornell spots on their show. They'd be interested in learning what other states have to offer.

Can Other States Do This?

Suffolk County staff believes others can and should be doing cable TV production. "While it's certainly not advisable or cost effective for every county to do this," says Dan, "if we found ways to pool resources on a state, regional and even national basis, we could be out front with some new communications technology."

What's needed to do this in other States? Here are some tips for others.

Key Success Factors

—*Administrative people* at local and state level. These must support, encourage, and find ways in which people can produce exciting products like "C. E. News."

—*Some funds to secure equipment.* Turner says that if people are handy and can repair and recycle equipment, they could begin with an investment of $20,000 and produce a good show for cable TV. Before you buy equipment, be sure to get recommendations from others. Plan for the future with investments, if possible.

—If training is needed, get it. There are courses, usually, at local colleges, or, through Extension inservice training.

—Identify local cable stations and study their formats so you can design your show to meet their needs and interests.

—Develop marketing skills to "sell" your show to cable operators. Personal contacts count! ■

Canoeists Explore County Water Resources

Mary W. Lomolino
Cooperative Extension Service
Binghampton, New York

One brisk Sunday morning, 33 hardy souls paddled from a park north of Binghampton, the county seat and largest city, for a 3-hour canoe trip. Moving "en masse" down the Chenango and Susquehanna rivers, they discovered how water resources were affected by various human activities.

The importance of water resources has become increasingly apparent to the Broome County residents of New York. Toxic chemicals were discovered in a number of municipal wells, forcing residents to boil drinking water. This practice continued until affected municipalities could install expensive carbon filtration systems or bring new wells into use.

This area of New York is normally subject to flooding, and structures to prevent this are evident throughout the county. However, few residents realize that impounded water areas in county parks are important links in an overall flood control network. Urbanites stroll by concrete floodwalls and walk on grass-covered levees, often without recognizing their function or significance. The risks and benefits of various human activities in the flood plain seldom draw attention and are poorly understood by a majority of residents.

Unique "Class"

Cooperative Extension and the Environmental Management Council, a group charged with reporting to county government on local environmental problems, recognized that citizen education on local water resources was lacking. Together, they devised a unique means of putting this "big picture" in perspective. They offered to any interested citizens a free canoe trip on the major waterways, the Chenango and Susquehanna rivers. The group discussed a wide range of water-related topics. These included drinking water, flood protection, flood plain filling, wastewater, industrial use, recreational values, wildlife, and vegetation. Local experts were invited to join the "expedition" or meet the travelers at designated stops to share their outlook on the resource, its problems and potentials. Newspaper and radio publicity made the trip a sellout. This novel approach was intriguing enough to draw a reporter and photographer for the entire trip.

Many Surprises

Discoveries were varied; many people were surprised to see great horned owls and wood ducks thriving in an urban area. Others learned that, while some municipalities get water from wells, Binghampton utilizes the river. They learned that aquifers and surface waters recharge each other and wondered what price we pay for polluting either of them. Costly and massive flood walls and levees dramatically demonstrated the folly of extensive flood plain development. An area filled with huge chunks of concrete showed that flood plain filling constricts river channels. They could visualize how this would cause a more rapid rise in water levels and possible flooding after a heavy rain or quick thaw. A county health department representative noted that water had improved over the past 20 years to the point where a canoe trip was not only possible but also enjoyable. A secondary-treatment sewage plant and a new positive attitude in industry were largely responsible for this progress.

The trip was enlightening in many respects. Citizens want to learn about the resources in "their own backyards" and are eager to participate in novel educational experiences. Resource people, available in the community, are eager to devote time to the public. This new approach to existing information attracted participants with varied backgrounds and left a lasting favorable impression. People enjoyed the day's content and the experience of canoeing.

Another canoe trip and an offshoot of this first trip are already in the planning stages. Future trips will take more time, so a box lunch will be provided. A registration fee will prevent "no shows" and enable us to mail out an itinerary and information packet in advance. Extension will incorporate more "hands-on" experiences by doing simple biological and chemical studies throughout the day. Finally, a self-guiding booklet will be published to take the program to people who can't participate in an organized water resources tour. ■

Volunteers Create a Healthier County

Brenda Henderson
Extension Home Economist
Montgomery County, Arkansas

Good health means a good lifestyle. That's an attitude that many residents of Montgomery County, Ark., display every day because of the efforts of 15 unpaid Extension-sponsored volunteers.

The volunteers, who make up the county health education advisory committee, are working to improve the health of county residents.

Without a budget, they sponsor swimming lessons for children, train residents to aid heart attack victims through cardiopulmonary resuscitation (CPR), promote dental health education, and have established free annual health screening clinics. Also, committee members successfully organized a countywide cleanup drive when trash littered county highways.

Montgomery County has only one physician, Dr. James Davis. He strongly supports the committee's work. "Their programs fill an important gap in area health care," he says. "We don't have time to practice preventive medicine—not with only one physician and one county health nurse for 7,800 residents. The committee has initiated programs in important areas that would otherwise be neglected. They have made creative and ingenious use of existing resources, and they have raised people's awareness of health improvement. The real impact of their programs, a decreased death rate and a decline in disease, will be seen in the years ahead."

Committee Development

The committee was initially developed as part of an Arkansas Extension Service program in 1973 that focused on health education in this sparsely populated rural area. Supported by the state public health department, the committee began to use the experience and contacts of its members to expand their resources and achieve their goals.

The county's Extension home economist serves as an advisor and active member of the group, which includes representatives of the public health department, schools, family planning council, and social services office. Among the volunteers are a former mayor, a member of the county government, and a manager of a local manufacturing plant.

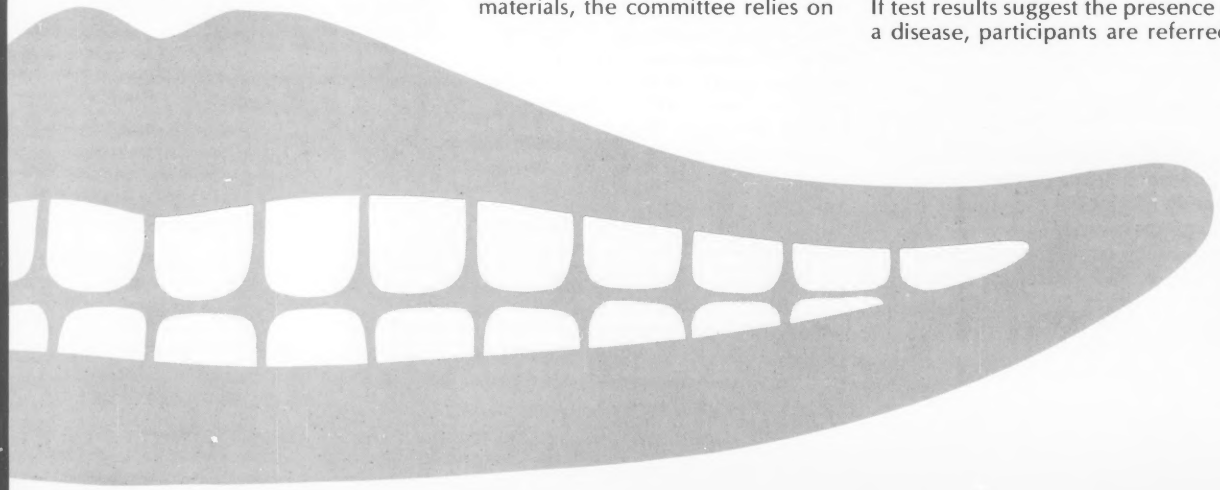
Because of its limited personnel and materials, the committee relies on other individuals and institutions to provide needed time and services. For example, when a stopwatch was needed for CPR, they borrowed one from a track coach. A school projector was borrowed for a film on heart disease shown to community groups. Educational materials on dental health for third graders were provided by a state Extension office and a national toothpaste manufacturer.

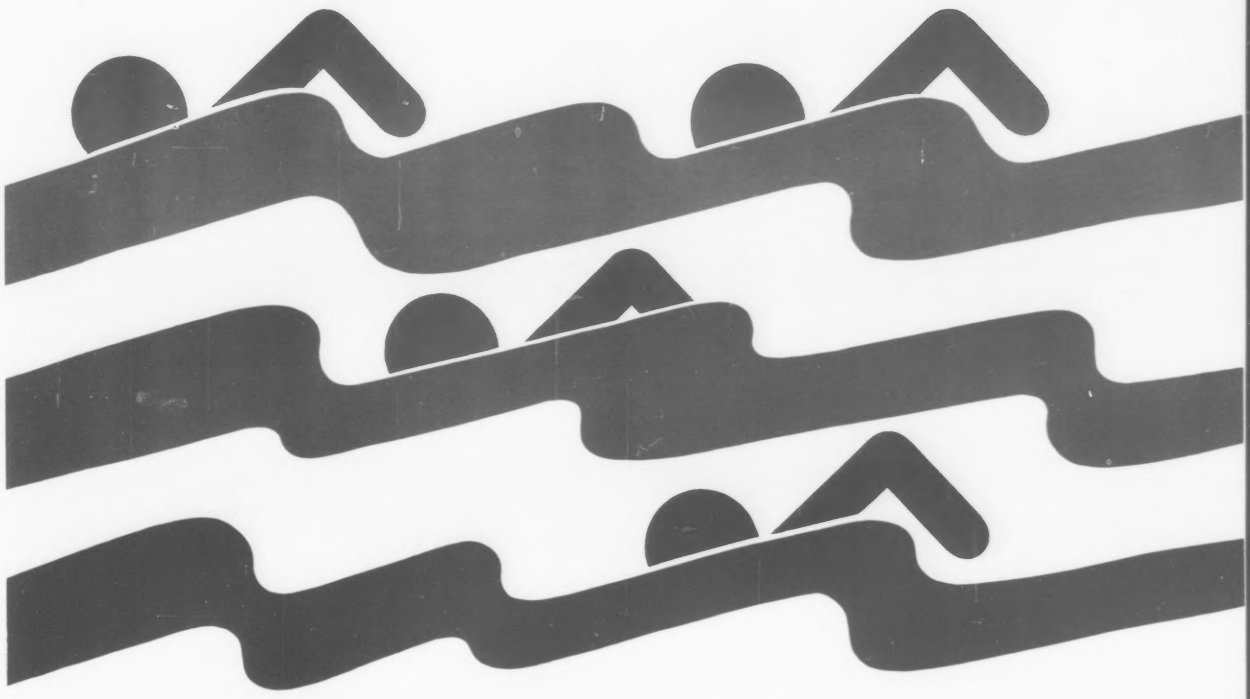
School children have contributed posters to publicize various committee projects.

In 1978, recognizing the potential of health problems in the county and the scarcity of health services for adult residents, the committee initiated the first of the annual health screening clinics. The free clinics offer checkups to test for high blood pressure, diabetes, glaucoma, and other ailments.

The screening clinics are staffed entirely by volunteers. Nurses and an optometrist offer their time and skills, while other volunteers staff the registration and recordkeeping desks and register height and weight.

If test results suggest the presence of a disease, participants are referred





for another examination at the health department or to a physician.

The committee also recognized the need for a formal swimming program for children. The county lacked such a program, despite the presence of a major recreational area—Lake Ouachita. To meet this need, a committee member who worked part time for the U.S. Army Corps of Engineers convinced the Corps to rope off a section of the lake for lessons.

Another member, an operator of a local children's summer camp, arranged for the camp's swimming instructor to give lessons the week before campers arrived. The Extension home economist organized the program. For a small fee, covering the teacher's salary and insurance, Montgomery County children are now taught to swim by a qualified instructor.

Extension's Role

The Arkansas Extension Service program for health education is characteristic of Extension's increasing focus on health promotion activities nationally.

County extension agents in the state were urged to form volunteer committees to evaluate the health education needs of their county and develop plans to meet these needs.

In Montgomery County, the health department joined in and the committee became an advisory group for its home health service. Volunteers were recruited based on leadership ability and interest in health education.

When the committee of volunteers participated with other Arkansas Extension groups in a drive to immunize all children in the state, the health department provided materials and staff for the immunizations. The committee members and Extension staff coordinated the volunteer efforts. Schools, Extension homemaker clubs, and other volunteers collected and compiled data and helped staff the clinics.

Over the years, the committee has come to generate its own programs targeted to the special needs of Montgomery County, although Extension workers will serve as advisors and provide materials.

Major Goal: Good Health

One of the committee's major goals is to encourage county residents to participate in appropriate physical fitness activities. To accomplish this, the committee has undertaken such projects as a day camp and the swimming lessons for children, exercise classes, and a basketball tournament for adults. Other long-term education projects focus on nutrition, dental health, and teenage pregnancy. ■

Putting The "Technical" Into Technical Assistance

Gary Holland
Technology Agent
Oklahoma State University

Technology transfer, a technique widely used by local governments and other institutions, is not that clearly defined. People have interpreted how to provide the technical assistance the technique implies in many ways, which means they have used many strategies to achieve the transfer.

Some of the people using technology transfer have focused it directly onto the day-to-day operational problems of local governments. They make a "nuts-and-bolts" assessment of these problems and prescribe a specific technical solution.

Others introduce new management techniques and methodologies to help alleviate problems that go beyond day-to-day situations. Impact studies and trend analyses, a third technique of technology transfer, give local decisionmakers data on the community as a whole and on what different courses of action may mean for its future.

The primary mission of the Cooperative Extension Service is to disseminate scientific information through education. Technology transfer fits in well with this mission, which includes working with local governments. Extension staff not familiar with technology transfer will benefit from information on how to use technology transfer as part of ongoing Extension programs.

The Cooperative Extension Service at Oklahoma State University has been working with the Southern Rural Development Center and the Community Initiatives Program (the small local government branch of Public Technology, Inc.) to test a technology transfer model in local governments in the south central United States. Technology transfer agents, called "circuit riders," worked on assignment from Extension and from other Federal agencies to help local governments. These governments, in turn, were taking this knowledge to make delivery of city services more efficient and cost effective than it had been before.

Nationwide Network

These agents formed a nationwide network to provide information to local governments from the Federal labs, universities, technology innovation groups, and private sector. Pooling resources of these institutions increased the total effect beyond impacts that could have been achieved by each agency acting independently.

We learned important lessons from our technology transfer model. Issues faced locally require an ongoing series of choices with both short- and long-term impacts on governments' ability to operate efficiently and effectively. We found that local decisionmakers need information that lets them weigh outcomes of available courses of action. So it is essential in technology transfer to identify the available *alternative* technologies that could influence these decisionmakers' actions.

Yet knowing the alternatives is not enough. Technological advances are being achieved too rapidly. Decisionmakers also need information on *innovative* technologies being developed that could improve or render obsolete the long-term plans of local governments.

We also learned that introducing new ideas and potential changes are not usually welcomed by local government leaders. Many are not in the business of taking risks and they prefer to look at the experiences of other local governments before acting themselves. The model technology transfer network consisted of four or five cities or counties in each region which had shown they were innovative. Their experiences provided an effective demonstration of innovative technologies from which other local governments were willing to learn.

Another critical part of the model technology transfer network proved to be the plan of work, the needs agenda. Each city and county involved in the national network submitted an annual needs list similar to those submitted by program planning and advisory committees to the CES.

Tapping All Sources

To follow up on these lists, a needs committee made up of leaders from participating cities and counties across the country drew up a needs agenda that contained the most important and most common problems experienced across the nation. The goal for each technology agent became working to get information on solutions from all possible sources. The resulting report could be useful for all local governments.

What particularly distinguished this model from others is that all three levels of local government—policymaking, planning, and implementation—became potential solutions to problems, not just one or more of the three. Technology transfer can be useful at any of the three levels.

Decisionmakers need education on technology when setting policy on what public goods and services to

develop their course of action, policymakers need technology education, especially costs of various relevant technologies, so they can begin to adjust elements of their plan to achieve their goals.

Finally, they need technology education in its most basic form when implementing the course of action they have selected. Here, success or failure to achieve their goals occurs. Successful daily operations require information on how things work, what makes them go, how to prevent malfunctions, what to do if one happens, and the like.

Big Savings

Our south-central technology transfer model has tallied some significant results in the last 2 years it has existed. For example, policymakers in one local government wanted more accurate information than they had on the impact of annexing a fast-growing area on the city's border. Using a fiscal impact guidebook from the U.S. Department of Housing and Urban Development, city planners selected the appropriate impact model from the book and developed a fiscal impact analysis for the city policymakers. Besides benefits from the study itself, the city saved the estimated $10,000 to $44,000 it would have cost to contract the study commercially.

In another instance, planners in a small Kansas community wanted to know where to locate a new fire station. Using a location assessment tool developed by the Oklahoma Extension Service, they learned likely results of locating the fire station at various spots in the city and could choose the best location.

Refuse collection was costing too much in Stillwater, Oklahoma. The city management knew something had to be done to keep fuel costs from breaking the budget because an increase in refuse collection fees was not an attractive alternative. With so many alternate fuels and fuel additives on the market, the planners were not clear on the best course of action.

The technology agent working with the city planners gathered information on fuel additives and alternate fuels, such as diesel, propane, and natural gas. He presented technical and economic assessments to city decisionmakers. They opted to fuel the refuse collection trucks *and* the police fleet with compressed natural gas.

Roadwork

We can see other areas where Extension specialists can use technology transfer to help local decisionmakers. An example, again from Stillwater, involved construction of streets and roads. Fundamental to building them to last is provision of a road base with adequate load-bearing capacity and low water permeability. A significant expense is stabilization of the soil in a road base with conventional materials, such as lime, fly ash, cement, or asphalt. Further, strict attention to quality control is necessary during application.

The technology agent identified an alternative to conventional soil stabilizers, an enzymatic liquid called "Perma-Zyme," as having potential for reducing road construction costs without reducing quality. The soil stabilization characteristics of the liquid were demonstrated on a one-quarter of a mile section of dirt road in Stillwater. After 1 year, the demonstration revealed that Perma-Zyme achieved the same soil stabilization levels as conventional stabilizers—at one-eighth the cost.

We can give you other examples. Suppose local decisionmakers want information on health care clinics and the level of care they can offer with limited financial resources. A specialist could provide an accurate picture of the alternative capital and operating funds necessary by using data on innovative and cost-effective construction technologies that would make heating and cooling of buildings less costly. Or, local city planners could come to Extension staff for help in evaluating impact of rate increases in sewer charges to replace a sewer line system that has deteriorated. If the Extension agent knows about innovative new technologies, for example, a liner for the sewer pipe that could be installed without digging up any of the streets, the agent can include that data plus the costs in the overall impact study.

Proposal

We are not recommending technology transfer as a program in itself. Rather, we are proposing that it be added to the services already available within the Extension Service nationwide network. Extension staff can be encouraged to seek information outside the system to add to that within it, to go to such sources as engineering and business faculties, such Federal agencies as Department of Housing and Urban Development, National Air and Space Administration, Department of Energy, Department of Defense, and Department of Transportation, and businesses within the private sector. A combined package approach presented by Extension staff to local government officials can add to the work already underway to ensure a prosperous environment in which to live and work. ■

Strategies Beyond Unemployment

Dave Ruesink
Extension Sociologist

Jan McDaniel
Extension Communications Specialist—Publications
Texas A&M University

What can a community do to stimulate employment, short of often unsuccessful attempts to attract outside industry? *Creating Jobs Through Retention, Expansion and Creation of Local Firms* focuses on strategies for growth of local firms and, correspondingly, job opportunities.

Extension specialists at Texas A&M have developed publications in areas of creating jobs, coping with unemployment, preparing for jobs, placement, and personnel management. These publications are now available to all county, area, and state staff.

A county Extension agent, working with a state manpower specialist, can use information from *Jobs: Placement and Preparation* to establish a local job matching service and to provide career education. Volume one includes information on helping clients assess their job capabilities, how to look for work, and how to stay employed. A second volume contains additional career education materials including 14 complete teaching programs.

Hard Working Task Force

The task force that compiled these materials grew out of the National Manpower Workshop held in May 1980 as the result of a statement adopted by the Extention Committee on Policy that year. The statement was prepared by a task force appointed in 1978 by the ECOP subcommittee on community development and public affairs.

Members of the task force selected four groups of five to seven people each, representing 19 states and all Extension program areas. Each group was assigned coverage of one of the four areas. Beginning in February 1981, the task force wrote, edited, printed, and distributed the materials within 10 months. Although many of these people had not worked together before, their dedication to the Extension principle of providing useful educational material helped them complete the task quickly.

The U.S. Department of Labor and USDA's Farmers Home Administration paid for the project. The staffs of state Extension services furnished time and material.

For managers of farms and small businesses, *The Personnel Management Handbook* outlines basic principles and practices of personnel management. Volume I contains original material and volume II is a resource file of literature for additional reading.

Guiding people and their families through temporary periods of unemployment may be easier with the resource notebook *Coping with Unemployment*. It is designed to acquaint state and county staff with available materials and programs from selected states, and to help them develop their own innovative educational programs.

An explanation of manpower programs and ideas for possible approaches, *Manpower Programs: A Survey of Theory and Extension Opportunities,* was written to encourage and facilitate manpower programing in Extension. Users for which the materials have been prepared include people entering the job market for the first time, people returning to jobs after prolonged absence, people changing jobs, farm and agribusiness managers, and youth workers. Each state community development program leader and each administrator of the 1890 Extension program has received a complete set of the materials. A few additional sets can be obtained from Joe Lanham, Community and Rural Development Staff, Extension Service, Room 5048 South Building, USDA, Washington, D.C. 20250. Limited funding makes it possible to provide only a certain number of copies to requesters, but the format allows sections to be removed easily and photocopied.

States Using the Publications

It's still early for results but in at least five States, Extension specialists report using the materials in workshops and training sessions. The Georgia staff has held two 4-hour sessions for 100 persons based on the *Coping with Unemployment* notebook. In Mississippi, Extension staff members have used *The Personnel Management Handbook* to work with business managers to improve their management skills. The same material in North Dakota is helping Extension train its own management staff. North Dakota's Economic Development Commission is using material on retention of jobs to work with local firms. Iowa Extension staff members are providing leadership training for county Extension advisory committees based on the personnel management material.

Cornell University 4-H staff plan to use the task force materials to set up job clubs for 4-H youth to get experience on how to decide on careers, how to choose and land summer jobs and temporary seasonal work.

Extension staff heading up job preparation clinics in Texas will use the manuals to work with high school juniors and seniors as they go about looking for jobs, and will train them in how to handle interviews. The students will interview prospective employers at job fairs.

If you want information on these programs or can share what you're doing in these areas, write or telephone David Ruesink, Department of Rural Sociology, Texas A&M University, College Station, TX 77843 (713)-845-0860.

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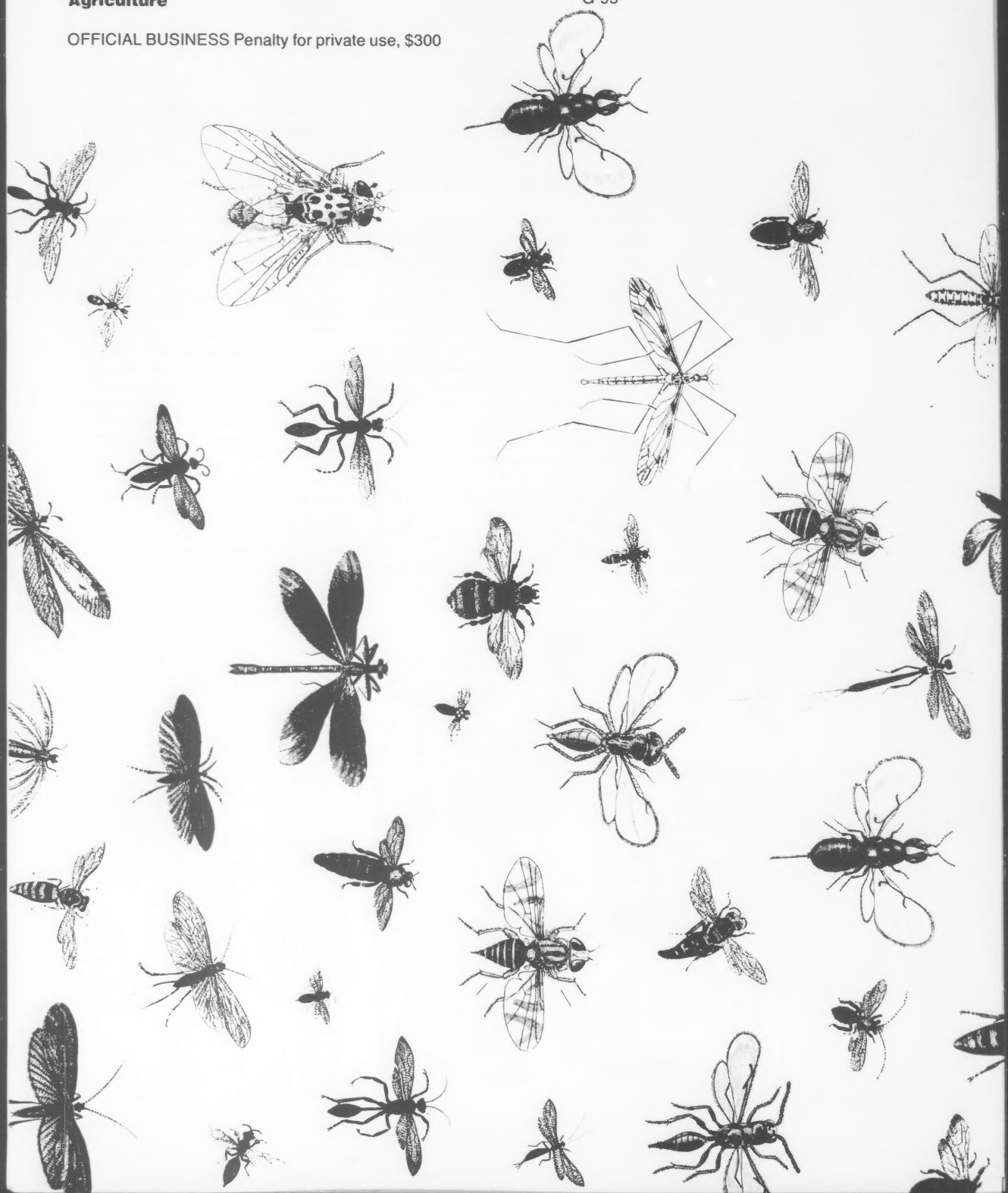

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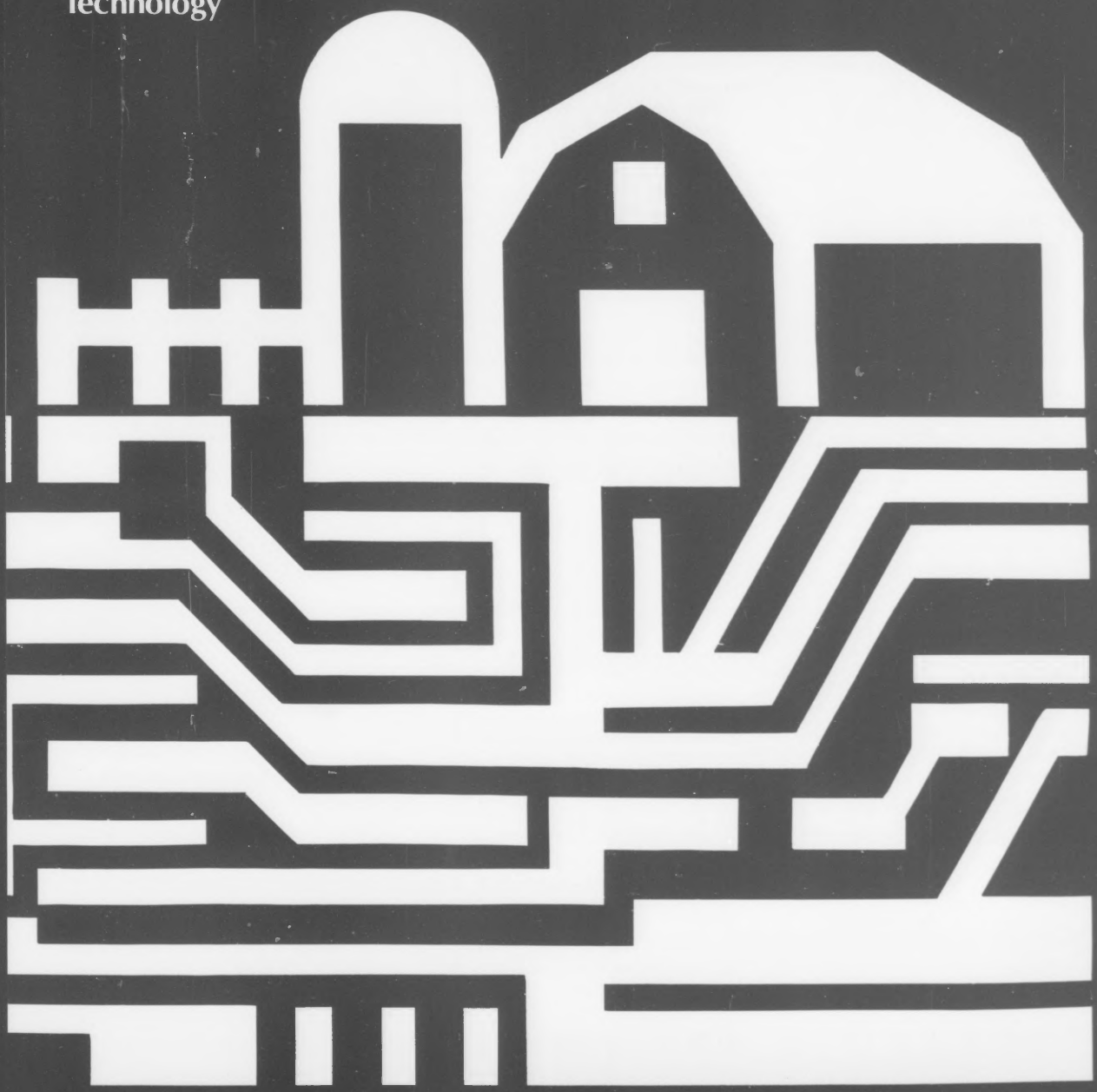
Electronic Technology



review

Electronic Technology

If awareness is the first step to creative change, then the awareness and implementation of the opportunities provided to the Cooperative Extension Services by the electronic age can augment our ability to achieve our goals: teaching, educating, and helping people help themselves.

The Extension Service Administrator's Office has identified eight significant areas of concentration as national initiatives. One of the eight is electronic technology, an area of vital interest and vast potential for Extension programs nationwide. In this issue of *Extension Review,* we explore current uses of electronic technology by Cooperative Extension across the country and plans for further exploration and use.

Electronic technology includes all types of electronic communications equipment (hardware) and applications (software). Regardless of the sophistication or simplicity of the hardware and the software, the end result is the rapid communication of information from person to person.

Congressional Interest

Interest in and use of electronic technology within agriculture continues to grow. In May 1982, Rep. George Brown (D-Calif) chaired combined hearings and workshops on "Applications of Computer Based Information Systems and Services in Agriculture." As chair of the Subcommittee on Department Operations, Research and Foreign Agriculture of the U.S. House of Representatives Committee on Agriculture, Brown told participants that he expected them to provide "insight and guidance to assist us in our future decisions on these technologies." Many of the Cooperative Extension Service systems and programs described in this issue were discussed at these hearings.

Microprocessing, teleconferencing, teletext, videotex, and cable TV are significantly influencing Cooperative Extension and its clientele. Extension Service-USDA and many states use audio- and video-teleconferencing to communicate with and train field staff members and volunteers. Extension field staff members use cable TV to target information to a wide home audience beyond our previous clientele.

Producers and users have acquired stand-alone processors or computer terminals (with or without printers) which hook to mainframe computers via the standard telephone line. In the Green Thumb system prototype, users "download" data through a telephone link into a "black box." The phone is disconnected and the data appear on the accessor's TV screen.

NARS Developed

Extension Service—USDA, in response to congressional requests, has worked with selected states in developing the conceptual design for an interactive computer-based data system. The objective is to enable quick response to external requests for information on the impact and cost effectiveness of Extension programs. Known as NARS, the Narrative Accomplishment Reporting System has been operating since 1979.

NARS provides electronic access to successful state Extension programs nationwide, improving accountability, methodology, and transfer of information. The NARS data base is available online through a national telecommunications network.

Many states have provided and retrieved data from NARS without technical training. This year, ES-USDA has asked states to use the NARS format to report on their accomplishments, cutting down on their burden of response while increasing the use of the most recent information on accomplishments. The national evaluation and accountability reporting system being developed will be based on this NARS concept.

Other Efforts

The Information Resource Management Office (IRMO) has been established at USDA and is headed by Ray Lett, Executive Assistant to Secretary John Block. Staff members are gathering data on electronic data dissemination by the Department and on software documentation and maintenance standards.

The Extension Committee on Organization and Policy has formed a Computer Task Force with representatives from each of the four Extension regions, research, instruction, and ES-USDA. Each of the regions is either studying or setting up regional computer centers or institutes.

ES-USDA, in keeping with its identification of national issues, has established an Electronic Technology Task Force with representatives from each ES-USDA program unit. The Task Force is developing a long-term plan of work, and in the short term it is providing expertise for the conducting of microcomputer clinics via teleconferencing and for electronic marketing training sessions.

There is an unstated emphasis on the common good for Cooperative Extension which can be realized by the cooperation of these groups and coordination of the many efforts. Cooperative Extension, the vital link in this chain, provides the balances between human contact and electronic delivery.—**Denzil Clegg, Associate Administrator**

(Editor's Note: With this issue, the *Extension Review* crosses the threshold into the electronic age. Using our new mailbox number—AGS—096—states transmit articles to us via electronic mail where they are stored in our microcomputer for editing and finalizing. Staffers use NARS and electronic mail to write national roundup articles, such as "High Tech for Food and Technology" featured in this issue. Requests for articles and photographs are transmitted via our Information and Communications staff's new electronic newsletter to Extension communications staffs throughout the land-grant system.)

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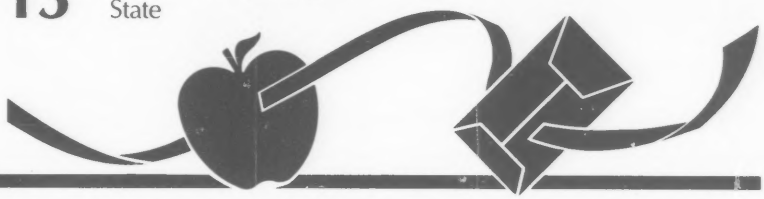

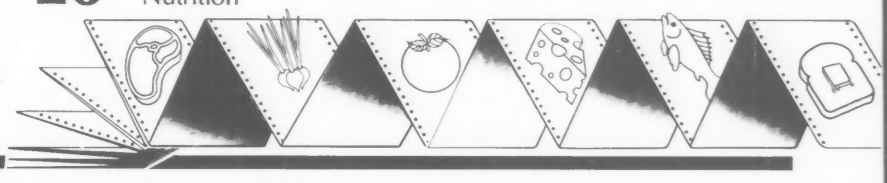

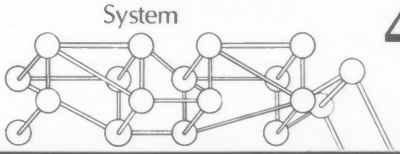

extension review

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John R. Block
Secretary of Agriculture

Mary Nell Greenwood
Administrator
Extension Service

The *Extension Review*, quarterly publication of the Extension Service is for Extension educators in county, state and USDA agencies. 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 through September 30, 1985. The Review is issued free by law to workers engaged in Extension activities. Others may obtain copies from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, at $2.75 per copy or by subscription at $9.50 a year, domestic, and $11.90 foreign. Send manuscript inquiries to: The Editor, Extension Service, Room 3137-S, USDA, Washington, D.C. 20250. Telephone: (202) 447-6133.

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Electronic Livestock Auction

Terry W. Canup, Director
Extension Information Offices
Virginia Polytechnic Institute and State University

It is fast, low-cost, and brings good prices for producers. It is the only livestock auction in America that is conducted by computer. You don't need a terminal degree to see that it is the wave of the future.

Each week, meatpackers from Ontario to Texas can bid confidentially against each other for slaughter lambs without leaving their offices. A packer can spend as little as 5 minutes to buy a load lot of lambs and get, in hand, a complete description of the purchase, including pickup points and total cost.

The group of Extension specialists from Virginia Tech (Virginia Polytechnic Institute and State University) who devised the computer-aided system call it revolutionary. The key to the system's singular success, however, may be that it was evolutionary in its development.

The Electronic Marketing Association, Inc. (EMA), which offers the computerized system to lamb marketing agents from its headquarters a few miles away from Virginia Tech, is the only commercial venture of its kind in livestock marketing.

Beginnings

Its roots go back to 1978 when the Agricultural Marketing Service of USDA sponsored five projects to investigate the potential of electronic marketing of livestock. One grant went to the Virginia Cooperative Extension Service in cooperation with the Virginia Department of Agriculture and Consumer Services. What that project group from Virginia capitalized on was a foundation of 20 years of telephone auctioning of livestock in Virginia.

"Introducing the computer to marketing in Virginia, where livestock were already being sold regularly by telephone, wasn't too big of a step to take," said James B. Bell, Extension project leader and agricultural economist.

The phone is used sometimes to include additional buyers in assembled sales and increase competition for livestock. Very often, however, buyers opt to take part in conference call teleauctions which sell livestock by description.

Teleauctions gave producers the option of knowing what prices their livestock fetched before they left the farm and buyers were spared the weight loss and stress to the animals that accompanies sale assembly.

In 1981, 2,000 head of cattle were sold by such teleauctions in Virginia. The teleauctions, however, have their shortcomings. Conference calls can be time consuming and confusing.

"It may take 15 minutes from the time the operator calls the first buyer to the time she calls the last buyer, by which time the first buyer has hung up," says Roy Meek, manager of the Eastern Lamb Producers Cooperative in Dublin, Va. "The packers don't have that kind of time."

Teleauctions can also be trying on the memories and note-taking abilities of buyers who must rely on oral descriptions of lot loads.

"After a teleauction sale I have had a packer say he wants delivery on a day on which I have already said the livestock weren't available. But he forgot," says Meek.

Computer Sales

Computer auctions address both problems nicely. A buyer with a terminal can receive a detailed printed sale order through his terminal hours before the sale. Computer sales are fast. Three loads of slaughter lambs totaling 1,200 head can be auctioned by computer to a group of 10 buyers in about 15 minutes. Some buyers even take portable terminals with them to assembled sales so they can take part in two auctions at once.

Despite the obvious advantages, the Virginia Tech team of James Bell, Wayne Purcell, also an agricultural economist, and K. C. Williamson, animal scientist, believe that participants could be scared off by a computer if its introduction made the marketing process too unfamiliar. They decided to make the computer behave as closely as possible to an auctioneer.

While buyers watch their terminals, the computer program prints out the opening price. If a predesignated period of time elapses without a bid, the price drops a dollar and will continue to do so until a buyer hits the bid key.

A bid registers on all the buyers' terminals and repeats every 5 seconds along with a countdown of the number of seconds left for the other buyers to register their own bids—68.00:25 . . . 68.00:20 . . . 68.00:15—almost as if to say "$68

Left: Employees of the Electronic Marketing Association Inc. use a computerized system for a weekly lamb sale for marketing agents. The system was devised by Extension specialists from Virginia Tech (VPSU).

Below: A livestock auctioneer takes a bid at a barn sale. A newly developed computerized auction system may revolutionize the way livestock auctions are conducted.

going once, $68 going twice," Upon hitting the bid key, a competing buyer automatically raises the bid by 25 cents.

The speed of the sale belies the amount of work that goes into making this convenience available. Cattle may not be shipped and herded before buyers, but a thorough description of the livestock has been collected and loads assembled, accounting for grade and location.

Marketing Process

Slaughter lamb assemblages in Virginia begin when producers call Extension agents, state marketing agents, or representatives of the Eastern Lamb Producers Cooperative to consign their lambs. The representative or agent forwards the descriptive details to the cooperative which assembles lots. By the morning of the sale, a description of the lambs for sale and a list of their pickup points are available for buyers to punch up on their computer terminals.

Sellers feel sure that the ease of the transactions translates into higher prices.

"It is a hard thing to measure, but I think we have seen a little strengthening of the prices because of the convenience to the buyers," says Meek. "For example, in our last sale, our lambs brought $74 when slaughter lambs were bringing only $68 on other markets."

James Russell, former research associate in agricultural economics at Virginia Tech, conducted formal studies on the effect of computer auctioning. There is solid evidence to support the idea that increased buyer access which accompanies the computer system helped increase prices to producers. The computer system also seems to pull up prices in nonelectronic markets.

The convenience for buyers and the price incentive for producers promise to pressure more livestock marketers into the computer arena.

Expansion

The Electronic Marketing Association has expanded its system to the Corn Belt lamb auction in Wisconsin. The system now serves producers in 13 states and a total of nine U.S. and two Canadian buyers.

The system's developers plan to expand into all arenas of livestock marketing.

The Virginia Tech Extension project team has already added computer programs for auctioning of feeder cattle, feeder pigs, and slaughter cattle.

As Virginia operates the largest officially graded feeder cattle sales program in the United States, that market seems a natural avenue for expansion of the computer auction concept.

There are roadblocks, however, as Meek explains. "With feeder cattle we have a lot more buyers and they are not regular buyers. They may buy a lot, and then not buy again for another year. They can't afford to buy a terminal to use once."

Meek does use a computerized listing and billing service in conjunction with teleauctioning of cattle.

"I have two buyers who use terminals to punch up sale orders, then buy on teleauction, and after the sale the computer terminal will print out a billing."

It seems only a matter of time before the availability of computer terminals makes computer auctions possible for all livestock sales.

To help spur the coming of that day, Extension Service-USDA has funded a special needs project in which a Virginia Tech Extension team will visit four states in August 1982 to spread the news about computer auctions and explain how to make them work. These seminars to be held in Atlanta, Chicago, Oklahoma City, and Salt Lake City will also feature local experts in electronic marketing. Each seminar is being cosponsored by the host State Department of Agriculture and industry groups. □

Minnesota EXTENDS Information

David M. Nelson, Program Director
Computer Information Systems
University of Minnesota

More than one cynic has pointed out that the real danger of computers is not that they will be able to think like people, but rather that people will begin to think more like computers and try to make the answers easier than they are.

Anyone engaged in the process of implementing a computerized support system for delivery of educational programs can testify to the challenges involved in designing an effective educational network. It's much more complicated than plugging in variables and processing options. Creative decisionmaking will be required as Extension educators decide, often with insufficient information and under severe time and dollar restraints, how they wish to make use of this technology.

The best way to assure strong momentum in the desired direction is to have a clear vision of that desired direction and, as Minnesota found, that's the hard part.

The acronym EXTEND (Extension Education Network and Database) describes the objective of Minnesota's computer network and library of educational software programs, as well as names it. The system, currently being designed, will enhance the Extension worker's ability to provide improved educational programs, more current information, and more indepth answers to problems confronting clients today. When completed, the system will consist of a network of terminals and host computers.

Assessing the value of a computer system is an involved task. Users' needs must be compared with capabilities available through alternative systems, and constant consideration must be given to the associated costs for implementation and use. In Minnesota, the pilot study undertaken in 1981 helped us determine six areas in which the computer would be of value to Extension.

These major functions were identified: decision aids, tutorial programs, informational data bases, communications, office management, and computer graphics.

Decision-Aided Instruction
Of these six functions, decision-aided instruction is by far the most common use of computers in Extension education today. With this method of instruction, the computer is used to query the student for a series of input values that are used within the computer program to provide a solution to the problem being addressed.

The educational value and usefulness of this method of instruction is enhanced by allowing the student to change the inputs for iterative runs of the program This process provides the student with alternative solutions and instructs him or her about the impact each variable has on the problem. For example, using the computer in this fashion, the prospective homeowner can see easily that the monthly payments on a 30-year, $60,000 mortgage loan will increase from $615 to $759, with a change in the interest rate from 12 to 15 percent.

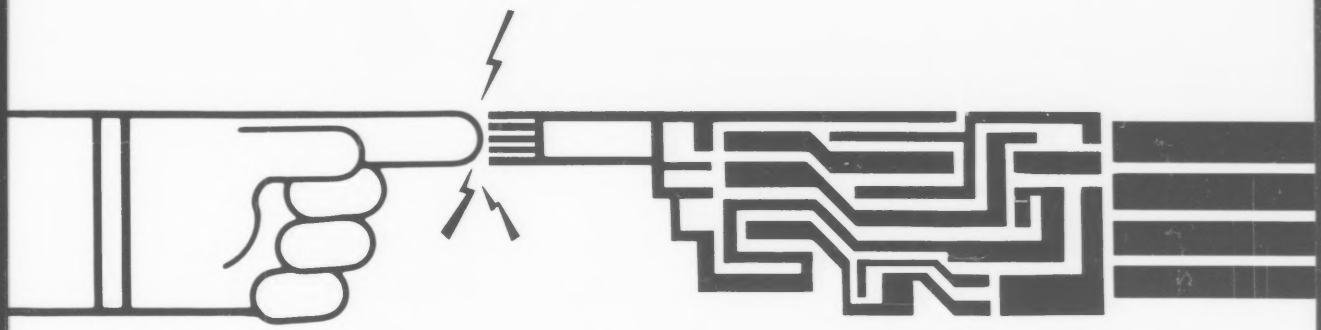
People setting up computer decision-aided instruction usually assume that the student is fairly well informed about the subject matter the program is addressing. If not, the student will soon encounter difficulty in answering the questions being requested of him or her by the computer. At this point, a tutorial program becomes helpful.

Tutorial Programs
Tutorial programs are designed to teach students a given subject. This method of teaching has been used effectively in elementary and secondary schools in teaching subjects such as math, grammar, and spelling. Its effectiveness in teaching advanced subjects and managerial skill has been less conclusive. Using this method of teaching, students learn through reading screens of text as one would from a book. Periodically the computer questions the student to help determine comprehension and to identify the most relevant points.

Tutorial and decision-aided instruction can be used together effectively within an Extension program to both inform and aid the decisionmaker.

Informational Data Bases
The concept behind an informational database is that the computer is an effective device for storing large amounts of numeric and textual data that can be searched and retrieved effectively and efficiently. In Extension, the use of the computer as a depository for fact sheets, bulletins, newsletters, advisories, and other textual information to be retrieved by subject, author, date, and keywords in the text, holds exciting possibilities. The establishment and usefulness of the data bases need to be evaluated for their cost effectiveness, compared with traditional methods of storing bulletins, using the telephone to obtain information, and looking up information in a book.

Communications
Computer communications entails the ability of computers to send data back and forth, and to store that data for access by authorized users at any time. The major advantage of this system of communication versus the telephone is that the person sending the message and the intended recipient need not be present simultaneously. The advantage of this system over a letter is that computer communication is faster. A message sent across campus or



across the country is received and stored in the computer within seconds.

Computer communication is currently being used in many forms, including accessing weather and market data, news releases, electronic mail, and computer conferencing. Extension faces the challenge of developing ways to use this new technology in the teaching and learning process.

Office Management
Word processing is the typical example given of using the computer in Extension for office management. However, equally valuable uses include maintaining mail files, 4-H enrollment records, budget and account transactions, time accounting records, staff directory updates, and mailing-label generation. Computers have a proven record as useful tools in these types of office management work. However, a conflict between office and educational uses of the computer might well arise in the Extension agent's office and a clear sense of priority will be essential.

Computer Graphics
Computer graphics are often thought of as useful only for designing computer games or as a means of entertainment. Although graphics can entertain, they can inform people in a way that no report can. Most people can be intimidated by the profusion of numbers in a typical computer report. Not only do graphics attract and maintain the user's attention, but they also help process numeric data, interpret it, and make it easier to understand.

Microcomputer Selection
The most critical factor in selecting a microcomputer for Minnesota's EXTEND project was its usefulness in meeting the six needs described above. After an extensive analysis of the many alternative systems, we chose the IBM personal computer because of its diversity of application, potential for expansion, and ease of use. Two models of host-dependent terminal decwriter and the Texas Instrument 820 were selected based upon their reliability, portability, rate of data transmission, and cost.

"Intelligent" terminals (microcomputers with telecommunications) or "host-dependent" terminals (a terminal requiring host computer support) will exist in each county and area office and in each Extension department on campus. The type of terminal (intelligent or host-dependent) selected for an office will depend on communications costs and uses of the equipment. Each terminal will have communications access to the university's on-campus host computer and to other computers throughout the United States. Extension's clientele will access EXTEND by going to the agent's office or through their home computers.

Implementation of the EXTEND network covers a 6-year time frame which began in July 1981. The ability to stay on schedule will depend in large part on the availability of county and state funds. Today there are host-dependent terminals in 17 of Minnesota's 87 counties, 10 area offices, and 22 campus offices. Ten more host terminals will be added during FY-1983. Microcomputers are located in 5 counties, 4 area offices, and 10 campus Extension offices. Six additional micro's will be added during FY-1983.

Staff Training
Staff training in the use of computers for Extension work is as important as the hardware selected or the software developed. Staff training in how to operate the equipment is, of course, the first essential step. However, the more difficult and creative work will be in developing methods of using the computer to enhance existing Extension programs. The computer should be thought of as a tool for assisting in the delivery of an educational program just as we now use overhead projectors and other equipment.

Extension staff members will need to develop most of the software useful in Extension educational program delivery. State Extension specialists will do much of this work, and it will require a strong commitment from them plus the support of their administrators.

A computer system will be useful to Extension only if the right combination of good software, appropriate hardware, and a well-trained staff are brought together. Perhaps our greatest challenge will be to keep a sense of balance in developing at an optimal rate in all three of these areas. □

Better Analyses— Better Tomatoes

T.B. Jurchak, Senior Extension Agent, Lackawanna County
B.W. Kelly, Professor of Farm Management Extension
P.A. Ferretti, Association Professor of Horticulture Extension
The Pennsylvania State University

Using a recently developed program for tomato production and marketing analyses, growers in Lackawanna County, Maryland, have identified and adopted practices that have increased their income $145,000. Factors such as production costs, quality, yield, size, and price can be examined separately and in combination to determine their effect on returns.

Rapid Analysis Needed

Producers of fresh tomatoes face increasing costs plus more complex production, harvesting, and packing decisions. Growers need information to evaluate each part of the process from planting to selling. Too often in the past, with the intense activity of harvesting and marketing compressed into 6 weeks of 24-hour days, everything became a blur of tomatoes out of the field, then into and out of the packinghouse. There was little time for meaningful examination of separate parts of the process during the harvesting and marketing season when it was needed most.

Only after the total crop was gone did growers have time for evaluation, but by then they lacked some of the information needed for accurate decisionmaking. Thus, conclusions were drawn from incomplete or misleading recollections. In addition, other farmers considering entry into fresh market tomato production and marketing needed budgets to guide them in decisions for managing capital and labor.

Procedures Outlined

Developed over the last 3 years with the cooperation of growers in Lackawanna County, the computer program now provides pertinent information for evaluation immediately after packing. As soon as a field is picked the first time, the grower completes a "Producer Reporting Form" that includes information on the amount of tomatoes harvested and the resulting "pack out" in terms of grades, sizes, and prices. This information is telephoned to the university's farm management extension section where a computer program has been prepared to accept the data and print out a "Tomato Marketing Analysis Report" that is mailed to the grower. This report includes production, harvesting, packing, and marketing costs in total and "per acre."

Costs have been developed from grower surveys and averaged for use in the program. Gross income is determined from the actual yields, "pack out," and prices reported by the producer on the "Reporting Form" and reported in dollar value and number of boxes packed, by grades and sizes. These data give the grower immediate information on yields from the field, percent "pack out" of 30-pound boxes, cull rate, distribution of grades and sizes, and the proportion of income produced by each. Also provided is a summary of expenses and receipts for each field as well as the net income.

Each Picking Analyzed

The process is repeated for each picking from each field so the grower has a continuous account of how well or how poorly each is performing in relation to other fields on the same farm. After the crop is sold, the grower gets a summary of all the information obtained from his farm during the marketing season. This summary contains figures by fields, varieties, grades, and sizes so the grower has complete and accurate information for evaluation. In addition, growers receive summary information on varieties used by *all* growers, to use for variety selection the following year. During 1980 the program included 666 acres of tomatoes. Its value has been demonstrated for management decisionmaking as well as for educational and research direction.

A similar analysis program has been developed for use with a hand-held programmable calculator and a printer so a grower has the information as soon as the tomatoes are picked and packed.

Year-end Summary Valuable

Following each picking, the data are sent to the farm management extension section at the University of Maryland. There, the data are accumulated and a year-end summary is produced. Based on this information, growers can make decisions for the next production year.

Strong and Weak Aspects Visible

Armed with such analyses, growers can easily translate production practices, variety selection, yield, size, quality, and packinghouse efficiency into maximum net income. They can make adjustments, if needed, in their production, harvesting, and marketing program. They also know immediately if prices are covering their costs and providing a profit, or if they should seek other markets.

While there is still time for decisionmaking and changes, producers know whether the crop is profitable or if they are selling tomatoes for peanuts. □

AGNET— American Network for Agriculture

Duane A. Griffith, Extension Specialist, Economics
Montana State University
and
M. Anthony Wright, Extension Computer Coordinator
Washington State University

"A very user friendly interactive system. . . ."

A computer expert might describe AGNET that way—and so might many of those who have put its electronic memory to work for them.

The AGNET computer system is "user friendly" because it can be easily understood and used by those new to computers. The computer types out a question and the user responds by typing out an answer. If the computer questions are not understood a HELP option with additional explanation is available. The ease of use and flexibility of AGNET has stimulated its rapid development since its beginnings in the mid-seventies.

Technically, AGNET is designed to deliver management tools and information to individuals and organizations concerned with agricultural production. It is currently providing business producers, farmers and ranchers, educators, and CES specialists with the data essential to them.

In 1981, use of the AGNET system approached 80,000 hours of combined connect time by the Cooperative Extension Service and external users. Although CES have the highest hourly usage, there are more external users than Extension users. The AGNET system is now accessed by 37 states in the United States with users also located in Canada and other foreign countries.

Transparent System

AGNET is designed around several fundamental principles, the first of which is that AGNET users are not expected to know anything about computer operations. People access the system to obtain information—not to learn about computers. For this reason, the system was made "transparent" so that it will not stand between the user and the information being sought.

AGNET's library consists of more than 225 programs. These programs divide into three major categories. The first contain the *analytical* or *"problem-solving"* programs. These "management model" programs deal with a single major problem such as balancing an animal ration or estimating income taxes. This program area accounted for 67 percent of total use of AGNET in 1981.

Because approved methods of agricultural production are extremely localized, AGNET allows localized information and program variants to be accessed by users.

The second major category is *market information delivery.* Agricultural commodity prices and information concerning commodities change from day to day and hour to hour. Users tap into a marketing program to obtain the latest information exactly when they need it.

The final category—*electronic mail*—permits users to freely communicate with each other; this aspect of AGNET encourages "conferencing."

Partner States

Currently, there are six major partner states participating in AGNET: Nebraska, Montana, North Dakota, South Dakota, Washington, and Wyoming. Partner status allows each of the partner states to modify existing programs and place new programs on the system.

This partnership offers the advantage of a pooling of resources where the programs written in one state will be used in another. Currently, more than 45 staff years of programming have gone into AGNET. And it is estimated that a period of time equal to this has been expanded on AGNET by nonprogramming subject matter specialists or faculty.

Decision Aids

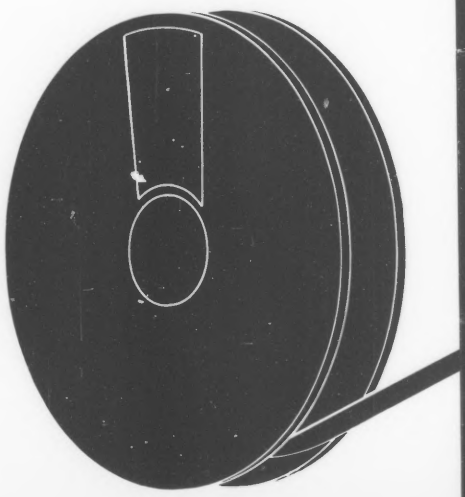
In the midseventies, James Kendrick, professor, extension marketing, and Tom Thompson, agricultural engineering department, University of Nebraska-Lincoln initiated work on development of the AGNET system. They saw a need for computer-assisted decision aids so that producers and those in agribusiness could make major changes in operations and be assisted in their daily management decisions.

After searching for an easy-to-use system, Kendrick and Thompson decided to develop one from the ground up rather than make adaptations to existing systems.

User Friendly

In 1975, AGNET was introduced in Nebraska for use by the CES staff. For 2 years, the development of the system continued with the addition of more computer programs and greater ease of operation.

Features were added to make AGNET more "user friendly." For



example, for the more complex programs, an option was provided to save a given set of data; this storage ability allows the user to run the same program at a later date with the same basic information at hand. There is no need to re-input data. Many similar "user friendly" features were included.

Since its inception in 1975, the AGNET system has grown considerably. And continued growth is expected within the states now on the system. The system allows for growth because other states can sign agreements with Central AGNET and become full-partner states—or simply buy time through one of the states currently on the system.

Western Teamup

In 1977, the Old West Regional Commission, composed of governors from the states of Nebraska, North Dakota, South Dakota, Wyoming, and Montana, authorized grants of approximately $2 million to set up the AGNET system in these states. In the fall of 1977, the Old West Commission states implemented AGNET. Funding from the Commission continued about 3 years, ending in June 1981.

AGNET programs, which covered a wide range of topics, were computational and agriculturally oriented. Users provided information about their specific operations to tailor results to fit their needs.

Producers could run any of the AGNET programs by contacting County Extension staff and arranging for a demonstration of the system or some detailed analysis of their operation. Since last June, when Old West Commission funding ended, all states on the system have started charging user fees.

Adopted by Washington

In mid-1980, the state of Washington, which was not a member of the Commission, decided to adopt the AGNET system. Computer terminals are now installed in county Extension offices throughout the state. (See story on AGNET in Washington on p. 13.)

Self-Supporting

The five original states in the AGNET system received support from their respective state legislative groups after the Commission funds expired in 1981. Each state's longrun goal is to make the system self-supporting through charges to the end users.

The AGNET system has continued to grow and become even more "user friendly." It contains over 200 programs which cover such areas as home economics, agriculture, 4-H, community development, nutrition, health, clothing and textiles, and energy.

Over the years AGNET system managers have tried to stay in touch with the needs of users. This has brought about a change in the type of services AGNET offers. Along with the computational programs, there are now several programs in the system which provide information to users without their input. These programs provide information about the feeding programs for livestock, including weights at feeding, and average daily gains.

The MARKETS and NEWSRELEASE programs provide information on current cash and futures prices on agricultural commodities throughout the Midwest and Northwest.

The programs also provide up-to-date information on what the commodity markets are doing, trends in commodity markets and the short-run outlooks for the various commodities. In addition, the programs are an excellent source of information on topics of a timely nature.

Same-Day Service

One of the developments that has enhanced the ability of the AGNET system to deliver very useful information is the direct link to computers used by USDA. Reports that USDA generates daily or as necessary are loaded on to the AGNET system so that users have, in many cases, same-day service, and no longer must wait to get the USDA reports in the mail.

USDA's Foreign Agricultural Service (FAS) has implemented its own pro-

gram on AGNET, called FAS, which provides information on all types of commodities and trade leads on commodities wanted by foreign countries.

FAS contains up-to-date information on current crop and livestock production reports for the United States and countries around the world, export outlook and sales, reports on outbreaks of disease or drought, and reports on current legislation dealing with farm and commodity programs.

Popular Mailbox

The most general informational programs available on AGNET are MAILBOX and CONFERENCE. The MAILBOX program is also the single most widely used program on AGNET. CONFERENCE allows communication on a specific list of topics with the ability to add or delete topics as necessary. People who are interested in learning more about a specific topic can receive conference notes and contribute to the ongoing conversation.

Some general CONFERENCE topics include marketing, energy, community development, and use and application of computers. MAILBOX allows users to communicate with other users individually or to groups of people on mass mailing lists. MAILBOX has no specific topics and users can send or receive information on any subject. This makes the program a very effective communications tool.

MAILBOX keeps the County Extension staff in touch with State specialists and groups or organizations in touch with each other, government agencies, or specialists. Any one else who wants to access and use the AGNET system can use MAILBOX to communicate with other users.

Initially, users were required to access AGNET through County Extension staff. Now anyone who has their own computer terminal or is willing to purchase computer equipment or a micro-computer can buy time from one of the states listed previously. With the advent of micro-computers, and their cost effectiveness, many people have purchased their own computer equipment and are buying time from AGNET. There are now more external users than Extension users.

Users range from 4-H youngsters learning the effects of their lifestyle on their future health to foreign embassies getting the most current information on estimated world wheat production.

Agricultural lending institutions use the system to help analyze the feasibility of loans for machinery, equipment, and land purchases as well as operating loans. Agricultural consulting firms also use AGNET to assist their clients on topics that range from calculating a simple loan schedule to decisionmaking on the timing of irrigation systems.

If you would like further information about the system, and the programs that are available or how to sign up, contact one of the state supervisors listed below:

MONTANA—Duane Griffith, Supervisor, Linfield Hall, Montana State University, Bozeman, MT 59715 (406) 994-2580

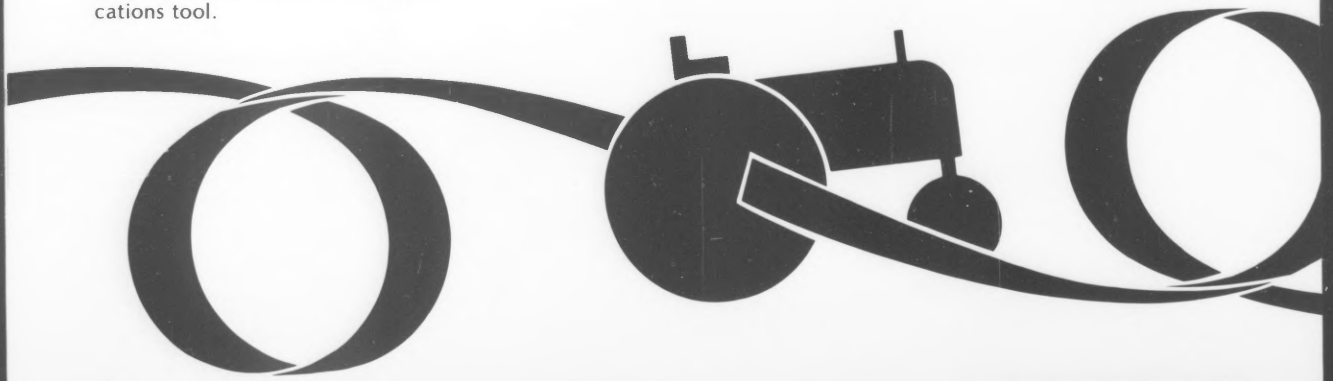
NEBRASKA—Pat Ebmeier, Users Services Supervisor, 105 Miller Hall, University of Nebraska-Lincoln, Lincoln, NE 68583-8713 (402) 472-1892

NORTH DAKOTA—Dave Rice, Manager, Morrill Hall, North Dakota State University, Fargo, ND 58102 (701) 237-7381

SOUTH DAKOTA—Don Peterson, Supervisor, Department of Economics, South Dakota State University, Brookings, SD 57006, (605) 688-4141

WASHINGTON—Tony Wright, Coordinator, 303-A Ag Sciences, Washington State University, Pullman, WA 99163 (509) 335-2511

WYOMING—Harlan Hughes, Coordinator, 117 Agricultural Building, University of Wyoming, Laramie, WY 82071 (307) 766-4377 □



AGNET in Washington State

M. Anthony Wright
Extension Computer Coordinator
Washington State University

Get a good system . . . train those who will run it . . . and put the system to work as soon as possible.

These have been the goals of Cooperative Extension at Washington State University (WSU-CE) since implementing AGNET, the agricultural computer network.

In mid-1980, Cooperative Extension at WSU became a full partner in the AGNET system. Currently, computer terminals are installed in all 39 county Extension offices and approximately 90 percent of WSU-CE county faculty have each received at least 3 hours of "hands-on" instruction. Programming efforts have been productive with the completion of seven major programs and many others rapidly nearing that point.

Background

AGNET is an agricultural computer network that began at the University of Nebraska in 1975. Since then, AGNET has grown to over 3,000 users in 35 states, Canada, and other foreign countries.

Technically, AGNET is an interactive system designed to deliver management tools and information to individuals and organizations concerned with agricultural production. It uses standard equipment and the IBM-CMS operating system and users can access it through any standard computer terminal.

AGNET is designed to be "user friendly"—this means AGNET users are not expected to know anything about computer operations. The system was planned so it will not act as an impediment between the user and the information he or she wishes to obtain.

AGNET consists of a library of over 225 programs that are divided into three major categories: problem-solving programs, market information delivery, and conferencing through electronic mail.

Currently, there are six major partner states participating in AGNET—Montana, Nebraska, North and South Dakota, Washington, Wyoming. Partner status allows a state to modify existing programs and place new programs on the system. For a more thorough look at the AGNET computer system see "AGNET—American Network for Agriculture" in this issue on p.10.

Early Staffing

For the first 6 months as a partner state, Washington AGNET was without full-time support staff. Two state leaders for community resource development—James Barron and Arlen Davison—volunteered a portion of their time to AGNET. M. Anthony Wright became the state Extension computer coordinator and the first member of the permanent staff in November 1980. A second staff member—a systems analyst-programmer—was hired in January 1981 and is assigned to AGNET program development.

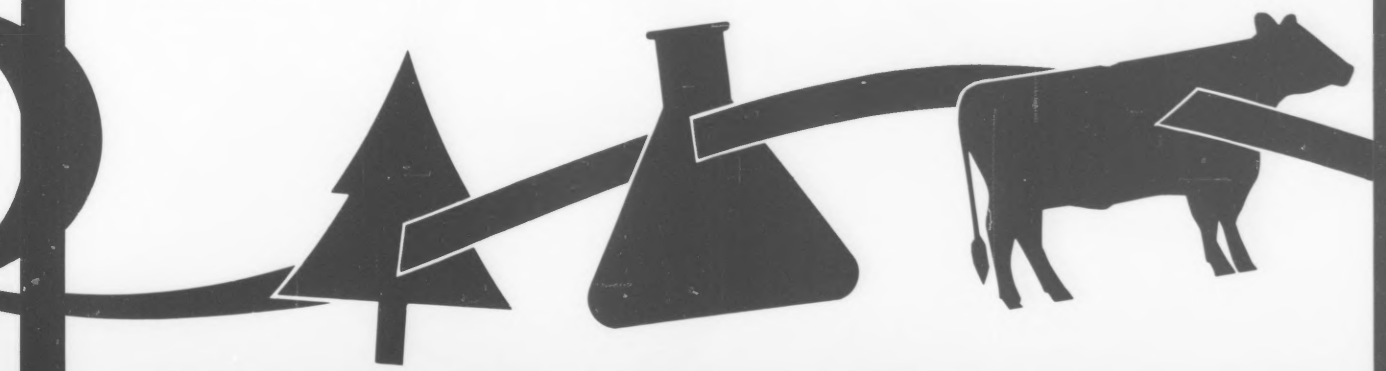
Three part-time programmers and three temporary subject-matter assistants (in animal nutrition, forestry, and agricultural economics) were hired later with funds from three grants totalling $60,000 for AGNET program development and modification. The funds, from USDA's Soil Conservation Service (SCS), were to develop AGNET soil and water conservation programs, adapt several AGNET programs to Washington, and establish data bases for certain other programs.

Three AGNET projects concerned with soil conservation and completed this year are PIPE, PUMP, and PNWSOIL.

PIPE was a modified computer program aimed at allowing users to quickly calculate the sizing of irrigation pipe in hilly country.

PUMP, a modification of the PUMP program, gave the data for gravity-pressurization of irrigation systems.

PNWSOIL was a program that offered a modified "universal soil loss equation" for predicting soil erosion in Washington.



Telecommunications
Initially, users would dial long distance commercially to input the AGNET computer located in Lincoln, Nebr. The installation of a statistical multiplexer (an Infotron 680) increased dialup ports from six to eight. In 1981, "incoming-only" WATS lines were installed for county faculty. It has been estimated that this shift to WATS lines, with their reduced rates to multiple users, has saved Extension at WSU at least $1,500 per month since their installation.

External Users
Usage by month of Washington AGNET rose from 350 hours in August 1980 to 450 by January 1982. And usage increased an additional 10 to 15 percent during the first quarter of 1982.

"External" users of AGNET—individuals and institutions associated with WSU—pay the full computer and telecommunications costs of their AGNET usage. As of January 1982, these "externals" accounted for about 25 percent of total Washington AGNET use.

The major users include specialists from SCS, members of major agricultural lending institutions, consultants, farmers, and ranchers, mainly in Washington, Idaho, and Oregon. SCS has placed terminals in nearly every one of its local or area offices throughout Washington and accounts for a large share of users and time on the system.

The Extension program at WSU currently accesses about 2,300 programs per month and external users account for 1,000 of this total.

Meaningful Analysis
A trend noted in Washington AGNET usage is the continual decrease in the number of programs called per hour. This means users on the faculty at WSU are taking *longer*—not less time—to run a program. This has surprised some staffers because users were expected to decrease amount of time they took to run a program when they gained proficiency.

Why are they taking longer? One speculation is that these users are doing more substantive analysis when they call a program. And this takes more time than the "exploratory encounters" with the computer that are typical of the earlier learning months.

Volcano by Mail
The AGNET system has been used in various ways by the Extension faculty at WSU. One of the earliest uses was electronic mail.

When Mt. St. Helens "blew its top" on May 18, 1980, electronic mail was used to communicate between counties and the WSU campus at Pullman. Information about the disaster and county and state recommendations dealing with it reached Pullman even as the volcanic ash began to mushroom over the area.

By early the same afternoon—less than 4 hours from the moment of eruption—information about the disaster had been collated and sent by electronic mail to the U.S. Department of Agriculture in Washington, D.C.

Later, information was collected from county offices every Friday morning through electronic mail, keeping current the account of the continuing disaster.

Electronic mail had—in dramatic fashion—demonstrated the rapid transfer of current, vital information.

Teachable Moment
One county faculty member, involved in beef herd performance testing, was able to run an analytic program from a rancher's home telephone. The AGNET program allowed him to get immediate feedback of test results.

This quick feedback let him give a thorough explanation of the principles of beef herd improvement—

what he called a "teachable moment." He believed he would not have had this impact if he had followed traditional methods and used a hand calculator. This, he said, would have meant a delay of several days or a week.

Potential Careers
Another WSU faculty member has used AGNET's JOBSEARCH program to educate low-income minority teenagers about the variety of potential careers they can later pursue. The youths were informed of the skills needed to qualify for different careers.

This information, coupled with job availability reports in the state, helped to round out the career education program.

Program Variety
FEEDMIX, for which a Washington feed database has been established, has proved useful to beef producers. Using the program's least-cost animal ration balancer, producers have learned new aspects of animal nutrition, especially concerning feed substitutes.

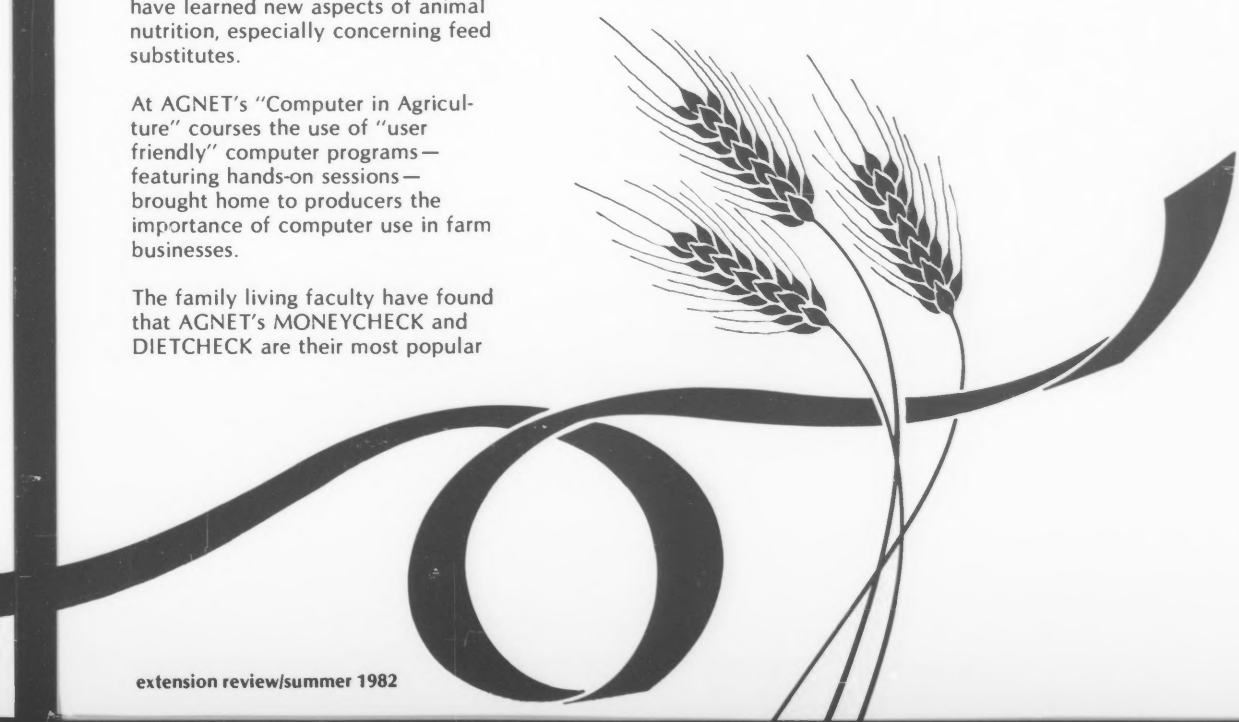
At AGNET's "Computer in Agriculture" courses the use of "user friendly" computer programs—featuring hands-on sessions—brought home to producers the importance of computer use in farm businesses.

The family living faculty have found that AGNET's MONEYCHECK and DIETCHECK are their most popular programs. MONEYCHECK is used in family spending and budgeting classes. The program analyzes personal spending patterns and compares them to national or state averages.

DIETCHECK has been used frequently by county faculty in their nutrition classes and has been used to check out the adequacy of "fad" diets.

Other popular family living programs are:
CARCOST (a cost-finder program for autos and trucks); FOODPRESERVE (a cost-finder program for preserving foodstuffs at home); and FIREWOOD (a program that deals with economic alternatives of heating with wood).

Washington AGNET staff at WSU have plans for many new projects. The goal is to continue to be dynamic and productive in all future programming efforts. □



Breakthrough in Computer Budgeting

Veronica Carmack
Extension Family Resource Management Specialist
Clemson University Cooperative Extension Service

How many lives have we changed in South Carolina with our computer budgeting programs? It's hard to say. But many South Carolinians are better family budgeters because computer programs in money management began back in 1974 through an Extension Service-USDA special needs grant.

The initial program—called PLAN—was to be used with our mainframe computer located on the Clemson University campus. This comprehensive budget analysis program continues to be used as a tool to examine a family's spending pattern and expenditures for a 12-month period.

Early in the project some county agents asked for help developing a mall exhibit on money management. We wrote *Speedy Spend,* a simple computer program using a portable terminal as an attention-getting device. It was an instant success.

Extension agents quickly accepted *Speedy Spend* because it was easy to use and nonthreatening. Some agents had previously resisted doing any budgeting work because of the calculations involved. How much simpler to avoid mistakes in addition! Budgeting the old way took a long time to do on a calculator. Now, this surprisingly simple program could do it all for them. *Speedy Spend* was also a big hit with our clients.

On one occasion at a large mall in Greenville, a relay system was needed to move the large crowd through the line. First an agent would help a person fill out the 10-question input sheet before sitting down to the computer. As soon as the computer printout was completed, the agent would quickly tear it off and move out of the way to discuss the analysis with the client while another agent and client took their place at the keyboard. Quite a system. It takes teamwork. But, when all the agents in an office, in both agriculture and home economics cooperate, it works. After the ES grant money was gone, we had to decide how to cover the cost of telephone charges and other expenses connected with the use of remote terminals.

Bank Involvement

Contacts were made with the Women's Division of the South Carolina Bankers Association. After presentations to "sell the product," *Speedy Spend* became a project for these bank officers. An article was published in their state magazine, the *Palmetto Banker.* Each bank in the state was invited to work with their local Extension office to set up computer budgeting exhibits in their lobbies. In many cases, the banks went the extra mile by providing publicity, printing posters, and giving their employees an opportunity to serve as volunteers on the days we were with them. In exchange for our service to their customers, the banks agreed to pick up the tab for all expenses incurred. It was a good experience for all. We still use this approach in counties that don't have their own computers.

In September, 1981, South Carolina received a grant from the Kellogg Foundation. One provision of that grant is to place microcomputers in county Extension offices—a marvelous opportunity to use computer technology in all areas of Extension work.

It didn't take long for us to transfer our *Speedy Spend* program to BASIC. That's the computer language used on the Radio Shack TRS-80 computers in our project. At this time, we are using both Model II and Model III TRS-80's. Staff members in counties with Model II's are happily converting all their mailing lists and much routine office work to the age of technology.

Our updated version of *Speedy Spend* goes a step further than the original. We still ask for a minimum amount of information. Soon the client is presented with a budget which uses both state and national figures for comparisons with their own guesses, then the client can revise the budget from scratch using either the exact amount of money spent in a particular category or selecting an upper and lower range of numbers.

For example, suppose you aren't exactly sure of the amount you are spending per month on automobile upkeep. You might choose an upper limit of $60 per month with a lower limit of $25. After all the other budget categories are calculated, some number between these limits will be selected for that budgeted item. If your expenses were running pretty high, you would choose a figure closer to the lower limit. The point is, you have the option to set the limits yourself, or to suggest exactly what you expect to spend. A "tailor-made" budget is the result. All this in less than 30 minutes (27 minutes of "thinking" time and 3 minutes of computer time).

In shopping mall demonstrations, we don't revise budgets, but stick with the original *Speedy Spend.* If, however, a client has an unusual situation or needs additional financial planning, we can arrange to help more at a later time.

Financial Counseling

Individualized financial counseling is becoming more important to us. In many counties in our rural state,

the Extension home economist may be the only person available for people to talk with concerning financial problems. Group sessions have great value, but won't work for everyone.

Computers help to take away much of the drudgery connected with budgeting. Clients are impressed when they learn that Cooperative Extension is right on top of the current technology wave. Our credibility is respected and enhanced. When people stop by our exhibits at shopping centers, they may express amazement that we are involved in anything besides farming and canning. That's why we have been so pleased with our branch office at the Dutch Square Mall in Columbia, our state capital. The office has been effective in demonstrating Extension's practical assistance in financial planning for families and in other areas of home economics and agriculture.

Shopping Mall Office

Several years ago we decided to take our Extension programs directly to the people when they shop. We moved into a busy shopping center with a staff and fully equipped exhibit center. Every day except Sunday, our county Extension Service branch office opens from 10 a.m. to 9 p.m. We receive soil samples for processing, have special exhibits, demonstrations, and displays, show video tapes and answer a multitude of questions. Our monthly contacts average around 3,000 people. That's not just the "Hello, how are you" kinds of contact, but contacts where clients ask questions, receive leaflets, or watch demonstrations. In the near future, we expect to place a permanent computer in the branch office, instead of only having one for special promotions.

Special computer promotions are handled in a cooperative spirit through our contacts with Radio Shack stores. Most of our larger malls have these stores in them. If a county office lacks their own equipment, staff members can visit the local dealer to borrow equipment for a specific time and place. We supply the money management programs, personnel, and expertise and the store provides the equipment and the paper for the printouts. We are pleased and the clients are, too.

Navy Uses

Elizabeth Hill, Charleston Extension home economist, learned that *Speedy Spend* could be of great interest (and help) to Navy personnel. The U.S.S. Sierra at the Charleston Naval Base heard that Hill had used the computer money management program with an Air Force group. They asked her to "come aboard" and teach a group of 720 Navy personnel (while closed circuit TV cameras rolled). She also did one-on-one computer budgeting using the ship's computer. "I reached both men and women," says Hill. "From enlisted staff to the executive officer of the ship!"

The Navy doesn't fool around. They interviewed people who'd gotten help from Extension to see if the program was worthwhile. They received good feedback and made arrangements to call Hill for more help. "I told them that I want to train their volunteers to use *Speedy Spend* for counseling," she says. "I'm also working with a chief petty officer in the Charleston Naval Base dispatching office to see if other ships are interested." Meanwhile, Hill has been told that the videotape she did on the U.S.S. Sierra will be shown while that ship's at sea, and perhaps to crews on other ships.

Software Need

South Carolina has had numerous requests for copies of the computer programs developed by the state. At least 30 states have adapted the South Carolina money management program or have access to the program through a national computerized management network. When we receive a blank disk from a client, we copy a program onto it at no charge. That involves a certain amount of staff time and effort. We are working toward making all these programs available through a national timesharing network so that prospective users may transfer the program they need directly to their own microcomputer through a phone call.

The future in South Carolina is bright for growth in computer technology. Our county personnel are excited at being leaders and innovators in the field. As Extension professionals we use computer technology to better serve our communities and clientele. □

Future Waves in Communications

Betty Fleming
Agriculture Extension Specialist,
Home Economics
Extension Service, USDA

Nearly 700 communicators and communications-minded co-workers tuned in, live, to an audio teleconference held July 7, 1982 at this year's national ACE (Agricultural Communications In Education) meeting. Through this mechanism, 500 professionals "back home" shared in the momentum of 200 fellow workers at a conference exploring the depths of "Future Waves in Communications."

National professional meetings may never be the same again.

The ACE conference was an innovative step in a forward-thinking direction. Nineteen states were hooked up, via an audio teleconferencing network, to Biloxi, Mississippi, the site of this year's meeting for a 1½ hour teleconference on "Communication: Rocking The Boat . . . Without Sinking The Ship."

ACE is an organization of professional communicators who represent all media interests, information administration, research, teaching and international programs in agriculture, home economics, and related fields. The organization's first teleconference, dedicated to Les Schlup, ACE pioneer and former head of Extension Service Information at USDA, was made possible through a $5,000 grant from Extension Service, USDA. Larry Quinn, head of USDA's film and video services for the Office of Governmental and Public Affairs, was coordinator and moderator for the event.

The showing (at all sites) of a 30-minute videotape featuring remarks from three outstanding resource people preceded the teleconference. Jim Turner, a Washington, D.C., consumer advocate attorney, urged viewers to listen more to the trends and issues around them so that, as communicators, they can help to shape the future. Clement Bezold, a Washington, D.C., political scientist and futurist (Director of the Institute of Alternative Futures) described the options he sees for the future and how changing values will affect our future. He encouraged viewers to involve others in decisionmaking processes. Bill Harvey, publisher and editor of New York's "Media Science Newsletter," described some of the latest trends in communications technology.

By the time everyone around the country had viewed the tape, all were linked to a dedicated phone bridge and were ready to discuss together their questions and concerns. One time around for each site provided a wide range of questions, everything from: "How many cable operators are there now?" to "How do we set communication priorities?"

Interest and participation were high as the three resource people ably responded to each comment. "The fact that there were so many good questions and our speakers were broad-based enough in their knowledge to handle these questions were definite success factors for us," says Quinn.

All told, there were 28 state questions and responses (often from several resource people) during the 1½ hour Q and A period. It began with a brief discussion between Quinn and the resource people.

How It Was At State Sites

Judy Sorton, news coordinator, and John Totten, radio specialist, handled arrangements at the Indiana site. "We had about 26 people in West Lafayette, our staff office, plus eight area sites attended by about 70 people," says Sorton.

State and county comments were generally positive in Indiana, reports Sorton. "Some of our state people would have preferred live video but they understood the cost was prohibitive."

In some ways, extending the information to both state and county audiences posed challenges. "We had non-Extension communications faculty as well as our own information staff at the state site, plus some agents and Extension program specialists, says Sorton. "Some of these people had no idea of what ACE is."

Some of the Indiana field staff had technical teleconferencing problems; a few criticized the sometimes lengthy responses to questions and some found the information

Top left: Featured speakers at the national ACE (Agricultural Communicators in Education) meeting in Biloxi, Miss. were: (left) James Turner, D.C. consumer advocate attorney, and (right) Clement Bezold, a political scientist and Director of Alternative Futures, a futurist organization. Both addressed aspects of the teleconference theme: "Communication: Rocking the Boat... Without Sinking the Ship."

Left: Nineteen states were hooked up live to this year's national ACE (Agricultural Communicators in Education) meeting held in Biloxi, Miss. They were linked to the meeting through a harbinger of the future: an audio teleconference system.

Above: The audio teleconference facility at Beltsville's National Agricultural Library features an electronic blackboard. When someone writes on the blackboard, the image is picked up by television monitors at other facilities that have this capability. The NAL facility is available to all federal agencies, with priority use going to USDA.

theoretical as opposed to practical. "Here again, maybe in the future we have to do some additional preparation of diverse groups like this," says Sorton. "We can't expect everyone to be at the same point in the thinking process."

The Indiana administrators who chaired the area sessions said the teleconference helped county staff to "look at what is going on in the world" as opposed to strictly local concerns. Sorton says, "One idea for next year might be to hold followup sessions for county staff so they can discuss ways to localize the information." She also feels required preparatory reading would help, too.

Arizona's Guy Webster chaired the session in Tucson. "We only had four people," says news specialist Webster, "but one of them was our Director, Roy S. Rauschkolb. In a followup session with him, we discussed direct broadcast satellites (DS) and our need to pioneer with new technology. It was a good session."

Two of the four people in the Arizona group had been scheduled to attend the Biloxi meeting, but the budget crunch forced them to cancel 2 weeks before the meeting. "If it hadn't been for the teleconference," says Webster, "Arizona wouldn't have participated at all this year in our professional association's annual meeting."

Webster expressed surprise that the 2-hour session (including the tape viewing) held everyone's interest. "I would have thought just mostly listening would have been hard to do."

Members of ACE in Washington, D.C. were among those viewing the teleconference.

Other success factors for the session cited by ACE 1982 program chairman John Culp (TVA-Alabama) were the careful planning done by Quinn, with the help and advice of key ACE Board members and program planners, ACE President-elect Ralph Ballew, Mississippi, and Extension Service, USDA Information and Communications staff.

"Larry's letters to states were well drawn up, giving step-by-step information," says Culp. "Electronic mail helped us to involve states and get quick feedback from them."

How It Began

The history of this large-scale project began in the summer of 1981 when Extension Service, USDA information staffers began thinking of ways to follow-up the first national Extension video teleconference held November 20, 1980. It was recognized that funds for such federally-funded video events would be limited in the future. The question was, how to pool available resources and keep the "new era" communications momentum going?

At the same time, contacts were made with ACE leaders Culp and Ballew who were planning the 1982 ACE national meeting. Ovid Bay, Extension Service, USDA, Information and Communications Director, requested financial support for an Extension Service sponsored ACE teleconference from Mary Nell Greenwood, Extension Service Administrator. In September 1981, Culp, Ballew and Judy Sorton (Indiana) from the program committee spent 2 days in Washington, D.C., talking to USDA information and program staff, Quinn, and Indiana Extension editor Eldon Fredericks on assignment in Washington, D.C., at the time, and conferencing with their counterparts by phone. A tentative plan was drawn up and communicated to the ACE Board in December, 1981. Input of key state people such as Roy Blackwood, Illinois, helped to shape the final product.

"Networking was another success factor," says Quinn. "My wife Christine, an information staffer for Farm Credit Administration, helped me get the name of resource person Clem Bezold from a USDA Food Safety Inspection Service (FSIS) contact at a Women In Communications Meeting. When I called Dr. Bezold, he provided me with the names of Jim Turner and Bill Harvey."

Some Other Plusses

Gearing up for teleconferencing at this year's ACE meeting had side benefits, too. Several other sessions, including one on cable TV with Suffolk County, New York, staff and from TV specialists (two in Biloxi and two in other states) and a home economics communications meeting were made possible because the teleconferencing option was in place. In years to come, perhaps more multiple use will be made of such options.

Locations participating in this event were: Alabama, Alaska, Kansas, Indiana, Illinois, Minnesota, North Dakota, Oregon, South Dakota, Utah, Washington, D.C., South Carolina, Washington, Idaho, Arizona, California, Texas, Canada, Pennsylvania, Delaware, and (Biloxi) Mississippi. In addition, Bill Harvey was on line from New York City.

Plans for the Future

New ACE President Ralph Ballew says he'd like to see innovative use of new technology such as teleconferencing at future ACE meetings. "We've got to involve members in national and regional meetings even when they can't attend," says Ballew. He and ACE '83 program chairman Roy Blackwood are exploring possibilities for funding the technology aspects of the '83 national meeting.

Localized Followup Possible

"State agent associations may want to check with their Extension editor to see what materials are available for meetings from this year's ACE meeting," says Ovid Bay. "Mississippi videotaped some sessions; the teleconference videotape is available; so are audio tapes of the teleconference. Also, the Southern States put together a tabloid describing this year's meeting. In addition, there's a written transcript of the teleconference tape and an evaluation report being prepared. All in all, there are a lot of multiple use materials which could be localized in a state or area discussion group setting." □

Video Conference Network SEEN Nationwide

Lorne A. Parker
Director of Instructional Communications Systems
University of Wisconsin-Extension

University of Wisconsin-Extension, an international leader in teleconferencing since 1965, will launch the world's largest dedicated freeze-frame videoconferencing network this fall.

Lorne A. Parker, director of Instructional Communications Systems at UW-Extension in Madison, is purchasing 30 freeze-frame video units. Extension's experience in teleconferencing, says Parker, means that the equipment—which can "freeze" a picture of nearly any object and transmit it to other locations—will be used to its fullest potential.

For the past 2 years, Extension has participated in interactive video seminars with students at New York University. And each year, approximately 40,000 people use its teleconferencing system, one of the largest in the world.

The freeze-frame units should be installed by July 1, says Parker, and by September they should be operational, benefitting the students and instructors on Wisconsin's Statewide Extension Education network (SEEN).

Networking

That network, one of several interactive delivery systems operated by Extension, interconnects 25 Wisconsin cities for continuing professional education and administrative communication. SEEN enables residents throughout Wisconsin to take courses, sometimes originating hundreds of miles away, in their own communities.

Teaching subjects such as engineering, business, and mathematics requires both audio and visual instruction. UW-Extension, says Parker, sees the need to coordinate audio and visual information and, through 17 years of experience, has developed techniques to accomplish it.

Through the use of leased telephone lines (making a private, or dedicated, network), SEEN students and instructors can communicate with each other while viewing visual material designed by the instructor. The new freeze-frame equipment will improve the visual instruction, now provided by electrowriters. With electrowriters, instructors' written diagrams are carried over telephone lines and are reproduced on distant classroom screens.

Equipment

Freeze-frame equipment, which is also referred to as slow-scan, gives an instructor more flexibility—a broader use of visual materials and a smoother coordination of audio and visual instruction. Using a standard closed-circuit television camera, still images of objects, photographs, slides and schematics, for example, are transmitted over a telephone line to a black-and-white television monitor in the classroom.

SEEN (Statewide Extension Education Network), a computer network for continuing education and administrative communication, operated by Extension at University of Wisconsin, has been enhanced by 30 new freeze-frame teleconferencing units. Lorne A. Parker, director of Instructional Communications System at UW, is shown at one of the new units he was instrumental in purchasing. Marcia Baird, associate director, assists him.

The videoconferencing system will also aid administrative meetings, which often deal with budget and planning issues. With the new equipment, Extension administrators can show visual information such as charts and graphs to supplement discussion.

A major plus in the units says Dennis Gilberston, director of engineering at ICS, is their two-frame memory capability. The instructor can send two images, or frames, to the remote site; one is held in storage. Instead of a usual 30-second delay in transmitting frames, the instructor can show the second frame immediately after the first or switch between the two. A third frame can also be sent to replace the first.

Among Extension's other teleconferencing systems are a dedicated audio network linking 200 locations statewide, a meet-me bridge for dial-in conferencing, and satellite/cable links to receive national videoconferences. □

Computer-Based Typesetting System—A Success

Anne S. Pease, Publications Editor
Deborah M. Turner, Assistant Publications Editor
Larry R. Whiting, Chairman, Department of Information and Publications
University of Maryland

In July 1980 the Department of Information and Publications at the University of Maryland decided to "go it alone"—to purchase its own typesetting equipment rather than continue to contract with outside typesetters.

Now, 2 years later, the department staff is confident it made the right decision. For a relatively modest investment, we now boast a computerized word processing-typesetting operation. The components of this operation are a Mergenthaler Omnitech 2100, a Xerox 860 word processor, a Xerox 820 personal computer, and communications modems connecting the three.

The first purchase was a Mergenthaler linotype laser 2100 typesetting machine. This typesetter uses 8-inch floppy discs as do most word processors. The program and type fonts are loaded on one of the discs. Having the fonts on the program disc means that at all times the machine could have at least 20 type faces on line simultaneously. Each face can be printed out in 246 type sizes ranging from 4½ to 127½ points. For this machine, a variety of type fonts plus math and pi symbols were purchased.

The machine can slant copy forward or backward ,' or 14 degrees. This capability eliminates the need to purchase italic sans-serif fonts—the machine makes its own. The machine both condenses and expands copy from 50 to 300 percent. One feature the department is just beginning to use graphically is the ability to reverse copy or even part of a single character, from black on white to white on black.

The Mergenthaler uses photo sensitive NCR paper which is developed in a P14 processor. The paper and chemicals are expensive, but the quality is wonderful.

Unforeseen Problems

When the department actually purchased the typesetter, several unforeseen problems were discovered. One immediate problem was that the University of Maryland had no job classification for a phototypesetter and that any classification that could be twisted a little to work did not pay a salary anywhere near that paid in private industry. Thus, the department had to hire an inexperienced beginner. Everyone learned at the same time. Next, the Mergenthaler required a separate room (noise and dust are a problem), with dedicated or separate power, nonstatic carpeting, and climate control. We had to make adjustments to accommodate these needs.

Once the typesetter was operational, we discovered we faced an incredible proofreading problem. The contracted outside typesetter proofed and corrected copy before it came to the department. This meant easy reading for the editors with an occasional typo discovered. Suddenly, we had an inexperienced typesetter and no proofreader. Along with this situation was the expense of performing initial proofing on expensive photo-typeset copy. Further, we still had a real production backup.

Word Processor

These conditions led us to the word processor and communications tie-in. The front end of the typesetting system is a Xerox 860 information processing system (word processor). There are an infinite number of word processors on the market today, but the department chose the Xerox for two reasons. First, the University of Maryland has developed a word processing master plan in an attempt to coordinate word processors purchased for the campus. In this plan, five companies were designated as preferred vendors. Xerox was one of the five.

The second reason for choosing Xerox was that it had several options we thought were important. The mandatory requirement was that the communications option would use the same language as the typesetter. Some vendors admitted they could not communicate while others claimed they could when, in fact, they could not.

The word processor has a 128K memory with its double-sided, dual-disc drive. This factor makes inputting long technical bulletins easier and keeping a disc library by type of publication more efficient.

Another extremely important option was a full-page display. The department planned to produce camera-ready copy for some forms, tables, and records with the word processor. Full-page display facilitates easier layout on the machine rather than cutting and pasting copy later. Xerox's full-page display is black on white rather than green on gray. Since the typesetter had the green on gray screen, the department had a year of testing eye strain to weigh its decision. The black on white is far more pleasant.

In Maryland, one minority audience the department works with is a growing Hispanic population. The foreign language option and Spanish print wheel were purchased to use in preparing publications for this group. There are seven languages on this program so it can be expanded merely by purchasing the appropriate print wheel.

Realizing the extra proofreading required through setting type, we also ordered the spell-check option. This software package is designed to find and highlight misspelled or suspect words in the processed copy.

The final option chosen was a conversion program so our Xerox 860

could read discs from a Xerox 820 personal computer used in the department's print shop for labeling and inventory use. This feature will facilitate keeping track of the inventory and helping us if the equipment is down.

Process

The publications secretary who was producing camera-ready copy on an IBM Selectric is the 860 operator. She is also the backup operator for the typesetter. She creates a conversion table for each job that is going to be communicated to the typesetter and types the manuscript accordingly. This table converts the word processor's command keys to whatever specific typesetting commands the job entails. There are character limitations to a translation table so coding still has to be done on the typesetter. Proofing of the word processed copy is a little bizarre, with strange symbols interspersed in the copy, but everyone seems to have adjusted.

To a great extent, we do our proofing and copy checking after copy is on the disc. Once the copy gets to the typesetter, the major concerns are with layout, coding, and hyphenation.

By adding the 860 on line, our keyboarding capability has increased by about 50 to 70 percent. Several things are not worth doing on the Xerox. Tables are difficult to set up and send and, once communicated, still take a lot of coding. Small bits of copy, short publications, and display type are easier to keyboard on the typesetter.

We linked the equipment via telecommunications because the typesetter is located too far from the word processor to be connected to it by hard wire. There are advantages and disadvantages to telecommunications. The department has only four phone lines for the entire staff of 22 persons. Communicating (dumping) ties up two of the four lines. Scheduling dumping for late or early in the day or at noon interferes less with the other sections of the department. On the plus side of the setup is the capability to communicate with other compatible equipment. For instance, Extension is establishing an ESTEL (Extension Service Telecommunications System) system in Maryland, and the department could easily input information into it.

Long-range Goals

With the long-range goal 2 years ago to get both systems operational and tie them together with communications complete, we set some new long-range goals. We hope to program all standard publications formats into the memory of the typesetter. This procedure should eliminate time-consuming page calculations and paste ups.

We hope that, within a few years, we will have all our publications on disc. Then, revisions can be made with a minimum of key stroking, saving both time and chance of error.

A current, computerized publications inventory is another long-range goal for publications and distribution. This inventory has been needed for years, but previously the department staff have had to work with the university's main computer. Now we have a computer at our fingertips.

Approximately $26,000 was spent for the typesetter, $18,000 for the word processor, and $5,000 for communications. Previously, we had spent approximately $10,000 to $12,000 per year on contracted type for about one-third of our publications, and we purchased a new typewriter every year or two for production of the remainder.

In a few years, all publications will be set in type and stored on disc memory for future revisions. Already the department is realizing some savings in the number of paper-plate-impressions since typeset copy cuts down the length of publications. And, as importantly, everyone in the department is extremely pleased with the quality appearance of the publications. □

Guiding Local Officials Through the Computer Age Maze

Sue H. Jones, Editor
Southern Rural Development Center
Mississippi State University

An Extension model for guiding local officials through the maze of the computer age could help bring city and county governments a new efficiency in financial management.

"Computers are electronic filing cabinets which allow rapid access to records," explains Mary Ball, local government specialist for the Mississippi Cooperative Extension Service. "Time-consuming tasks become streamlined and routine after the initial run, and a 2-week task by hand can sometimes be reduced to only 7 minutes by computer."

While many local government officials recognize the time-saving efficiency of computerized financial records, they also see the complex problems of selecting and paying for a computer system.

"Most government officials don't know anything about computers and find it difficult to make informed decisions about the use of computers," Ball says. "What local officials need when they are approached by high-powered computer sales people is technical assistance that will aid them in making an intelligent decision."

Working Model

In an effort to provide state Extension staffs with a model for offering this assistance, Ball and project team members from three land-grant institutions recently developed and tested a working model for transfer of computer technology to county officials.

The project was funded by the Southern Rural Development Center and included the participation of Gerald Doeksen and Charlie A. Burns, Oklahoma Cooperative Extension Service, and John Scoggins, University of Georgia Institute of Government.

Project team members selected Woodward and Washington Counties in Oklahoma and Yazoo County in Mississippi as pilot counties to test the model. The Yazoo group marked the first time that a city and county in Mississippi have cooperated in a joint computer project.

In addition to working on the regional project, Ball regularly provides technical assistance to Mississippi communities converting to a computer to increase the efficiency of such financial operations as tax billings, utility billings, payroll, accounting, budgeting, and collections.

Assess Need

"It's important to emphasize that all cities and counties don't need computers," she says. "Extension can help local officials determine whether or not a computer will help them do their jobs better."

"We can look at what they are doing, analyze the needs of the governments, help them learn how to computerize their records, and tell them what it will cost."

"The computer programs are, by far, the most important part of a computer system," she explains. "Many local government people don't realize this. I don't recommend one program over another. In fact, I don't decide if they need a computer. My role is to help them organize their needs so they can see if a computer will help them. Then I help them locate what's available in computer systems."

Comparing the use of a computer to using a telephone, Ball says that local government officials don't need to become computer experts.

"You don't have to know how a telephone works to use one," she said. "It's the same with computers. You can use this tool without knowing the technical aspects."

The computer assistance model used by Ball and the project team was developed by Scoggins, a nationally recognized expert on computerization for cities and counties. Scoggins served as technical consultant for the regional project.

Plan Unfolds

The first step in Scoggins' plan to assist local governments in computer selection includes spending several days with elected and appointed officials to determine the quantity and type of work done by various government offices. Then the Extension specialist compiles this information and prepares a report for these officials. The report lists those activities which can be computerized and estimates associated costs.

The second step requires preparation of specifications for local government officials to send to computer companies inviting them to bid. After the bids are received, the Extension specialist arranges for demonstration of those computers which public officials think may do the best job for them.

Computer vendor demonstrations consist of having the vendor demonstrate the hardware and software of each proposed system and answer any questions local officials may have concerning this proposal. Each vendor is encouraged to provide local officials with "hands on" experience in using equipment.

After these demonstrations, the Extension specialist prepares a written evaluation summarizing the proposals. The evaluation discusses the pluses and minuses of each proposal including such considerations as the reliability of equipment, capacity for growth, the company's existing systems in operation, hidden costs, etc.

"When officials have selected the top one or two computers they like best, we help them prepare and negotiate a contract," Ball says.

Vendors usually have a prepared contract they ask local government officials to sign, but Ball never recommends signing a vendor's contract. Instead she submits a contract to the vendor which reflects the best interest of the county and then negotiates any changes in the contract which the vendor may require.

Later Ball helps to monitor installations of the computer system to be sure it is meeting the contract specifications.

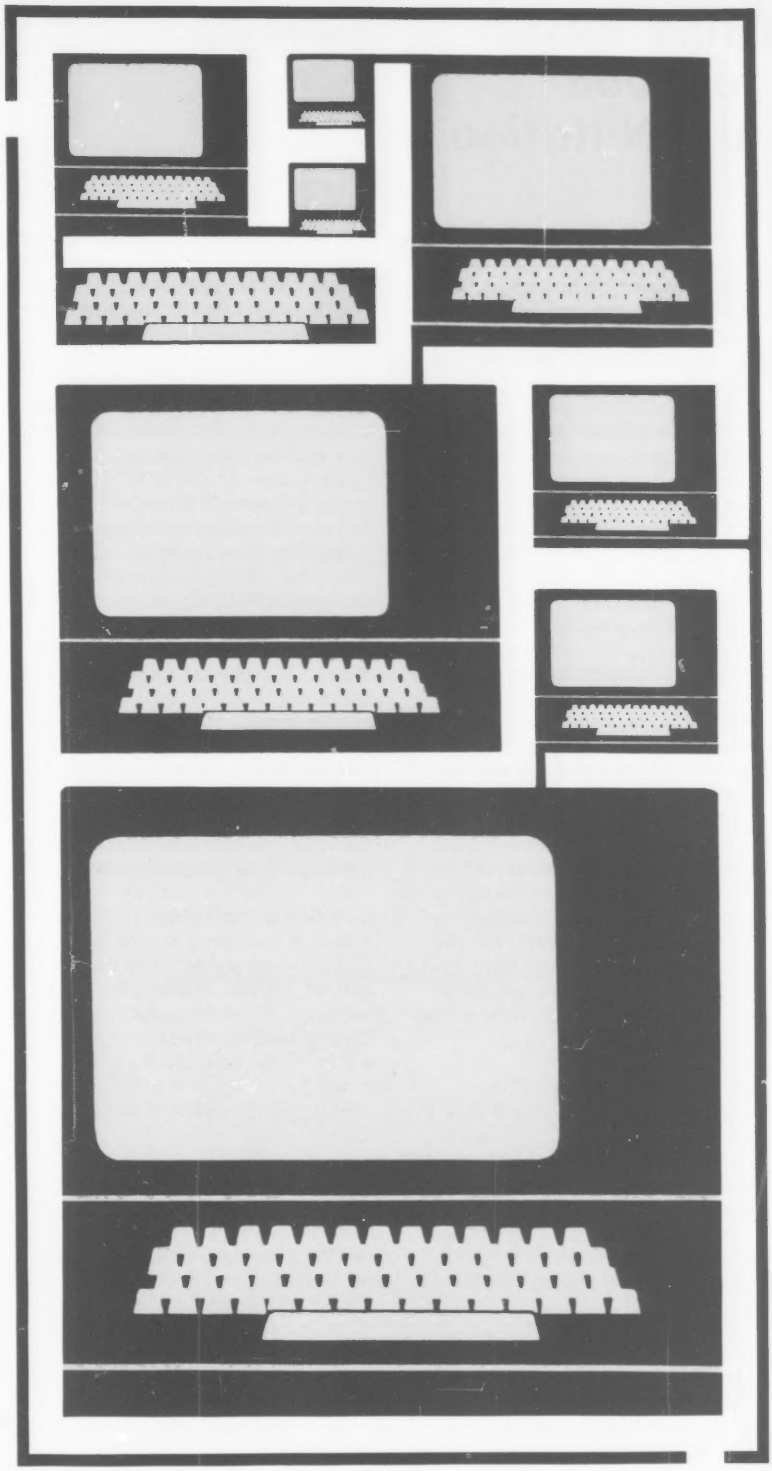
"The whole process takes anywhere from 6 months to a year," Ball says. "Officials need that much time. It allows them to become fully involved and to make knowledgeable decisions on their own."

In the last 4 years, Ball has provided this free technical assistance to 20 city and county governments in Mississippi.

Project Results

"We will be publishing the results of this regional project during the summer months," explains William W. Linder, director of the Southern Rural Development Center. "Our intention in funding this project is to provide a tested, working model that other state extension services can use in transferring computer technology to county government officials."

"Efficient financial management is essential to local government, and we hope we can help Extension to bring the efficiency of computer technology into the county courthouse." □



High Tech for Food and Nutrition

James Wolfe,
Writer-Editor
Extension Service, USDA

High tech is on the upswing at many of the land-grant colleges throughout the United States as Cooperative Extension specialists find multiple applications for electronic technology in their various food and nutrition programs.

One example, DIETCHECK, a computer program for nutrition evaluation and research, has been developed by Extension specialists at the University of Nebraska-Lincoln. More than 125,000 users have had "dietchecks" since 1975 when Harriet Kohn, Extension food and nutrition specialist, and Thom Thompson, professor of agricultural engineering, developed the program.

DIETCHECK is used in a wide range of adult Extension programs including the Expanded Food and Nutrition Program (EFNEP) and various 4-H projects. Other users include nutrition researchers and educators, health department workers, and members of weight control organizations. College athletes, including players for the Nebraska football team, have found the program invaluable for analyzing the effectiveness of their present diets.

Access to DIETCHECK is made through a portable terminal that looks like a typewriter. The computer interacts with the user and asks questions. The user's answers are based on one to 14 days' food intake or menus. Only 10 minutes after the answers have been coded and entered, a printout is available.

Calorie Count
DIETCHECK analyzes 18 different nutrients and their calorie counts and compares nutrient intake with the Recommended Dietary Allowances (RDA).

Additional options are available on DIETCHECK. "If requested," says Kohn, "the program will supply data on the percent of calories obtained from various nutrients and alcohol. It will also provide desirable weights and a list of foods containing three percent or more added sugar."

A new version of DIETCHECK became available in 1981 that contains updated data bases and some new options. Both the new DIETCHECK and old DIETCHECK programs are carried by AGNET, a delivery network for computer programs that is accessed by other states and foreign countries. (See story on AGNET system on page 10.)

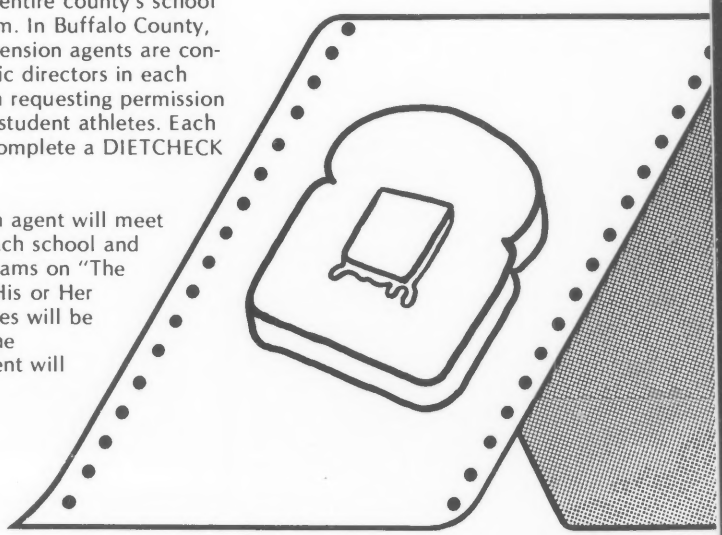
DIETSUMMARY, available for the old DIETCHECK, is a companion computer program used to summarize groups of DIETCHECK analyses. A new DIETSUMMARY program will be available in 1982. "The summary is helpful," says Kohn, "in evaluating the impact of nutrition education programs and conducting needs assessments."

Nutrition in the Lineup
A plan is underway to use DIETCHECK in an entire county's school athletic system. In Buffalo County, Nebraska, Extension agents are contacting athletic directors in each school system requesting permission to work with student athletes. Each athlete will complete a DIETCHECK form.

The Extension agent will meet athletes at each school and present programs on "The Athlete and His or Her Diet." Analyses will be shared and the Extension agent will counsel those athletes wishing to change their diets. "DIETCHECK," says Kohn, "is proving to be an excellent tool to help people where their diets need improvement."

Quick Tally
CES specialists at Virginia Polytechnic Institute and State University (VPISU) have developed two ongoing computer-assisted instructional programs aimed at improving food consumption habits and minimizing food shopping costs. Both programs employ DIALCOM and are accessible at the unit level through remote terminals.

One program, RCALL, is being used to tally an individual's consumption of several nutrients and to compare intake of these nutrients with the RDA for the appropriate sex-age group. The other program, GROCR, is a simulated food shopping experience where the computer helps the shopper select foods at the lowest cost per serving.



Diet Evaluation
The RCALL printout can help a user spot and correct a nutritional deficiency. Barton recounts an RCALL educational program held in Smyth County where one of the women attending was motivated to see her doctor because the printout showed that the fat content of her diet was too high.

"She was unaware of the high fat content of the cheese, peanut butter, and meat in her diet," Barton says. "She saw her physician and he recommended a new diet plan which she followed. A recent second RCALL printout indicated a significant reduction in fat and total calorie intake."

Extension agents in Roanoke, Va., report successful results from the RCALL program in that city where it was presented in turn, to participants at a health fair held at Virginia Western Community College, enrollees in a weight control program, and student nurses.

Shop at GROCR
GROCR, the other computer program at VPISU, was developed by CES to encourage thrifty food shopping. This program groups foods with similar nutrient content together. The user receives information about the market unit size (pint, quart, etc.), number of servings per market unit, and cost per serving.

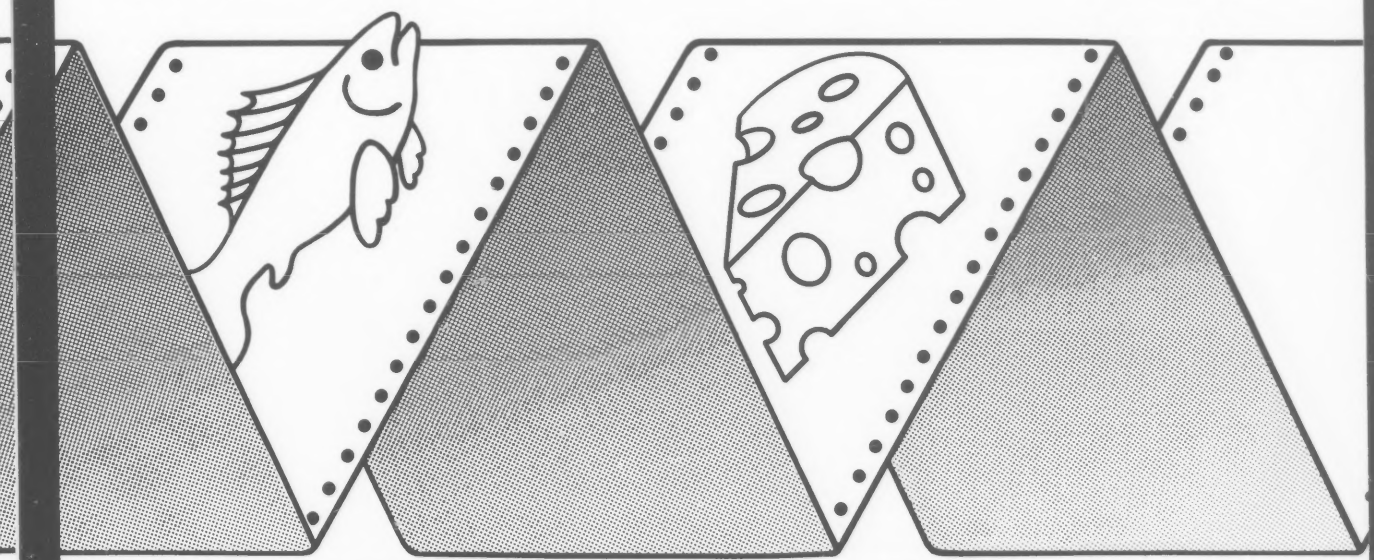
The user selects the servings of foods needed for a week, minimizing cost by selecting foods with the lowest cost per serving. The printout is, in this case, a special shopping list showing quantities of foods to be purchased and approximate final cost.

A "Menu Pricing" computer program has recently been developed that will provide assistance to the food service industry. It gives food service managers the data they need—correct sales mix, food cost, and selling price combinations—to make their operations cost efficient.

Analyzing Intake
At the University of Kentucky, CES interest has focused on educational mini-computer programs on diet and nutrition. A computer program called DIETANAL ("Diet Analysis Computer Program") is being offered that analyzes 24-hour intake of five major food groups. In addition to calories, the program tallies the following five nutrients: protein, iron, calcium, and vitamins A and C. The program has seen extensive changes since the original was obtained from CES at the University of Minnesota.

DIETANAL requires the user to complete a 24-hour food intake form. "The program compares intake to the Daily Food Guide and the RDA's for the five nutrients and calculates differences," says Fudeko Maruyama, Extension food and nutrition specialist at the university.

"If intake of a nutrient is adequate," she says, "the program prints a list of foods consumed that supplied it.



However, if intake of a nutrient is less than two-thirds the RDA, the program printout displays a list of foods that will furnish more of that nutrient. Users report that the nutritional advice on the printout is easy to understand."

The program is written in BASIC for microcomputer and is also available in Fortran on mini-computer.

Young at Heart?
Another CES program at the University of Kentucky available on mini-computer is HHA ("Health Hazard Appraisal"). Health agencies and physical fitness centers are finding this program valuable in reducing health risks when individuals are about to involve themselves in such changes in lifestyle as a weight reduction or a physical fitness program.

After the user completes a HHA questionnaire, the program analyzes an individual's health history and lifestyle and calculates a "health age" that may be higher or lower than the user's chronological age. Risk factors are calculated based upon age, sex, health status, and lifestyle.

The printout suggests appropriate preventive health measures—such as dietary or other changes—necessary for reducing health risk. The program is written in Fortran and is accessed by telephone and a portable terminal.

Nutrition Awareness
NUTRI-FIT, the computerized food-activity analysis program recently developed by CES at Colorado State University and administered through the Food Science and Nutrition Extension office, employs the AGNET system and is useful to the general public as well as specific individuals suffering from hypertension and overweight.

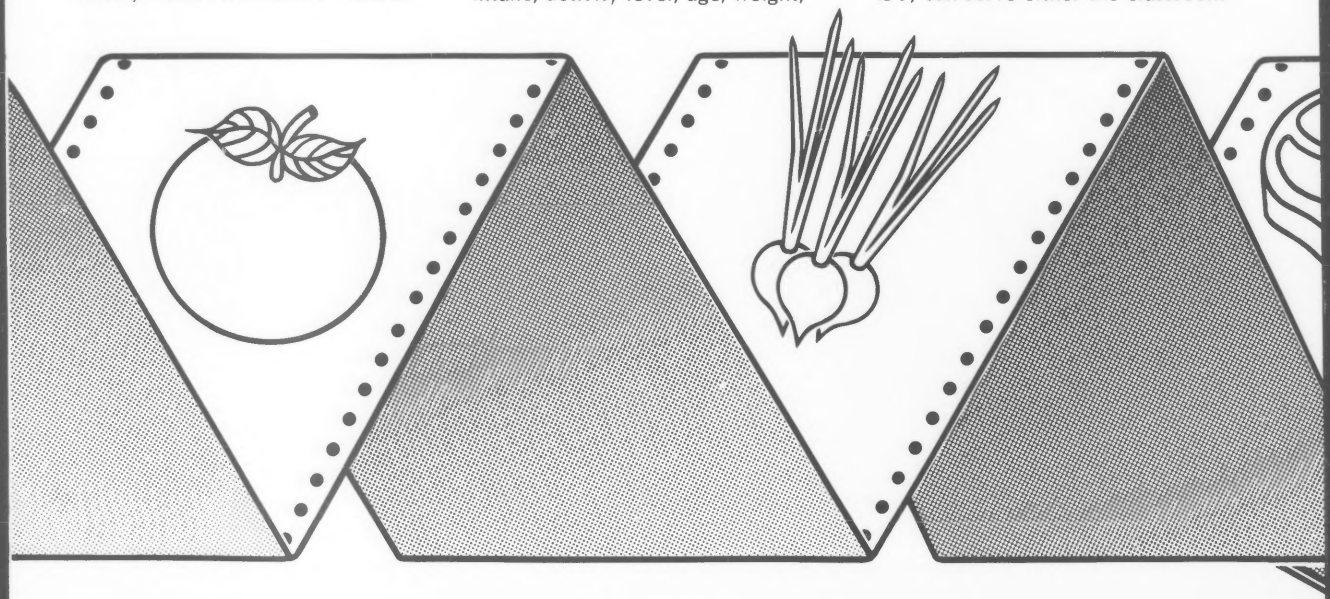
The program requires that the participant submit information on food intake, activity level, age, weight, and sex. The program then calculates and delivers a nutrient analysis of foods eaten, and an estimate of caloric needs. The printout also makes weight loss projection where appropriate.

"One of the goals of the program," says Jennifer Anderson, food and Extension specialist at CSU, "is to help people become more aware of their food habits and activity levels."

The printout, she explains, can be used as an educational tool to teach nutrition principles and concepts.

Sharing Expertise
TELPLAN, the computer system sponsored by CES of Michigan State University, is an operational example of sharing computer expertise for educational purposes.

The program, explains Irene Hathaway, Extension specialist in Family Resources Management at MSU, can serve either the classroom



or Extension work with farmers, consumers, families, businesses, and others.

TELPLAN is accessed by a variety of terminals ranging from 70-column printers to cathode-ray tubes to microcomputers set up as "dumb" terminals.

"TELPLAN's programs are listed under six major headings," Hathaway says, "but users should study all categories for which a program may exist." Five food and nutrition computer programs can be found under the "Family Living" heading.

Two of the programs—in old and new versions—are concerned with "Calcium for Consumers." Users are helped to compute weekly RDA for calcium intake, and weekly cost-savings in reducing overconsumption or cost increases in making up calcium deficits.

A program called "Targets for Food Spending" helps users design a personalized spending plan for their family.

"Dollars and Decisions in the Supermarket" is a program that helps the user calculate food-cost comparisons for a household, based on size and consumption patterns for selected foods. "This program," says Hathaway, "shows what a difference the forms, brands, and package sizes can make in the yearly food bill."

"Nutrition Spotcheck" analyzes the user's 24-hour food recall for several different nutrients based on the RDA for 1980. Nutrients are analyzed by meal; calories are examined and broken down into protein, fat, carbohydrates, and alcohol.

From FOOD to LEAN

Six food and nutrition computer programs are available from the Agricultural Extension Service at the University of Minnesota. The system—called MECC (Minnesota Educational Computing Consortium)—offers programs now being accessed, through cooperative arrangements, by most of the public schools in the state.

FOOD (Food Dollars) uses the USDA Food Plan cost and food quantity recommendations to determine reasonable food expenditures and food quantities to purchase. It is designed for a specified time period for a specified family size.

FOINANA (Food Intake Analysis) helps users evaluate the quality of a 24-hour food intake based on the Daily Food Guide and on nutrient content compared to the RDA's. If the user requests, the program will supply food sources of the nutrients.

RECIPE calculates the amounts of eleven nutrients in a user's menu, food intake, or recipe. The program compares totals to the RDA's for user-designated age-sex groups and reports and graphs the precentages.

NUTALLY (Nutrient Tally) calculates, then totals and graphs 20 nutrients in a list of foods in a menu, recipe, or food intake list. The nutrient totals are evaluated based on an RDA selected by the user. This program allows the user to change foods to adjust the nutrient content of a menu while planning it. It offers an extensive food item data base.

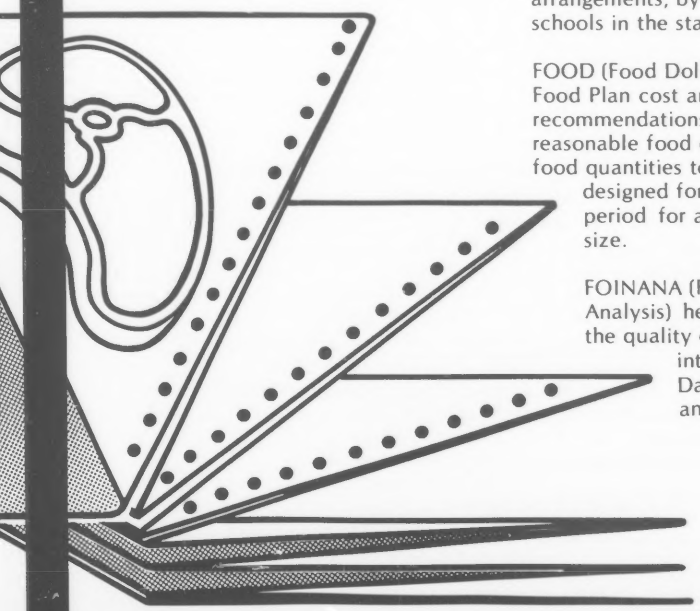
RECALL calculates the amounts of nutrients in a 24-hour food intake based on the Daily Food Guide and 9 nutrients.

LEAN (Learning About Eating, Activity, and Nutrition) helps students understand the balance of energy in food consumed with energy used. It has a limited food item data base.

Food and nutrition programs for microcomputers are also becoming available, reports Joanne Slavin, Extension specialist and assistant professor of nutrition at the university. Three programs—FOINANA, LEAN, and RECIPE—converted by MECC to run on the APPLE microcomputer, will be offered in the near future.

A nutrition diskette for the APPLE with simple programs on fast foods, energy, cereals (with sugar content), and vitamins will be made available soon, says Slavin.

Throughout the United States, CES nutrition specialists are using electronic media in ingenious ways to make high tech an effective and efficient tool of today's nutrition education programs.



TODCOMP—Programming A Future

Jim Shaner, Information Specialist,
Agricultural Editor's Office
Phil Leslie, Senior Information Specialist,
University Relations,
University of Missouri-Columbia

A chromium hook moves a lever forward on her chair. Responding with whirs and clicks, it wheels her into position at the terminal.

Over the keys, she hunches—disabled early by an accident, a disease, or a defective gene. Touching the keys, she talks in apersands and PIPs. They use languages that are foreign—yet internationally known—BASIC, COBOL. Together—she and the computer—can move carloads of grain, ultimately to another continent.

Information, punctuated by electronic beeps, flashes on a charcoal-gray screen. She's in control!

Missouri's TODCOMP program, like more than 20 others across the Nation, trains physically handicapped people in computer programming. So those who can't see, or hear, or walk become productive members of business and industry and full participants in American society.

TODCOMP (Training of the Disabled in Computer Programming) is a University of Missouri-Columbia Extension Division program. It has served students from Missouri and several other states in the central Midwest since 1975.

Since TODCOMP began, 52 individuals have graduated from the program—a 55 percent completion rate.

"The completion rate may not be as high as we would like," says Ronald Wilson, TODCOMP director. "However, this is an intensive, difficult program. We are here to help our students become successful, proficient computer programmers who can meet the high production standards of potential employers."

Slowly, standards were raised to ensure graduates were "job ready." A committee of professional programmers certifies each student after studying his or her programs and computer skills.

Wilson is quick to add that otherwise employers would be reluctant to hire TODCOMP graduates. A placement rate of nearly 80 percent, at an average annual starting salary of $15,000 seems to support this professional approach.

Taxpayer Benefits

"And it should be pointed out that for every person employed from this program, society receives a productive worker who pays an average of more than $4,000 annually in social security and income taxes," Wilson explains. Adding that to the $7,000 annual disability income each received before entering the program means more than an $11,000 direct benefit to taxpayers.

During the 10-month training session, TODCOMP students receive not only the training necessary to make them proficient programmers, but also the independent living skill training to enable them to take care of themselves on and off the job. Ellen Scheer directs the computer programming training, while Cathy Unterreiner directs additional training in developing independent living skills.

"The two aspects are closely connected," says Scheer. "For students to be successful on the job, they must master both the programming and the living skills."

To better emphasize programming theory and concepts, Scheer and her staff teach BASIC, an easy-to-learn computer language. Then they move students to COBOL, the most frequently used language of the business world.

Living Skills

When TODCOMP students are not involved with computers, they're dealing with such skills as working with people, home management, community involvement, and various aspects of daily living.

"We offer living skills instruction on three levels," says Unterreiner, "for the whole class, in small groups where specific skills are needed, and on an individual basis."

Specific skills taught through the program range from resume writing and job interviewing to drivers education. But TODCOMP's rotational housing program seems unique.

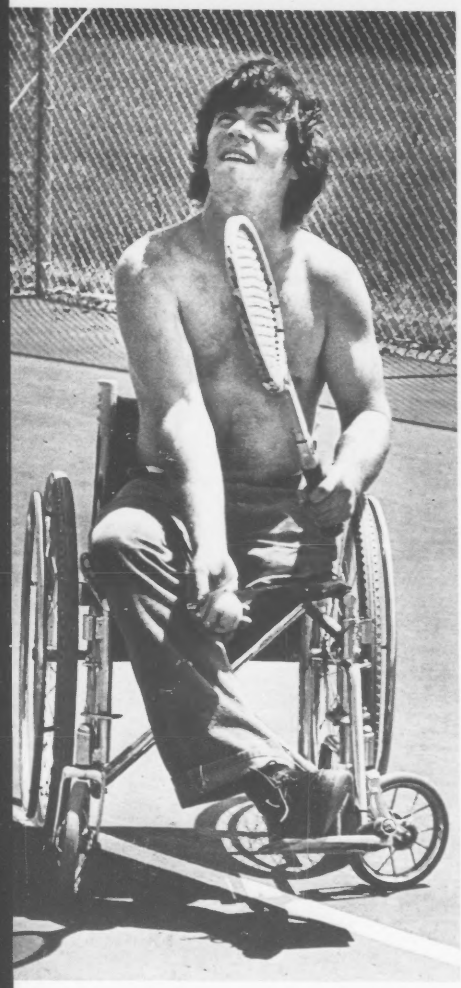
For the first 5 months, students live in apartments at the training site, 10 miles south of Columbia. Unterreiner supervises an occupational therapist who helps the students who need it to learn to live life on their own.

For the last 5 months, students move to accommodations in Columbia and commute daily by van to the TODCOMP training facility.

"The move to Columbia is designed as a transition phase in which students can more fully utilize their independent living skills and assess their adaptive equipment needs," says Unterreiner.

Programming Skills

TODCOMP works. G. D. Miller, supervisor of the computer project in the Missouri Department of Revenue, says this about the graduates he employs:



Above: Ellen Scheer, director of computer programming training at the university, lectures a group of intent participants in TODCOMP.

Left: "Signing" their conversation, three students of TODCOMP solve a problem at the computer terminal.

Far left: Steve Summers, a former assistant in the TODCOMP program at the University of Missouri, prepares to serve. TODCOMP graduates are taught to master both computer programming and countless living skills.

"They have received some of the finest data processing training available in the industry. The most striking characteristic of both of these individuals is their motivation. They both are willing to put in additional hours, working independently, to reach their objective."

Michael Maxon, the lead analyst-programmer, averaged 40 hours a month overtime for the last year "to meet imposed deadlines."

"Since TODCOMP has access to the University of Missouri's Data Processing Center's associated hardware and software, graduates have a greater opportunity to be useful earlier to large data processing shops," Miller continues.

"Also, their on-line programming background gives them an edge over other technical school graduates because we have found that few of these schools provide large main frame training and on-line programming facilities."

After two successes, the TODCOMP faculty is starting to work on another type of handicap—emotional disabilities. "We didn't do it in the first place," says Wilson, "because we felt we weren't able to deal with emotional problems." But a rehabilitation counselor persuaded Wilson and his staff to reverse their decision.

"All students can use help handling their emotions, at times," says Wilson. Like that of other programs, the help offered by Missouri's TODCOMP reaches beyond finances to feelings. □

Instant Outlook

Judith Armstrong Bowers
Public Information Specialist
Extension Service, USDA

An Extension marketing economist in Oklahoma wants the latest national figures on cattle on feed . . . A farm management economist with Extension in Nebraska needs data on soybean and sorghum output . . . In New Jersey, a counterpart will use the latest available statistics on vegetable crops for a class later in the day.

Each of these Extension economists will get their answers from the same source—COIN, the Extension Service's nationwide Computerized Outlook Information Network.

COIN began about 7 years ago as an experimental method for getting the U.S. Department of Agriculture's national outlook reports to Extension economists throughout the country by the fastest technological methods known. Today, as then, Extension farm management and marketing economists use these reports as a base for educational outlook work.

USDA's Extension Service initiated the experiment, later to be termed COIN, in 1974. ES established a special test project in Minnesota, carried out by the Extension economists there, who loaded the reports on the Computerized Management Network (CMN), which was being operated by Virginia Tech. But this process proved to be too cumbersome, especially as most of the reports originate then, as now, in Washington, D.C., where problems associated with them need to be resolved. So, now, the COIN reports are loaded onto CMN by ES-USDA staff members in the Washington, D.C., office.

COIN, itself, is one of the programs in CMN, a national computer time-sharing system that carries about 70 farm management and home economic programs used by Extension workers. CMN, in turn, was developed and tested by the CES through ES-USDA funding starting in 1969.

Types of Data on COIN

Currently, COIN contains four types of materials. First are the periodic USDA Crop Reporting Board reports prepared and kept under security conditions by USDA's Statistical Reporting Service (SRS). These reports remain under lock and key until 3:00 p.m. on the day of release, at which time they are transmitted to the state crop reporting offices and to ES-USDA for processing. The reports are moved from the SRS computer to the CMN computer system. Each file receives a code name. This name and its description are put into a listing of all files available to users of CMN. Any file or table over 72 characters wide gets divided into two portions. The second portion prints under the first.

The second set of materials in COIN are the summaries of commodity situations released by the World Food and Agricultural Outlook and Situation Board. These summaries are loaded onto the SRS computer where they are reloaded onto CMN. Extension staff members assign a file name, and they add the new names to the file listing.

Daily or weekly releases are the third type of outlook materials: USDA news releases that involve outlook, the daily National Grain Summary, and the Weekly Roundup of World Production and Trade Report. Extension staff members enter these materials directly into COIN. State Extension economists load the fourth type of outlook materials onto the system—their own analyses made immediately after certain USDA reports have been released. For example, the day after the release of the Hogs and Pigs report, three or four Extension economists in the states interpret what these numbers mean nationally and locally and load their analyses on COIN.

Report Schedule

ES staff members coordinate, maintain, and load all Washington-originated reports onto COIN. The staff also prepares a monthly listing of all USDA reports to be available and sends their users advance copies. An advance copy of the schedule of releases is kept in COIN too, for user reference, plus a listing of files that are currently available. (Note: address inquiries on scheduling and availability of reports to Buel Lanpher, program leader—farm management, Extension Service, Room 5503-S, U.S. Department of Agriculture, Washington, D.C. 20250 (202) 447-7165.)

To date about 40 states access COIN, primarily Extension farm management or marketing specialists who develop outlook information for their state or who use outlook information. Area and county staff members in several states also use selected reports on the system.

Easy Access

COIN is easy to use. To learn how, I went to Buel Lanpher's office and sat down with him in front of his electronic data terminal, a Silent 700 Texas Instruments model (any terminal can be used). To access the CMN system, Buel dialed the computer on the telephone and put the telephone receiver into the modem attached to the back of the terminal. Next, he entered his ID number and password, and the system identified itself to us on the printout paper. Lanpher then asked me to type OUTLK, the program name. The program asked if we wanted a listing of file names (an index) and I typed in y, yes. He explained that OUTLK reports over 2 weeks old generally have been purged by

Extension staff because hard copies have been mailed out to users. With the introduction, by SRS and the Economic Research Service (ERS), of fees for these reports, the schedule for purging reports may be reexamined. Generally, purging occurs because of the cost of storage in the computer.

After deciding on the file I wanted to see, I typed in WHPAST and CR (carriage return) to get the Winter Wheat report. The machine then printed out a short version of the report. After we finished, we signed off by typing in BYE. The system typed the approximate cost and time we had used.

People overseas can access the system, Lanpher says. They pay the cost of the long distance call, so the system is expensive for them. Another current limitation is that a user interested in data only on one state cannot access just those data from the reports online. Ability to get such data by individual state would have to be programmed into COIN.

Using COIN
To use COIN, you make an agreement with persons running CMN. After that, your startup cost would be for a remote computer terminal, which could be a micro-computer with a modem communications interface. After that, you pay only for the connect time.

The ES Agricultural Programs staff issues a monthly schedule of outlook releases, giving data available, file name and report name, agency and release date, file description, and names of any Extension analysts providing analysis on the subject. A list of the reports on COIN follows:

Crop Reporting Board Reports (CRB)
Once a Year
Annual Crop Production
Planted Acreage
Soybean Stocks
Winter Wheat
Cattle Inventory
Prospective Plantings

Four Times a Year
Grain Stocks
Hogs and Pigs
Milk Production
Livestock Slaughter
Eggs, Chicken, and Poultry

Monthly
Crop Production
Potato Stocks (at end and beginning of year)
Agricultural Prices
Cattle on Feed

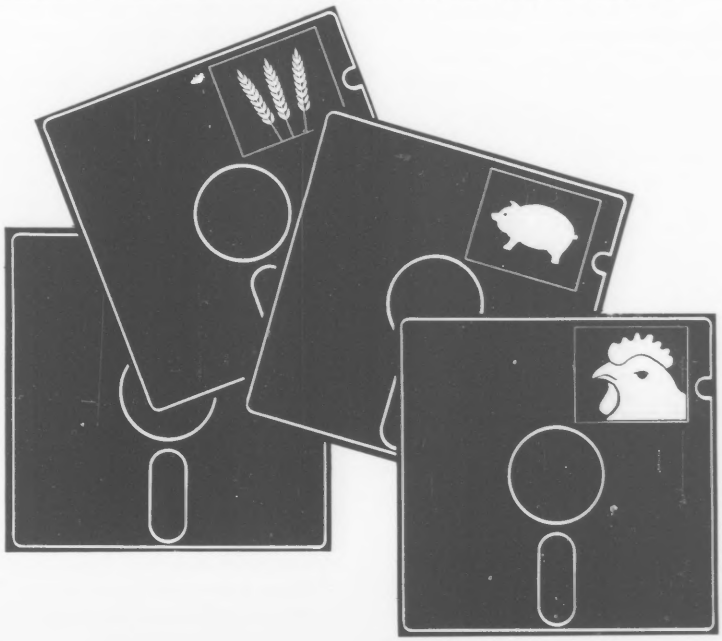
Weekly
Broilers (State Broiler Placements)
Crop Weather
World Weather & Crop Bulletin (jointly with NOAA)

Economic Research Reports
Commodity Situation Summaries (13 reports; 2-6 times a year)
Agricultural Supply and Demand Estimates (1-2 times most months)
Agricultural Outlook (11 times a year)

Foreign Agricultural Service
Weekly Roundup of World Production and Trade

State Extension Economists' Analyses
(These analyses are loaded following key CRB reports and Agricultural Supply and Demand Estimates reports)

COIN will be shifted onto DIALCOM, Extension's electronic mail system. The transfer should be finished by the end of the summer. For a while, COIN will be on both systems. For more subject-matter information, contact Buel Lanpher at address previously given. For more technical and computer information, contact Robert Routson, Systems Analyst, Technical Information, Program Development, Evaluation, and Management Systems, Extension Service, 5th Floor, National Agricultural Library, Beltsville, Md. (301) 474-9020. □



FACTS, Six Years Later

Eldon E. Fredericks, Head
Departments of Agricultural
Information and Audio Visual Production
Purdue University

Indiana county Extension workers prepared to greet the 21st century on August 31, 1976. On that date an agreement with the Kellogg Foundation and a later special-challenge grant from the Indiana General Assembly provided the initial funding for the Fast Agricultural Communications Terminal System (FACTS).

In 1976 FACTS was unique. In 1982 FACTS retains some unique characteristics but much of its uniqueness is gone . . . "and that's as it should be," says Indiana Extension Director Howard Diesslin. "Our request to Kellogg included the desire to develop a model that other states could adapt for their own specific needs."

In 1982 FACTS still claims to be the only statewide Cooperative Extension Service computer network with a microcomputer at each county and area office throughout the state. However, several states are now building a similar network.

Five-Year Review
In his request for a 5-year review of the program, Director Diesslin asked the reviewers to "look back, size up the situation and consider adjustments that may be in order." That's what review Chairman Bruce McKenzie, Extension agricultural engineer, and his committee did. Between August 1981 and March 1982 they met frequently and talked with other agents, specialists, and clientele about issues and direction for FACTS.

In McKenzie's words used in the committee report, "We need to remember that the baby is only five years old. It's had colic, a high fever several times, cried a lot for a long time, and kept some of us up nights. A number of these problems were of our own doing or lack thereof, because as new parents, we frequently did not know what to do or how best to do it."

"Some said it would never walk, even if it could learn to crawl! The view of this committee is that it is just now beginning to run a little, really testing its legs and stamina in some areas, still faltering and stumbling but trying in others. It's had a fantastic learning process as has any 5-year-old. But this learning experience involved over 500 people in the entire Indiana Extension Service from secretaries to agents to professors. And, it was a totally new trip for the large majority," the report states.

"We're almost ready for school now; need some new clothes, need to unlearn some bad habits; have to get in a frame of mind for a structured learning experience, where we're really going to see what we're made of, and how well we can operate. We're going out to mix with the public more, now. The FACTS Garden Program is already adapted and in use in over 20 states. It was the first FACTS program marketed commercially. That commercial version ran 40,000 times in 1981, with a goal of 100,000 in 1982."

"There are numerous plusses for the total FACTS development," according to the report. "We've learned a lot about where we need to be, want to be, and some probable routes to get there. We can counsel other CES groups as teachers of the teachers. Although our system has some hardware and operational limitations, it's good enough that others want it. And, it works for us. Now, it's time to plan for the future."

Discussion for the Future
According to McKenzie, Director Diesslin placed no restrictions on the areas the review committee might consider. The committee discussion focused on three areas: a definition of functions that a computer system should perform, an improved understanding of how to integrate computers into the CES delivery system, and development of an operation and management concept for FACTS that will encourage innovation in software, hardware, and educational service.

The committee decided to review FACTS performance over the past 2-year period because the initial 3 years of development were involved in startup and limited operational capability.

Examples of FACTS Uses
Lynn Busse, associate director of Indiana's CES and former FACTS marketing manager, provided usage figures for 1981. Here is his summary by program type:

Memory or Data Base Retrieval	5,367 times
Problem Solving or Computational	12,060 times
Communications	6,277 times
Office Software	19,127 hours
Office Software	33,503 times
Other Programs	4,422 times

To illustrate the magnitude of use, the figures in Busse's table are divided by 100 (92 counties and 10 area offices in Indiana have FACTS terminals) to develop a hypothetical use for each field office. For example, each of 100 offices could have used a memory program at least once each week, to total 5,367 uses. An example of a memory program would be budget planning or pest management.

Every other day, each of our field offices would have run a problem-solving program on their terminal to equal the 12,060 uses in 1981.

Office Programs
Once each week, each office used the system to contact one or many other offices on the network, to equal the 6,277 communications uses. Communication is increasing rapidly between FACTS terminals.

Just as other electronic mail systems are gaining in popularity, so is the FACTSMAIL program. By mid-1982, the system users were originating more than one message per office per day. The central computer collects and drops mail for users in the FACTSMAIL program.

Office programs, including word processing, enrollment forms and reports, and address labels amounted to nearly 1½ hours per day by each of the terminal locations.

For the past year, if each terminal had been used an equal amount, the FACTS system recorded 2¾ uses per office per day, plus 1 hour per office per day. Some locations have gone to a signup sheet to schedule office computer use.

Is FACTS Obsolete?
The Indiana Extension workers who actively use FACTS say the system is most certainly not obsolete. However, as with all forward-looking individuals, they are looking ahead to the next generation of equipment. Many counties would like to upgrade as compatible equipment becomes available. The new equipment will probably be phased in where funds are available.

The FACTS microcomputers' contribution to office efficiency surprised many county staff members. During the review committee interview, one agent stated that his office had never effectively managed mailing lists until they got the computer. Now, for the first time, they easily and quickly cull lists so that mailings do not continue 5 years after the person died! Others commented about effective mail-cost management. While the word processing system on FACTS has been frustrating to many, it is becoming a positive asset in the larger offices where one or more staff members have concentrated on learning to use it.

FACTS application or problem-solving programs are becoming better known and in greater demand. One country office ran FX-17 "Maximum Bid Price for Land" for several different farmers who were interested in purchasing the same farmland. The requests were unrelated and the county staff, with help from FACTS, was able to provide objective information to guide these potential buyers as they face a major decision.

FACTS Programs Go National
The Indiana Cooperative Extension Service, working with the Purdue Research Foundation, has developed a commercial licensing arrangement with a national garden seed supplier to market the popular FX-4 "Home Vegetable Garden Planning" Program. In addition to the nearly 3,500 runs of that program directly by Indiana Extension workers, an estimated 40,000 persons in 20 states planned their vegetable production and preservation requirements based on family size, and personal preference, as well as size, shape, and orientation of the garden plot to the sun.

Extension agents have effectively used the FACTS garden program at shopping malls, lawn and patio shows, and other public gatherings. A portable FACTS terminal is available from the Purdue office for such demonstrations. Visitors fill out an information form and receive a personal printout on the spot or one is mailed to their home when lines at the computer are too long.

What About the Future?
Additional terminals are already needed in many county and campus department offices. New-generation equipment is in demand so that greater speed and larger programs can be achieved.

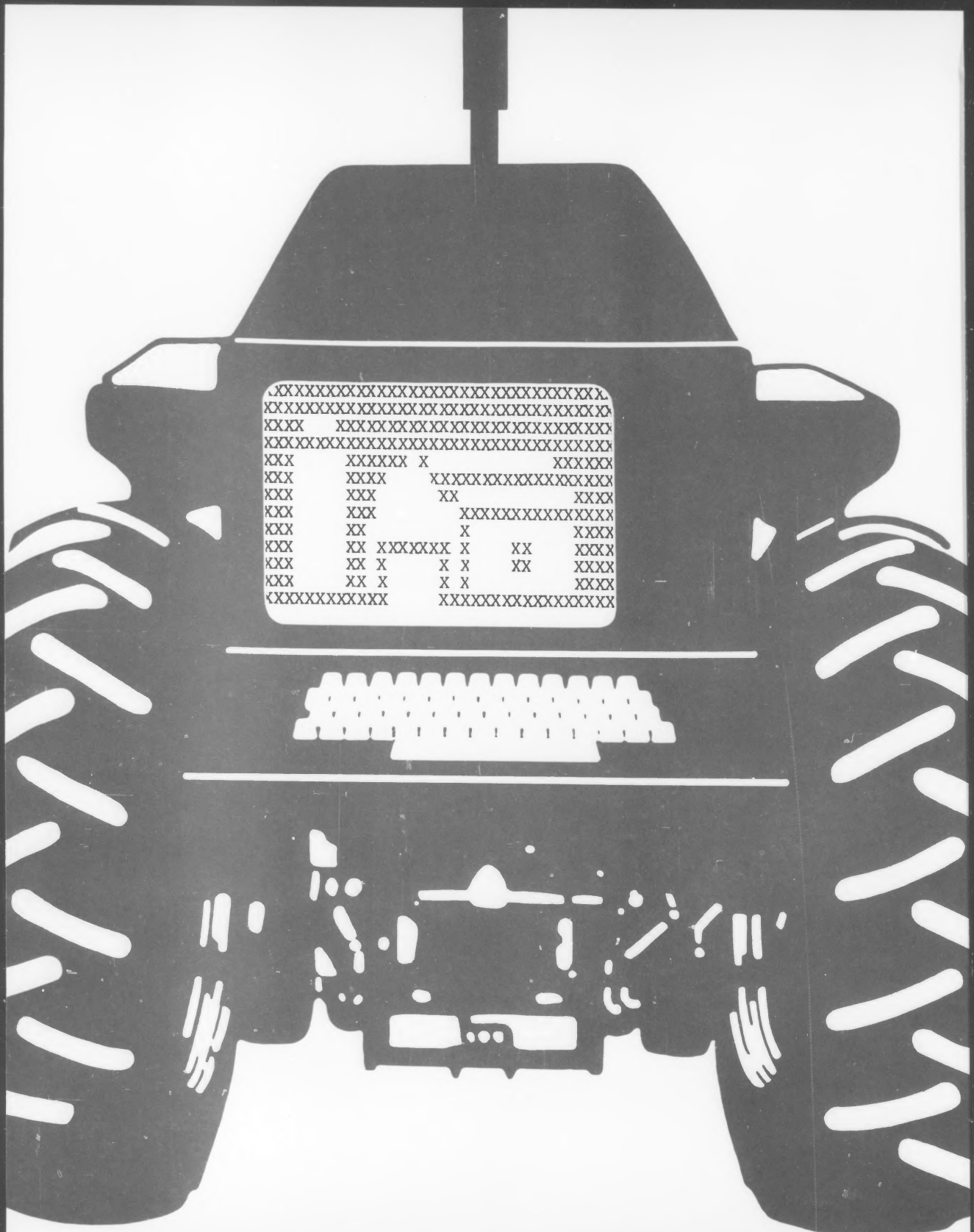
Staff training has been conducted piecemeal, on an as-needed basis, rather than following a developmental plan. Because FACTS contains an extremely high level of friendliness and consistency (every command has 'help' available), the system itself may have contributed to reducing the need for staff growth in skills and knowledge. The friendliness feature also increases the space required for operating system components and competes with the memory space available for application.

The review committee suggested that FACTS operators should carefully consider less structure in the operating system, along with the future of newer hardware This combination would allow larger programs to operate at faster speed.

Communication Uses of FACTS
Along with reduction of letters and phone calls from one office to another, FACTS provides 1 day, or less, memo response between offices. It is used extensively by several campus departments to transmit newsletters to field staff. Publication orders are transmitted via FACTS and a confirmation is returned almost immediately. Savings in postage and time are evident.

News and feature material for radio and print media are moving from the Purdue Agricultural Information Department to county offices. A bulletin board service is in limited use and a news summary program from the U.S. Department of Agriculture will be distributed via FACTS.

Six years later, FACTS is alive and well throughout the 102 field offices and the more than a dozen Purdue campus offices. Indiana Cooperative Extension agents are a lot like the drivers at the Indianapolis 500 Speedway—they like their machines, they just wish they would go faster! □



Microcomputers— As Indispensable as Tractors

Eva Dorris, Writer
Mississippi Cooperative Extension Service

There was a time when people farmed the land and fed their families without the use of a tractor. There was also a time when farmers managed and sold their crops without the use of a computer. No longer.

"The microcomputer is a piece of technology that will soon be virtually as indispensable as a tractor," says Charles Walden, economist, Mississippi Cooperative Extension Service.

"There are 300 to 400 microcomputers being used by farmers and agribusiness in Mississippi," Walden told me. "We expect that number to double or triple in the next 18 months."

"Within 5 years, a majority, perhaps as much as 75 or 80 percent, of all the production in Mississippi will be using some type of small computer. They are a powerful tool, perhaps one of the most powerful tools to arrive on the farm since farm machinery and gasoline-powered engines," Walden says.

Farmers use microcomputers to make management, production, and marketing decisions. They are building budgets, storing and maintaining records, and establishing sound financial management practices.

"Microcomputers are reliable, fast, accurate, and versatile," Walden says.

"They can be used on almost all parts of the farming operation from what, when, and how to plan, how to sell, and how to rearrange farming organizations to be more efficient and more profitable."

Initial costs for microcomputers are about $3,500 and they rarely exceed $5,000. "When you look at the price of farm equipment today and consider what a computer can do, it is a fairly cheap price," Walden says.

The level of satisfaction with computers has been high. Mississippi farmers indicate that the payoff has been quick, almost immediate, in some cases.

"Our estimates tell us that a good time period for breakeven on the actual investment in these computers is between 18 and 30 months," Walden states.

"For example, a farm record system program can replace a private service, which can cost a farm anywhere from $400 to $2,500 a year."

The problem many farmers face after purchasing the computer is finding good affordable software programs. "In most cases, the software will cost more than the hardware if a farmer has to purchase it," Walden says. "This is true whether he purchases prewritten programs from hardware and software dealers or hires a programmer to custom write programs for the computer. In either case, a full set of programs for a typical farm today would cost many times the price of the original hardware."

To address this need, Mississippi State University (MSU) is supplying original research and development programs for farmers. Staff members from teaching, research, and Cooperative Extension are developing software to fill the gap until private business can supply necessary software at competitive prices.

As the MSU software is developed, it is turned over to farmers free of charge. Three general types of computer programs are available from MSU:

- decision aids, such as a managerial package or whether to buy or sell equipment;
- data base systems in which the farmer keeps a large volume of numbers and statistics for different areas of farming or problems within farming;
- "tutorial programming" written to teach a particular subject matter or address a particular problem.

"These programs help farmers make management decisions as well as keep records," Walden says.

"Other popular programs include insecticide and herbicide selection programs for row crop production, as well as land-forming and marketing programs."

"Of these three areas, our major emphasis at MSU has been in the decision aids," Walden reports. "We are giving some attention to the data base systems with respect to chemicals and certain dairy records. We will soon begin a pilot project with one of the large computer companies to evaluate tutorial-type programming on microcomputers."

Extension Service distributes the programs through county agents. Most programs are currently available on the Radio Shack Model II and Model III microcomputer units, and will soon be available on the IBM personal computer. Future programs will be developed to be as machine independent as possible. "The most predominant brands of microcomputers being used in agriculture are the Radio Shack and Apple Corporation computers," Walden says. "The IBM personal computer has just come on the market and I suspect it will become quite popular."

"All indications here in Mississippi and throughout the nation are that we're going to computerize farming rapidly in this country," the MSU economist says. "Those who do not or who decide to wait until next year or the year after are going to be at a disadvantage." □

New Jersey Goes Computer

Veronica M. Malone
Acting Director of College Relations
Cook College, Rutgers,
The State University of New Jersey

New Jersey is a state of contrasts. For example, it's large in population, but small in size. The New Jersey Cooperative Extension Service is a mirror of that contrast. Though its staff is small, its basic philosophy is doing a lot with a little.

Approaching the computer age is the latest chapter in this story. In June 1980 an ad hoc committee on communications composed of administrators, specialists, and agents representing all program areas convened under the direction of John L. Gerwig, dean of Extension at Rutgers University's Cook College. Beatrice K. Devine, Coordinator, Extension Information Service, was chair.

Concerns
The committee grappled with how, when, and in what manner the New Jersey Cooperative Extension Service could improve its communication capabilities. Would it enter the microchip age—or would another computer form be better? Should a system be developed that could link with Rutgers University's main-frame computer? What amount of funds would word processing, management, and communications—identified early on as the major goals—require? And, in a time of tight budgets, where would the dollars come from?

The recommendation was for two-way, interactive, micro-computer systems in each county and in state offices, with the ability to communicate with each other and to access larger systems at Rutgers and in other states. Staff members asked for software that would improve office efficiency, and apply to education and data communications.

Funding
A proposal developed for the national agricultural pest impact assessment program funded a pilot program which provided computers in six counties. The remaining 24 units were purchased through savings to be accrued over a period of years in a planned approach to communications with larger groups of clientele. Each county pays for a portion of the service contract, paper, supplies, training, and telephone linkage, and it reimburses expense for staff to obtain initial computer training at the state office in New Brunswick.

After specifications were developed, 26 vendors were contacted. Eight responded with bids, and the system was eventually bought from Mathtech in Princeton, N.J., who also provided initial training for a core group.

Computers began arriving in August 1981, and training continued under the direction of Devine and Sonia B. Pollack, programmer. Eighteen counties now have micro-computers and 12 units are located in the Extension offices of major campus departments. Only three counties are not participating.

Each of the 30 units contains a video screen and keyboard, a dual disc drive, a letter-quality printer, a modem, and a telephone. Phone linkage between computers allows contact with CES headquarters, as well as county-to-county computer conversation. This phase is nearly complete.

Training
Initial training concentrates on use of the word processor because results are immediately available to the user. Additional training sessions in recordkeeping and mailing lists are then scheduled. Communications and educational functions come next.

"Everyone needs to be trained in computer use, both professional and secretarial staffs," maintains Gerwig. He also cautions that it takes about 6 months before efficiency improves noticeably.

Change
Experience at both state and county levels thus far shows that, if at least one professional learns to use the equipment well, the entire process is speeded.

How do staff view the changes in their work lives? A selection of comments from state and county professional and support staffs follows:

"As soon as we get used to this thing, we can use it in 100 other ways."

"A publication estimated for $950 will now be done, faster and cheaper; I'm in the middle of cutting up the words and tables from the word processor and adding the photos."

"A job that used to take 45 minutes by hand now takes 10. More importantly, I used to include six or seven factors, while now I consider 30."

"I can find out if someone is in a particular 4-H Club, how long he was a member and what projects he completed."

"A six-page economics newsletter with a circulation of 4,000 is now written and edited on the word processor and the forms readers return asking for bulletins or changing an address are melded to the mailing lists."

"We have not yet used it as a management tool for our Extension clientele, but that will come. Before long, farmers will have their own systems and want information on them. By then, we'll know how to give it to them."

If such enthusiasm is contagious, follow a leader and "go computer" in your state. The New Jersey staff, especially Beatrice Devine, will happily answer your questions. □

Program Predicts Energy Profits

Yong H. Kim, Staff Writer
Cornell University

Farmers wondering whether energy production from animal wastes on their own farms could be profitable can get expert advice from Cornell University.

A computer program capable of providing a set of recommendations based on the characteristics of individual farms is helping farmers across the United States make the right decisions.

Feasibility Program
Called "Methane Computer Feasibility Program," the computer-based analysis service is designed to answer questions such as the size of a methane digester, construction costs, the amount of usable energy, the reliability of the system, and so on—all tailored to specific farm sizes, conditions, and requirements.

William J. Jewell, Extension agricultural engineer in the New York State College of Agriculture and Life Sciences, says that the computer program gives interested farmers enough information to decide if a methane digester could provide them with a fuel that is cost competitive.

"This program will not tell farmers how to build a digester, or whether they should build one," Jewell notes. "It provides a general guide to help determine the feasibility of methane generation for a particular farm situation."

The computer service is an effort to speed up widespread use of a low-cost methane production system developed by Jewell and his research team. Tested thoroughly under realistic conditions over the past several years, Cornell's prototype is ready for adoption by farmers, particularly those involved in dairy, beef cattle, poultry, and swine operations.

Jewell describes the Cornell production system as simple in design and reliable in operation requiring little maintenance, and it can be made bigger or smaller for any farm size, ranging from a small 25-cow dairy operation to large feedlots.

Questionnaire
To get their farm operations analyzed, interested farmers fill out a questionnaire concerning their farm conditions. Required information includes the number and the type of animals kept; whether bedding material or milking parlor waste is mixed with the manure; and the length of time the animals are pastured.

Other information needed includes whether farmers can do their own excavation and grading for a digester site; the estimated cost of labor, if hired; the area where the farm is situated; if a loan is needed, and the interest rate; and the kind and the amount of energy now in use.

With these and other pertinent data, the computer can answer several key questions such as the optimum size of a methane digester, net energy output, costs of installation by farmers themselves or by a commercial firm, and the payback period.

Cost
Cornell's demonstration unit, which cost about $15,000 in materials and equipment, was designed for a farm with 50 to 65 cows. With annual production of net energy worth about $2,000 to $3,000, the cost of a digester can be recouped within 5 to 6 years, Jewell estimates.

"Considering rising prices for propane and oil today, even a 25-cow capacity digester can produce methane gas competitively, and a farm of 100 or more cows can produce energy at about half the cost of other fuels," Jewell says.

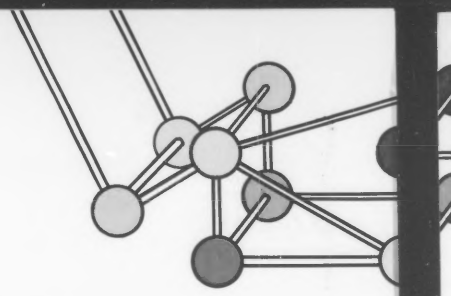
In addition to energy production, the methane production system has another major attribute: it can reduce the problem of animal wastes as a source of pollution because the digester turns manure into an odorless material while keeping the fertilizer value of the "spent" material intact for crop production.

"Odors do not return even if the material is stored all year after energy is produced," Jewell says.

Anyone interested in Cornell's computer analysis service may contact "Methane Computer Feasibility Program," Agricultural Engineering Department—Cooperative Extension Service, Riley-Robb Hall, Cornell University, Ithaca, NY 14853. The fee for each computer feasibility analysis is $20 for New York residents and $40 for out-of-state residents. □

COMNET — Computerized Communications System

Stephen B. Harsh
COMNET Coordinator
Michigan State University



With a wide range of new technology available to enhance the communications process, and a pressing need to become more cost effective, a committee at Michigan State University formed to evaluate new developments in this area.

The committee was composed of researchers, classroom and Extension educators, and administrators. After an extensive study period, the committee identified a computer-based communication system as its top priority. Thus, the COMNET (COMmunications NETwork) project was conceived.

In this study period, several factors were identified which have influenced the design and operational philosophy of COMNET. First, we desired to build upon our past involvement in the computer area. We already had established the TELPLAN system, with the assistance of the W. K. Kellogg Foundation. This host-dependent system has a library of nearly 90 programs in the areas of agriculture, family living, natural resources, and information transfer. Also, an extensive system (PMEX) for meeting the computer needs of the Integrated Pest Management program had been developed. Further, many agents have been freely using computer technology in their educational programs. The committee realized the desirability of building upon past experiences and existing resources (for example, established software). Thus, COMNET had to be a system which could achieve this goal.

The COMNET system would embrace current concepts in computerized delivery. In particular, it would encompass office automation (text processing, electronic filing), electronic mail, computerized information transfer, and networking.

Another major consideration was to develop a system which can easily adjust to new developments in the computer area. Computer technology is rapidly changing. COMNET has to be flexible enough to allow for changing directions if desirable.

It was also determined that COMNET not become a separate and independent computing center. Good computing facilities with good levels of support were already available. However, COMNET was to make it simpler for the user to access and use these facilities.

Finally, COMNET had to be a system which could be developed, maintained, and supported without adversely affecting the overall program. It had to be cost effective in helping us carry out our educational, research, and administrative activities. The development of the system could not become the primary objective but a tool to help meet other objectives.

With these goals in mind, COMNET was initiated by a redirection of financial and human resources within the College of Agriculture and Natural Resources, the Cooperative Extension Service, and the Agricultural Experiment Stations. The first computer, a Digital Equipment Corporation (DEC) 1170, was purchased and installed in January 1981 and software to meet some of our needs was purchased. A staff will develop software which cannot be purchased.

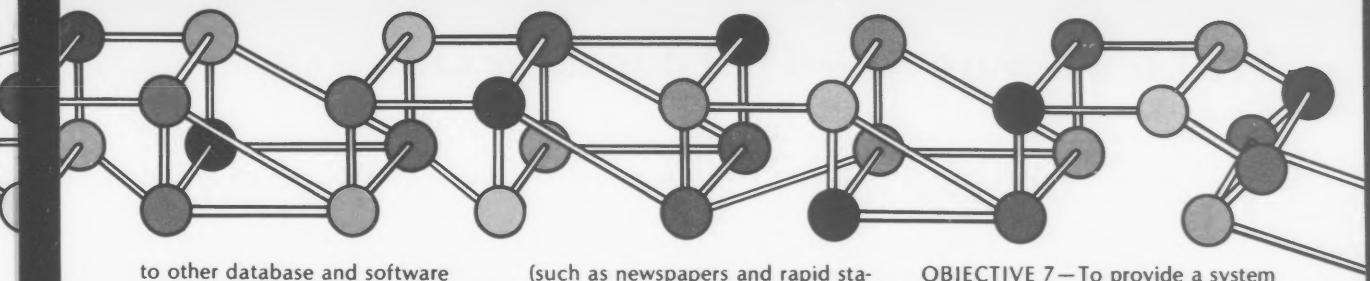
The basic objectives of COMNET are as follows:

OBJECTIVE 1—To provide a communications network to link campus departments, county extension offices, and off- and on-campus research stations. This objective is far along in the implementation process, and supporting software is in place. To date, nearly all the Michigan county extension offices have purchased a host-dependent terminal—the minimum equipment needed to interface with COMNET. Three counties have also purchased micro-computers. The ability to support both host-dependent terminals and small computers illustrates the design flexibility in COMNET.

COMNET has also been interfaced with the DIALCOM electronic mail system. Messages are taken off DIALCOM and distributed to the appropriate person via the COMNET mail system. Similarly, mail for users on the DIALCOM system is uploaded from the COMNET mail system.

OBJECTIVE 2—To provide a shared-logic text processing system to oncampus users of COMNET. This objective was achieved early. Currently, there are 42 text processing systems supported on COMNET. The software selected for this function handles mathematical equations and other complexities associated with preparing academic manuscripts. It can also interface with a phototypesetter. However, we have not yet used this capability.

OBJECTIVE 3—To provide an intelligent networking system which will link the users to a number of computer software systems such as TELEPLAN, PMEX, DIALCOM, SOURCE, COMPUSERVE, AGNET, CMN, CIS, and others. This objective allows us to build upon our past efforts as well as make access easy



to other database and software systems. It reflects the reality that we do have the resources (people, financial, and otherwise) at Michigan State University to develop and support all databases and software packages needed to carry out our research and education programs. If the needed database or software exists on another system, COMNET can be used to link the user to the proper system.

The first generation of software for implementing this objective is progressing on schedule. To date, we have developed links to PMEX, DIALCOM, SOURCE, CIS, and COMPUSERVE. We are working on a link to TELPLAN and planning on establishing links to AGNET and CMN in the near future.

The second generation of software for addressing this objective will be more sophisticated. It is anticipated that this version of software will relieve the user from mastering several sets of log-on procedures and control codes as the user attempts to access several different systems.

OBJECTIVE 4—To provide the control and communication system for a network of remotely based biological and environmental monitoring stations. This objective is directed towards assisting the researcher. For example, a researcher desiring real-time weather data from a remote location can use COMNET to access the micro-processor-based data logger which has been established to perform this task. This capability will get the researcher more timely data. The procedures for implementing these objectives are still in the planning stages.

OBJECTIVE 5—To provide a system for automating the delivery of electronic text to mass media outlets (such as newspapers and rapid stations) in a more timely and acceptable format. This objective builds upon earlier efforts in the TELPLAN project. A new version of MSUIFS has been implemented on COMNET. MSUIFS was originally built to meet the needs of newspapers which had moved to computerized text management and typesetting. This software package is used to transmit news releases to mass media outlets and Extension offices. Under development is an enhanced version of this software which will allow COMNET to deliver news releases directly to the appropriate editor at newspapers with computerized equipment. In a sense, Michigan State University becomes another newswire.

OBJECTIVE 6—To provide a system which can be built upon to establish a distributive processing network which might ultimately link individual farm businesses, agribusinesses, families, and others to the campus and other data sources. Meeting this objective is likely to involve the greatest efforts in the years ahead. There are two projects already in progress. First, we are using COMNET to download information from our MARKET program—a system for supplying COMNET users up-to-date information on selected commodity markets—into a videotext system (AGRICOM) operated by the Michigan Farm Bureau.

Second is a Kellogg Foundation sponsored project (FAHRMX) in the area of animal health. This project is using small computers in large animal veterinarian practices to maintain extensive information on the farm animals served by these practices. COMNET is being used to upload and download software among these systems and to transfer data among databases needed by the project (for example, research epidemiological databases on the campus computer).

OBJECTIVE 7—To provide a system to supply selective management information (such as account balances, and bulletin inventory levels) to county offices, departments, and the other administrative units. Software for addressing this objective is well under way. The EMPIRES system will be released in a few weeks. This package allows the user to query the system to find educational materials by subject matter, audience type, media type, title, author, and program areas, using keyword searching techniques. Other software for management control is also nearing completion.

Current Status and Future Directions

One of the major tasks in making a computer system functional is educating people to make effective use of the system. Currently over 850 people are trained in the use of COMNET. The first DEC 11/70 is nearing capacity in terms of users it can support. A second DEC 11/70 is on order and will be networked to the first system to expand COMNET's capacity. Recently a pricing structure has been established, and COMNET will be made available to outside users (for example, farmers, families, and agribusinesses) starting in July 1982.

As with any new system, we have also experienced some problems. One problem we are currently addressing is to make people aware of information management concepts. Using a computer to deliver information demands that we rethink how we package and present information and deliver it to selected audiences. Providing educational materials, training, and backup support for COMNET continues to take a significant amount of resources. □

4-H Courseware In—4-H Education Out

Stu Sutherland, Public Information Officer
Extension Service, USDA

Today's wide diversity of progress with linking computers to 4-H educational efforts goes back to the basic questions of funding and priorities. Though today's smaller computers cost less, they still cost! Once funds were committed—as earlier computers were introduced into Extension—the programming priorities more nearly reflected the needs of adult clientele in activity areas related to agriculture and home economics educational programs, for example.

AGNET

Among the many programs that are now available to those who access AGNET (see article p.10) are those designed for use in the 4-H program. These include the eight-section 4-H health project known via computer as SHARE/CARE. The sections include: DIETCHECK; FOOD RECORDS; HEALTH RECORD; HEALTH RISK PROFILE; A HEALTH-CHECK/LIFESTYLE; HEALTH CAREERS; FAMILY HEALTH; and PERSONAL HEALTH. The independent units were developed by the Cooperative Extension Service, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln.

Also on AGNET, but developed by a South Dakota team of specialists, is JOB SEARCH. On JOB SEARCH, 4-H'ers can access an exercise containing 15 job "clusters" to allow for identification of personal characteristics, interests, abilities, and other factors important to a young person's career exploration.

With AGNET terminals in all 23 counties of Wyoming, the CAREERS program was offered to 4-H junior teen leaders at their leader camp last summer. The AGNET SCORE program is used there in tabulating contest judging scores—as it is also used in other states. Wyoming also pilot tested the PREMIUM program in AGNET which allows for a compilation of individual awards and premium money for state fairs.

An early April letter from nearby Utah reports they have almost completed an Apple II computer program for summarizing the lengthy data required on the 4-H report form (ES-237).

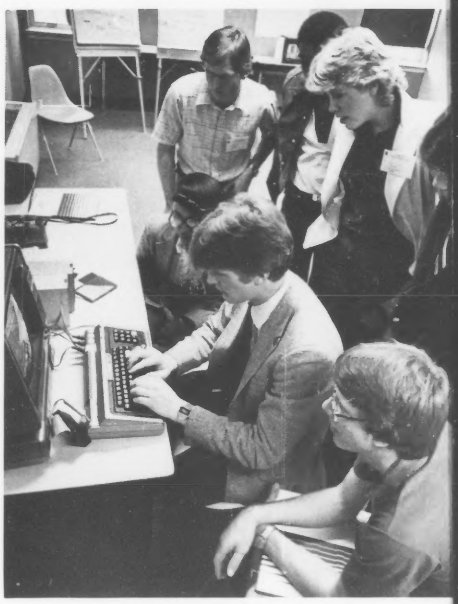
In Indiana, counties use the FACTS system (see article, page 34) for enrolling 4-H members and office use as one of the management functions of the system. The FACTS system is also used for complete pre-registration for various 4-H judging contests, and contest results are computerized by batch processing through Purdue's main computer. County staff members also use the system in the publication of the 4-H Projects and Recognition Handbook, and 4-H Calendar, and for county entry blanks. Thank you, renewal, and reminder letters and different reports are also prepared, as well as county summaries, gift size summaries, membership reports, and master lists.

Tennessee reports a request to help a pair of local 4-H leaders who wish to lead a computer group who own computers.

The Extension Division at Virginia Tech-Blacksburg has developed a system known as the Computer Management Network (see article, page 00). One of the CMN programs, a 4-H computerized jogging project, consisting of 10 lessons and a 7-exercise project book to be done at home, looks very interesting—to a person like me with a slight touch of middle-age spread.

Computers at Camp

Here's how youngsters at summer camp in Kentucky learned how to use computers.



According to "4-H and Microcomputers—A Great Beginning" by Extension Agricultural Engineer George Duncan, Linda Bach, and George Turner (Jan. 28, 1982), private support for energy education sessions at 4-H summer camps was being curtailed. A committee proposed the use of micro-computers to fill the gap in the energy sessions at camp and to do so with the purchase of two computers—one for each of two camp locations.

With Extension administrative help, 10 micro-computers (trade name TRS-80, Model 1, Level 11) were loaned by the Tandy organization for the project. Coleman White, assistant Extension director for 4-H in Kentucky, arranged for the purchase of three more printers. Staff members of the Department of Agricultural Engineering developed a workable computer program.

A methodical, low-key approach was adopted to introduce the use of the micro-computers to 4-H agents and volunteer leaders. After a demon-

Far left: Participants at the 1982 National 4-H Conference were provided hands-on experience with computers and used them as a learning experience.

Below: Part of the 82 National 4-H Conference this year involved group discussions on the future of 4-H, including some hard thinking about computers and other electronic technology.

stration at a 4-H agents' and camp staff planning conference, requests were made to install the small computers in four camps instead of two, and training sessions were held in May 1980—with 48 agents and volunteer leaders attending. When the four selected camps opened for the first batch of young campers on June 2, the micro-computers were in place and loaded with programs for the 4-H members' use.

During that summer, about 4,500 of the 7,500 young people at camp selected the computers as one of their scheduled activities—with the computer sessions competing with traditional camping activities such as swimming, softball, and creative arts.

James Phelps, Jr., a Knott County Extension agent for 4-H who spent a week at the J. M. Feltner Memorial 4-H Center in Laurel County, said, "The computers actually cured five cases of homesickness the first day." He also noted that, "Working with the computers helps a child who is seeking attention, a child who is the typical rowdy camper." The only complaint about the computers that summer was that there were not enough of them.

The idea was introduced for the camps in 1981—after some pilot testing and the development of new and revised computer programs. More equipment was added so that the 1981 summer camp sessions had four camps with three computers and two printers, and a 5th camp had two computers and one printer.

Kentucky's camp enrollment for 1981 was 10,424 youth. At least 50 percent of them worked with computers—or more than 5,000 campers. Based on the camping and other computer activity, Kentucky now has an official 4-H Computer Project I, II, III, plus a Leaders' Guide.

At the Fair

In the summer of 1981, a micro-computer was set up in the 4-H area at the Kentucky State Fair, in the fall at an Energy Exposition in Louisville, and during Energy Awareness Week in Lexington. These exhibits are introducing the people of Kentucky to micro-computers through 4-H-led activity. And the micro-computers have not been idle between camping sessions as they have been requested for use by about a third of the counties for many applications.

Twenty additional computer programs were developed in the summer and fall of 1981 in preparation for the 1982 summer camp programs. Altogether, 70 mini-programs are currently available for 4-H'ers—and the 5 camps will have computers installed again for the camping this year.

George Duncan and other staff members involved sum up their report:

"Overall, the 4-H micro-computer activity has been well-received and has made outstanding progress in

the State of Kentucky. Plans are being made to improve and continue it as long as the needs of youth in Kentucky are being served and the resources (equipment, personnel, funds, etc.) are available. These resources along with the creative planning and enthusiastic cooperation by all personnel involved will truly provide the 4-H youth of Kentucky with educational opportunities and training for future leadership in America."

The Kentucky computer project group also point out that their experience has given several new perspectives to this type of activity. Standardization of computer programs has become important so 4-H'ers are able to find continuity with each project.

Major Issues

A review of available Extension-produced information and correspondence about 4-H computer applications does show some consensus on a few major points:

- The existing and appropriate subject matter projects and programs of 4-H should be a prime focus for the early use of computers.
- The use of computer technology for 4-H is a new method to increase 4-H outreach, improve instruction, and enhance the learning process for young people. The purpose is not to create computer literacy, as that is only a byproduct that will be gained by youth and adults as they use computers to acquire subject matter knowledge, other skills, and new recordkeeping ability.
- Computers will be able to let 4-H education go beyond what we could do before—we'll be able to do more indepth study and achieve greater degrees of sophistication.
- Young people like computers and enjoy working with them; the equipment and programs fit their motivations for increased new knowledge. Even the youngest 4-H members seem to know instinctively that computers will be an important part of their future, and might be a source of employment.
- As computer games have shown us, computers can display educational information in graphic form—charts, figures, pictures, dimensional drawings that can be printed out—opening some new and exciting possibilities for educational youth programs that can be designed and executed by the young people.
- Confidence of adults—both Extension staff and volunteers—about using computers is increasing as computing devices become common in our daily life and working and recreational environment.
- With computer interaction across distances it will be easier and quicker to transfer educational programs, related correspondence, and needed report materials.

Conference Recommendations

A consulting group during this year's National 4-H Conference—both youth and adults—spent time together considering how best to work computers into 4-H activities. One of the adults sitting in on the sessions reported later that the younger 4-H members were "way ahead" of the adults in computer talk, and often in ideas on how computers could be used in innovative ways. Here, in brief, are some of their recommendations:

- Modify and enhance 4-H programs so 4-H participants can use the computer as a tool in their 4-H learning experience.
- Establish a national data base to serve as a clearinghouse, for a national inventory of already developed and planned computer programs and applications.
- Place the responsibility of producing computer software in the states.
- Provide written training materials on computer application to existing projects to members and leaders.
- Design, at national level, leader resources so volunteers can access and use available software.
- Emphasize training of adult and teen leaders—who would work with members after being trained.
- Establish a national task force to develop a 4-H computer project.
- Coordinate, at state level, the development of a system to buy the hardware for counties and clubs—from available sources—with funding to be sought.
- Establish a 4-H computer newsletter at national level.

The delegates concluded that leadership needs to be identified at state and national levels so that 4-H computer application can be spurred further. Leaders are needed to coordinate development efforts and document the need for, and assist with securement of, resources to accomplish the above goals.

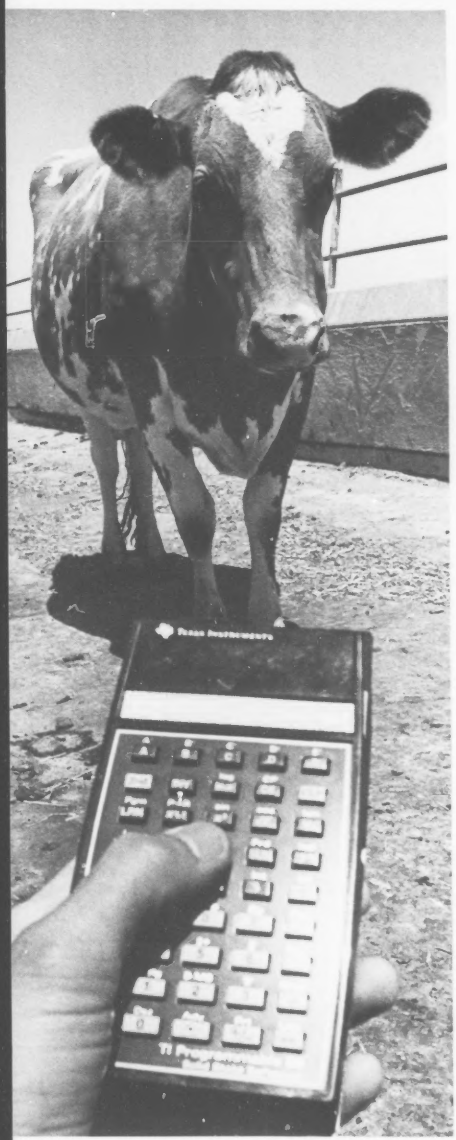
A report with recommendations, by a six-person Ad Hoc Committee on Utilizing Computer Technology in the 4-H Program is in draft form. "Use of Computers in the 4-H Program" will be available soon for consideration throughout the land-grant university system.

Youth delegates to the 1982 National 4-H Conference recognized that the computer was here to stay and would provide them with many career opportunities. In looking to their future, all agreed that it was time to "get on with computer action in 4-H programs."

Besides, computers make our work easier than ever before! □

In-the-Field Programming

Nelson H. Gotwalt, Writer-Editor
Eleanor W. Blakely, Writer
Agricultural Communications Office
The Pennsylvania State University



Extension agents use programmable calculators to calculate least-cost rations in the field. (Consumers of these rations often show a mild interest in the proceedings.)

Extension agents throughout Pennsylvania keep pace with technological advancements to provide farmers with information that will save them time and money.

One of these advancements is the programmable calculator. It looks like any other calculator except it can be mounted on a printer, store information, and execute a long series of mathematical calculations.

Time Saver and Educator
"It won't do anything that can't already be done by hand but it can save a lot of time, especially where a problem must be solved frequently," says John Creighton, Wayne County Extension director.

Some agents think the equipment can be useful as an educational tool too, not only as a means of answering individual farm questions.

Dairy and Beef Uses
Currently, agents and farmers use the programmable calculator to formulate dairy and beef rations, barn ventilation, estimated value of dairy forages, cost of operating motor vehicles, estimated cost of farm machine operation, depreciation, and investment tax credit.

"By using three nutritional programs written for a programmable calculator, I can formulate complete dairy rations in about 25 minutes less time than by hand," points out George Wilcox, Erie County Extension agent. "A least-cost ration also can be determined."

Wilcox emphasizes that, with the calculator, feeding values could be determined for 27 different feedstuffs. These data are compiled and included in all dairy newsletters for use in comparison shopping for the best feed buys.

Cost Savings
In Erie County complete feeding programs were formulated for scores of dairy producers. Grain cost reductions were often in the range of $12 to $15 per ton.

"While the programmable calculator shows promise as an educational tool, it does have limits," says Creighton. "Some feel it is simply a forerunner of more sophisticated equipment that will be available for Extension."

He emphasizes Extension will take advantage of available technology as much as possible in carrying out programs to supply farmers with the information they need. □

Maryland Workshops Master Microcomputers

Patricia Tengel, Family Resource Management Specialist
Ralph Adkins, Assistant to the Director
Maryland Cooperative Extension Service

The eighties began with a ground swell of interest in computers that swept across the country. Maryland was certainly no exception. Microcomputermania infected clientele, agents, and specialists. Farmers and homemakers were turning to their Extension agents and asking whether they should have a computer in their home and on their farm.

Pure Mystery
For most of the Maryland field faculty and specialists, microcomputers were pure mystery. They had formed computer concepts in terms of unpleasant, long ago, experience with main-frame computers.

The creation of a computer task force was the beginning of a continuing effort to make microcomputers a standard tool of the modern Extension agent. Initiated by Elwyn Deal, assistant director for agriculture at the University of Maryland, this broad-based group included agents and specialists from agriculture and home economics representatives from the Experiment Station and resident instruction.

At the first task force meeting it became obvious that, first, the task force needed training. The great divergence in computer experience and understanding brought its work almost to a standstill.

Computer Literacy Goal
A quick assessment showed that the task force mirrored the status of the entire Extension faculty. Computer literacy was identified as the single most important need, followed by computer personnel and hardware.

The search for computer literacy began in November 1981 when 12 task force members climbed into a university van and headed west. A snowy 13-hour trip to an onfarm computer seminar at Purdue University brought them face to face with practical microcomputer applications. More important, however, they returned to Maryland with a joint resolve to implement computer technology.

The closest thing to computer hardware in Maryland counties at that time were a few underutilized programmable calculators. In the Extension tradition of starting where the learner is, a 1-day session was held for agents who had these calculators. Basic operation and simple programming were taught so they could get more effective use from the equipment already available to them.

Seminars at Annual Conference
The computer task force devoted most of its efforts to promoting literacy in computer use for the total Extension faculty. The Annual Extension Conference provided an ideal forum for a concerted attempt to reach both agents and specialists with general information about computers. Three separate seminars were conducted, and about two-thirds of the faculty attended each session.

Persons conducting the seminars gave an overview of computer use within Extension nationwide, office management, and an introduction to microcomputers. A small computer trade show concluded the program.

Followup Sessions
To capitalize on the interest generated at Maryland's Extension Annual Conference, computer experts conducted a more indepth session 2 weeks later. Faculty members ready to use computers attended a 2-day Microcomputer Workshop on the University of Maryland campus. Emphasis began to shift from knowing computer terminology to actual use of the hardware. Availability of computers limited attendance to 35 participants.

"How to" Training
Patricia Tengel, family resource management specialist in the University of Maryland's Extension Service, began the workshop by laying the basic foundation of computer technology. She explained computer operation and data processing, and progressed into the types of personal computers available to Extension agents and their clientele. Tengel emphasized the critical importance of identifying specific computer uses and locating satisfactory software before investing in hardware. Otherwise, many personal computers will gather dust on a shelf, she believes.

Following up on the software availability aspect, Pradeep Ganguly, Maryland Extension farm management specialist, explained how to locate and select computer programs. He showed the importance of insisting upon good documentation for all software purchased. The best programs are able to be easily modified and adapted to more nearly meet the user's situation.

Tengel closed the first afternoon session with a humorous presentation showing the hazards of leaping headlong into the microcomputer era without adequate knowledge.

Hands-On Experience
David Hess, University of Maryland coordinator for management infor-

ricultural agent Reginald Traband becomes a new "expert" on the microcomputer at the ryland workshop. Other participants await their turn at the keyboard.

mation systems, had arranged for the first night's session in the learning center of a local computer store. These facilities allowed everyone to use a terminal or share use with a partner. Self-teaching software permitted each person to move at his or her own pace through increasingly more difficult operational procedures. For most participants, this was their first opportunity to operate a microcomputer.

In the campus setting for the second day, Hess had assembled several different brands of microcomputers from local dealers and campus departments. Although the variety of hardware may have sometimes complicated the instructional process, it allowed faculty to compare operation and output of the microcomputers.

Taking command of this assorted hardware, Gary Smith, agricultural engineering specialist, walked 35 eager students through the elements of programming. Everyone had the opportunity to enter these short programs emphasizing different problems and requiring increasingly higher levels of skills. While the examples used were in agricultural engineering, they typified problems encountered in other program areas.

Entire Staff Involved

The final afternoon was reserved for the participants to use the computers on their own. All the instructors were on hand to offer individual assistance. Software from Extension and commercial sources were available for all the machines. Home economists used programs such as human nutrition analysis and family budgeting, while agriculture faculty ran programs on farm management and machinery decision aides. Everyone appreciated the versatility of electronic balance sheets and word processing packages.

Agent and specialist reactions to these staff development efforts have been positive. For most it was their first opportunity to see for themselves the power of the microcomputer. Equally important, they were able to see beyond the "slick advertisements" and learn the time and resource commitments necessary to use computer technology.

The 35 agents and specialists completing Maryland's first microcomputer workshop will be key leaders in determining Maryland's direction in the computer field. Already they have returned to their counties of departments and are sharing knowledge and expertise with coworkers. They are continuing to call upon the workshop staff as they begin to make decisions about computer selection. They will influence many state computer policy decisions and Maryland's future direction in computer technology. □

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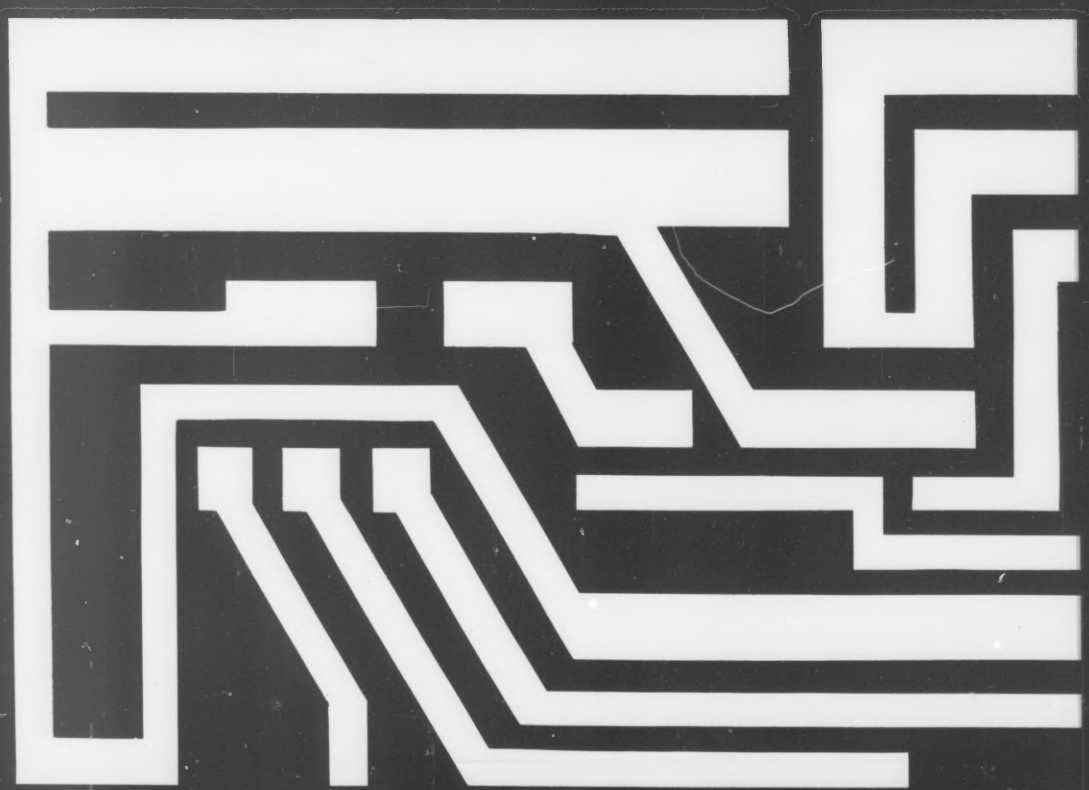
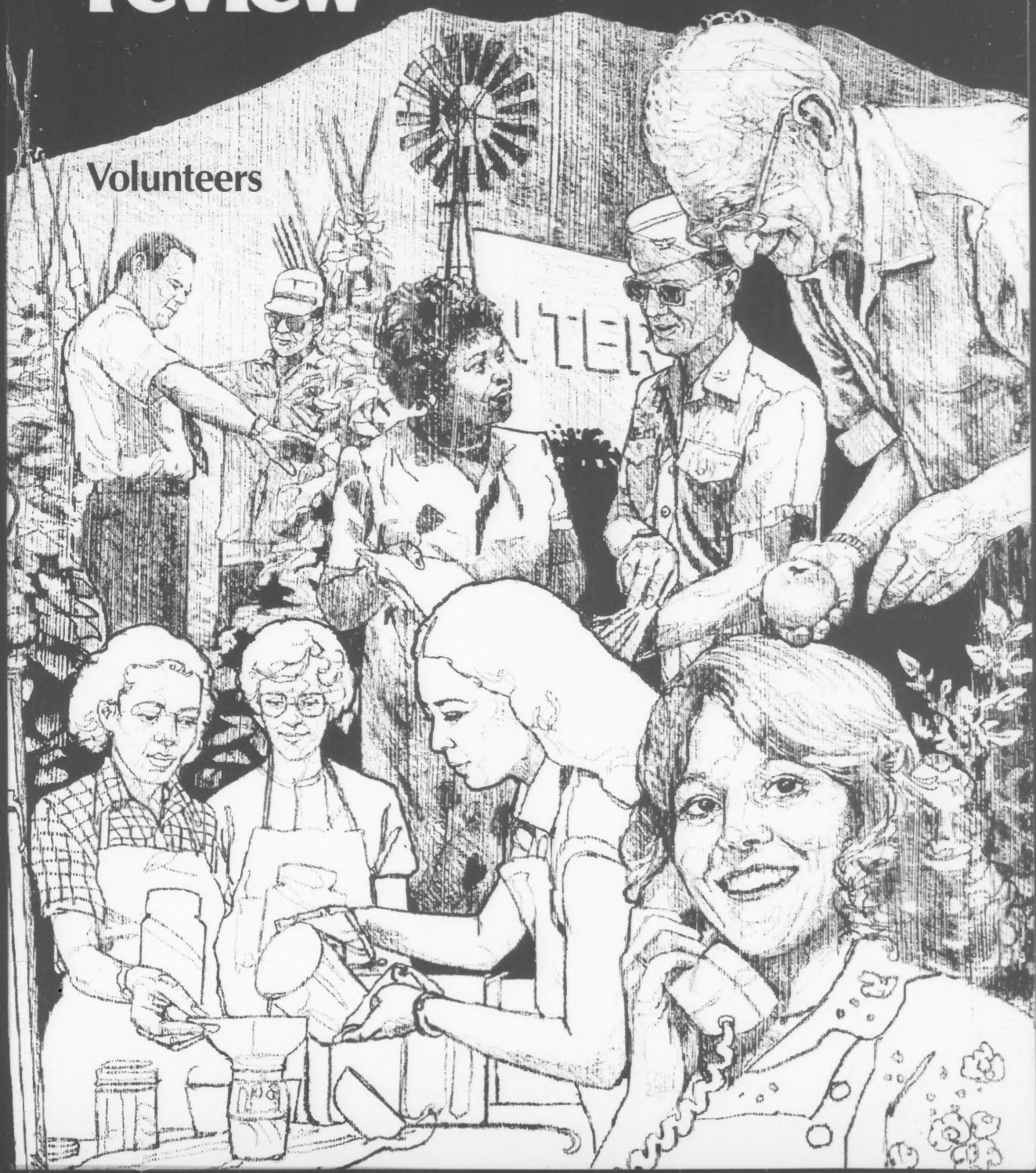


Fall 1982 United States Department of Agriculture

extension review

Volunteers



review

Priceless Commitment

A panorama of people—the faces of Extension volunteers are as varied as the programs they assist. These faces—furrowed with wisdom or fresh with enthusiasm—mirror the care and concern for their neighbors and the love and interest volunteers hold for their communities.

Of the 1½ million Extension volunteers, 570,000 work in 4-H programs, 600,000 are in homemaker programs, and 400,000 volunteer in agriculture, natural resources, and community and rural development (CRD) programs.

Contribution: 1.5 Billion

In a year's time, 4-H volunteers give about 220 hours each, homemakers contribute 56 hours each, and the other volunteers donate 60 hours each, for a combined total of 183 million hours. If we value their time at $8 an hour, they are giving $1.5 billion a year to Extension programs. Adding travel at a range of 125 to 400 miles per year and materials that volunteers give at about $10–60 per year, that total climbs even higher.

A major key to the success of the CES volunteer program has been the committee involvement of volunteers in program development at all levels. Volunteers were carrying out many agriculture and home economics programs before the Smith-Lever Act of 1914 was passed. In fact, volunteers can be said to have started the Extension Service. Success of the farm demonstrations and 4-H clubs was a major factor in gaining legislative support for the Smith-Lever Act.

Later, volunteers helped to establish local CES offices and they served on advisory groups and planning committees. This history of effective programs being developed *with* rather than *for* people continues to be a primary reason that people invest in CES educational activities.

The Multiplier Effect

Volunteers work in many different areas of Extension endeavor. Over 600,000 Homemaker Club members in 45 states and Puerto Rico reach over 1 million people with their programs. The Master volunteer programs, described in the first article in this issue, the "Share Our Selves" volunteers in home economics, the "Middle Management" volunteers in 4-H: all exemplify Extension's contribution to the volunteer efforts. In the other articles in this special issue on volunteers, some of the many types of volunteers and programs in Extension are described.

In terms of *time* (2,080 hours equals 1 staff year), it would take eight full-time, salaried staff to replace the average of 133 volunteers supervised by each county Extension worker. Money cannot buy the commitment and motivation these volunteers bring, however.

Extension volunteers increase the multiplier effect, too, because they share, at local gatherings, the knowledge gained through their volunteer work. Volunteers, supported and supervised by salaried staff, have made the Cooperative Extension Service system the largest adult education program in the world and the largest and only Extension education program for youth.

The demand for volunteers will increase during the eighties, bringing many more opportunities for the 84 million American volunteers. Because of this demand, we will see more legislation than in previous decades directed toward the rights of volunteers. Volunteers will demand and get more say in determining the program direction of voluntary and political groups and organizations.

Priorities

Eight national Extension initiatives have been identified as priorities needing attention throughout the Extension system of which volunteerism is one. Extension Service task forces have been assigned the responsibility of planning and carrying out achievable objectives under these eight initiatives starting in FY82 and FY83.

Some areas for action identified by the Volunteers Taskforce are:

- Conduct multistate training program for state Extension administrators and program specialists.
- Obtain statistical data on Extension volunteers
- Conduct study of impacts of Extension volunteers
- Develop two-part Handbook on Extension Volunteers for Extension administrators, agency heads, and others
- Develop generic training program for Extension volunteers
- Keep ES and CES informed on voluntary action research and legislation.

Your support is needed and welcome.

Extension Task Force on Volunteers:
Milton Boyce, Chairman
Louise Ashton
Ella Mae Berdahl
Judith Armstrong Bowers
Donna Buntrock
Ricardo Gomez
George Mayeske
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Donald L. Nelson
Jeanne Priester
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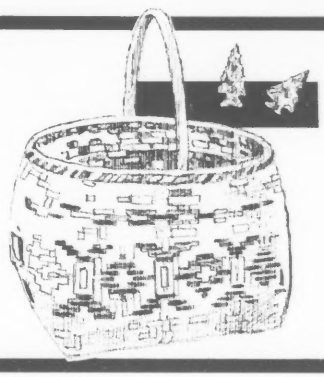
contents



extension review

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Fall 1982

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Secretary of Agriculture

Orville G. Bentley
Assistant Secretary for Science and Education

Mary Nell Greenwood
Administrator
Extension Service

The *Extension Review*, quarterly publication of the Extension Service is for Extension educators in county, state and USDA agencies. 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 through September 30, 1985. The Review is issued free by law to workers engaged in Extension activities. Others may obtain copies from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, at $2.75 per copy or by subscription at $9.50 a year, domestic, and $11.90 foreign. Send manuscript inquiries to: The Editor, Extension Service, Room 3137-S, USDA, Washington, D.C. 20250. Telephone: (202) 447-6133.

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Extension's Master Volunteers

Stu Sutherland
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Extension Service, USDA

The men and women who founded the United States over 200 years ago started a tradition we now call volunteerism. It is a spirit of giving freely of one's time and energy when a neighbor needs "an extra hand." Good neighbors still have that willingness and compassion to pitch in when needed. Barns are still built by the volunteer labor of neighboring farmers after a fire, and crops are still voluntarily harvested by good neighbors when a farmer is in the hospital.

As the first Cooperative Extension Service offices were being established in local areas, volunteers were there to help by serving on advisory groups and planning committees. You could say that Extension has always been blessed with people (volunteers) helping people (Extension professionals) who are helping people (clientele) help themselves.

Today, the tradition lives on. Among the more than 1.5 million volunteers who multiply the educational activities of Cooperative Extension Service employees, there are expanding groups of Master Volunteers.

The Master Idea Starts
About a dozen years ago, in one of the "Last Frontier states" in the Pacific Northwest, the idea of a Master Volunteer program got its start. The Extension horticultural staff in the counties and at Washington State University–Pullman needed some help during gardening season when gardeners swamped them with questions.

The "master" idea, in a nutshell, is to provide intense, in-depth training in a certain program activity to people with some prior experience, and, in return, ask them to give a specific amount of time helping others in their area of enhanced expertise.

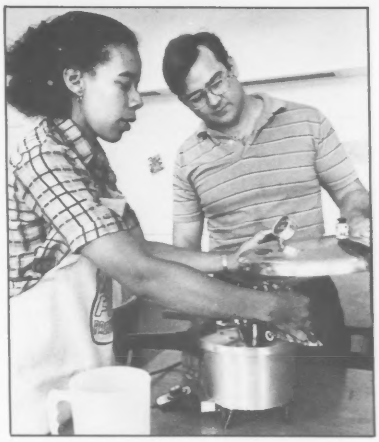
The original Master Gardener idea has since been adapted to other areas of Extension activity. The number of hours of training and sharing have varied by state and type of Master Volunteer.

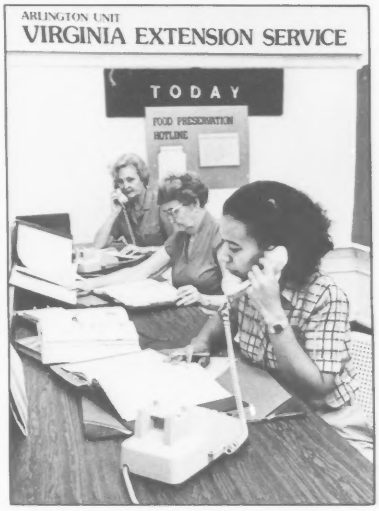
Washington State's Masters
Bernie G. Wesenberg, Extension horticulturalist, has been associated with the "senior" Master Volunteer program at Washington State almost since its inception over 10 years ago. Over 30 other states have used Washington's program as a model for similar educational efforts, he notes. About 600 Master Gardeners operate in 18 Washington counties this 1982 gardening season. Between 150 and 200 of them are veteran Master Gardeners.

Washington State's metropolitan King County contains 200 Master Gardeners who are likely to make over 50,600 public contacts on gardening subjects this year. They will give about 3,100 hours of volunteer service. Typical activities for King County Master Gardeners from April through September include 4-hour sessions at neighborhood clinics—publicized in advance—held at 17 different locations in the county. They also work in the Extension county office handling phone calls on garden subjects. Some of the Master Gardeners make speaking engagements while others go on radio talk shows. After their volunteer experience, a few have established home consultation businesses or gone into classroom teaching.

Washington State's Other Masters
The Master Food Preserver Program

Betty Eyler, Extension home economist, trains Master Food Preservation volunteers in Arlington County, Va. The volunteers are taught how to give canning and freezing demonstrations, handle consumer telephone questions, and check settings on the gauges of the pressure canners.





has been helping Washington Extension's family living agents respond to requests for information about home canning, freezing, drying, pickling, and related subjects since 1976. The Master Food Preservers receive extensive training in their subject area. A recent survey on AGNET got responses from 10 Washington counties reporting a total of 179 Master Food Preservers this year. Eighteen counties plan to recruit and train Master Food Preservers next year.

Like the Master Gardeners, the Master Food Preservers help county agents handle phone calls, numbering in the tens of thousands, and they also provide information to nome food preservers contacted at farmers' markets and shopping malls. In September 1981, at the Western Washington Fair in Puyallup, 15,000 public contacts were made by Master Volunteers from Pierce, Thurston, and King counties. Master Food Preservers in Yakima County were equally busy, averaging 100 hours of volunteer service each, one of them working more than 200 hours.

Shopping Experts

Three Washington counties this year have the newest "Masters"—Master Food Shoppers—four more counties plan to have them next year. The Master Food Shopper program was started last year in response to public interest in obtaining objective shopping information at the point of purchase—the grocery store. Master Food Shoppers receive 30 hours of specialized training in exchange for devoting 50 hours providing information to shoppers where and when they make their decisions about food. Agents working alone would not have the time to do this countywide.

These Master Food Shoppers answer questions about labeling, pricing, and packaging at booths set up in cooperating foodstores. They hand out Extension fliers offering advice on many shopping topics. Master Food Shoppers often show various forms of a food to create awareness of the differences in cost, convenience, storage requirements, and nutritive value.

Food Programs Spread

At one time there had been a canning center in a low-income area of Fort Wayne, Indiana. It had been closed but was still filled with equipment no longer being made by the manufacturer. City, township, and county staff members, and a neighborhood association, arranged to reopen the center, and the county Extension office handled the administrative and educational aspects. "With only one paid director for the community canning center," explains Cam Boyd, county agent for food programs, "we looked for volunteers in the neighborhood." A dozen Master Canners now assist the director, Bee Honeycutt, with the live-steam equipment and the two large freezer units, as clients come in to can. The Master Canners also help clients use USDA research-based canning recipes and they provide other educational services.

The Alabama Cooperative Extension Service conducted statewide agents' training on the Master Food Preserver program in February 1982. Of the 67 counties in Alabama, 5 began the program this year. Agents elsewhere in Alabama are using portions of the program and plan to use the entire program in FY 83. Among the first groups of women in Alabama who have "graduated" as

In the Master Gardener program, Extension agents train volunteers to provide assistance to gardeners in their communities. Here, a Master gardener (left) helps harvest tomatoes in a New York vegetable garden designed for the handicapped.

Master Food Preservers, the four from Washington County and three from Clarke County will share their training information with others in high school home economics classes they teach.

The Hillsborough County office in Florida, serving the Tampa area, is busy with a Master Home Makers series of training sessions—to have Master Volunteers in four areas of home economics. The first group of 22 volunteers was trained in food preservation—2 of the group have masters' degrees, a number have bachelors' degrees, and the remainder have high school diplomas (a basic requirement). Another group started training in mid-August in food preparation, including microwave cooking. In December, a third group will train in areas of housing, and in January 1983 a fourth group of Masters will start on the theme of "Sewing for You and Your Home."

Connecticut also started master Food Preserver programs in their eight counties this year, and they have Master Gardeners working throughout the state.

In the Tri-River Area of Colorado, Master Volunteers called Trained Food Preservationists (TFP volunteers) have become deeply involved in administrative projects, one of them implementation of a "Home Study Course in Food Preservation," with a $6 fee for printing, mailing, and assembling.

Elsewhere in Colorado, two Master Volunteers in food preservation work for a large industrial firm in the Fort Collins area. The firm provides them with time off to conduct educational sessions. In the Golden, Colorado, area, the "master" Food Preservation Consultants are all volunteers who are graduates in home economics disciplines—which means there is less turnover in

Last winter, Energy Master Conservers in Lane County, Oreg., taught people how to build their own storm windows out of clear plastic. This was part of Extension's "weatherization project" at Oregon State University in which volunteers also installed storm windows for senior citizens.

Youngsters in Arlington County, Va., learn how to save on energy by playing an educational game on Extension's conservation simulator.

volunteers due to personal commitment to the subject matter. And in the Colorado Springs area, arm patches obtained locally identify the Master Canners who provide educational events at the El Paso County Fair as well as at the twice-weekly farmers' market sessions. The Master Canners are prepared to discuss or provide materials on other forms of food preservation besides canning.

Energy Master Conservers

There are Master Volunteers in programs other than gardening, food shopping, and preservation. Over 200 Energy Master Conservers have been trained in four Oregon counties. They are expected to give back 40 hours of service for their 40 hours of training.

During September-December 1981, in the Eugene-Springfield, Oregon area, for example, Energy Master Conservers built and installed storm windows at the homes of 36 senior citizens who were unable to do their own building and installation. They constructed over 2,500 square feet of storm windows, held 34 workshops for 311 people, and spoke to more than 1,200 people.

Master Gardening in New York

An extensive Master Gardener program in New York receives training materials and support from Cornell University. Each county involved develops a program to fit local needs and best use volunteer talent. Statewide, 900 Master Gardeners have been trained, and 625 are actively involved in 29 counties.

Suffolk County—the eastern three-fourths of Long Island—contains 75 active Master Gardeners who work under guidance of county agent Caroline Kiang. They reach gardening consumers at public library sites, community gardens, and other locations such as senior citizen centers. The Master Gardeners also fill in for Caroline on some radio programs, and they occasionally work in a diagnostic laboratory at the county office.

Volunteers staff a speakers bureau that has 28 topics for civic and service clubs; they give 100 to 150 talks each year. The volunteers also assist with the weekly newsletter published since 1977.

Well-established community gardens in New York contain plots for as many as 50 gardeners. In one community, Master Gardeners hold a flower show each year, have an educational booth there, and help judge events at a county fair in October.

Rockland County agent Paul Trader reports that some of the 56 Master Gardeners in a 3-year-old program help provide "horticultural therapy" programs at various institutions. At one mental health clinic last year, the volunteers worked with the patients to root cuttings and transplant them.

Two of the Master Gardeners started an outdoor garden this year and work twice a week with about 30 patients. Two volunteers use the indoor cuttings/transplant activities in a hospital working with physically ill patients who are there for extended periods of time.

In the northern part of the county at a large State institution for mental patients, activities now involve: a vegetable garden at a church site with 30 patients; a combination flower and vegetable garden at a men's dormitory, with about 100 patients; and a garden at a school site for severely retarded patients who can handle little more than weeding and watering, and are now picking a large crop of tomatoes.

Master gardeners work on a community approach to gardening problems. In Arlington County, Va., Extension horticulture specialist Francis Lay instructs volunteers and personally examines development of pole bean and other crops. Master gardeners in the county also hold plant clinics and answer questions about plant samples.

Garden For All Ages
Ten Master Gardeners in Rockland County operate a speakers club, and others are involved in two community garden projects. Gardeners in one community garden that has been going for 3 years with the help of the volunteers, range in age from 4 and 5 years old, to one gardener who is 86. A garden was established for the first time this year with the assistance of a community center in a low-income community. Though it is an area of high vandalism, there has been none to the garden, which is fenced and watched day and night.

Among the Master Gardeners, Paul Trader has found many talents besides the knowledge and experiences related to horticulture—some are photography buffs, some are writers. Recently, a county conservation program was revitalized to survey and save big trees in an area becoming progressively more urbanized. The Master Gardeners "were out there measuring trees, gathering data, and writing," and, "the Book of the Big Trees is about done and should be ready by next Arbor Day," says Paul.

Chautauqua County agent Roger VanNostrand has encouraged both the Kiwanis and Rotary Clubs in the county to sponsor garden-related programs using Garden Advisor volunteers. The Kiwanians sponsor a Garden Advisor supervised youth program of community gardening which has been very successful. The Rotary Club provided partial funding for some "growth bulb" indoor lighting fixtures. Seven retirement nursing homes, who have also helped defray costs, used the "propagation centers" (light units) to propagate cuttings and seedlings in winter and transplants in spring. The Garden Advisors work almost one on one with residents of the homes, two of which have expanded their programs to include small outdoor gardens for residents.

Mall Display
On summer Thursday evenings, the Garden Advisors also man an Extension educational center in a large enclosed shopping mall, where sample publications on all Extension programs, including horticulture and landscapes, are always available with order forms. The "center isle" space is provided free to the Extension office by the shopping mall because the County Extension office and the Garden Advisors arrange and host a spring garden and home show—usually featuring some form of building (last time a rustic cabin) with landscaping and plants around the building. The Audubon Club designed a "nature trail" as a part of the decorations within the enclosed mall.

Computer Gardening Program
Closer to New York City in Putnam County, one of the volunteers who took the training to be a Master Gardener last year was an employee of IBM. After the training sessions (a 100-hour basic horticultural program with part of those hours done in homework) the IBM employee said, "You know, you could put all of that on a computer . . . want to?" "Yes," county agent Walter Carpenter responded and they produced a computer program. They are now working on data banks on the county office computer, with an eye to having a program that consumers may be able to use in the future.

Putnam County Master Gardeners have participated at a hospital fair, in a "garden mart," and they staffed a booth at a youth fair. Individually, Master Gardeners working in industrial firms answer questions from fellow employees. Two firms have provided garden space which employees are developing with Master Gardener assistance.

Gardens in Cities
Some of the 110 Master Gardeners in the District of Columbia developed a demonstration garden for this season on Independence

Master gardener, originally trained by Extension, holds plant clinic in library in Montgomery County, Md.

Avenue, just off the mall near the National Air and Space Museum. The garden was sponsored with grants to, among other goals, test lead levels in vegetables grown directly adjacent to a heavily traveled street. Liz Crowley, who coordinates the Master Gardener program at the University of the District of Columbia, reports minimum vandalism at this garden site in the middle of the city.

In New Mexico, a Master Gardener program launched in the Albuquerque area last year has proved highly successful. Programs based on the Albuquerque activity have been established in Santa Fe and Los Alamos, with some training from Shelia Douchette, one of the original Master Gardeners in Bernalillo County (the Albuquerque program). In Santa Fe, about 20 volunteers handle telephoned "hotline" questions in the Santa Fe County Extension office. They will also help set up and staff horticultural and educational displays and demonstrations; they have formed a speakers bureau to give talks to local/county civic groups and service clubs; and they will help with periodic lawn and garden clinics. In Los Alamos, the 10 volunteers opened a hotline on June 21 and will generally duplicate the activities of the other two programs.

California Garden Programs

About 80 Master Gardeners work in the double-county (San Bernardino and Riverside) area near the University of California-Riverside campus. One group of two Master Gardeners is conducting vegetable and turfgrass field plot research with Cooperative Extension specialists at the Riverside campus. Another group of 25 staffs a speakers bureau for 60 to 70 talks a year. A group of 35 conducts clinics at local area shopping centers and libraries—contacting as many as a thousand or more persons per clinic. A Master Gardener's weekly column runs in 7 local daily newspapers, with an estimated circulation of about 250,000 readers.

The farm advisor (California's county agents) oversees the Master Gardener program in both counties, working with the leaders of each committee/group. Each leader does the organizing and planning for his or her respective group of Master Volunteers.

The 16-city Urban Gardening program started in 1977 in Los Angeles, with a component of the program involving the preservation of garden produce. In 1981 in Los Angeles, 1,600 of the gardeners used drying to keep part of their garden harvests for later use. Three of the program's four food drying centers, open yearround, serve as training centers for the area's two-stage Master Food Preserver/Expert Urban Gardener program. Volunteers help staff the drying centers.

Why Do They Do It?

Why do the Master Volunteers donate hours of in-depth training—sometimes paying a fee to cover some of the cost of training materials? Why would they cover personal travel expenses and other out-of-pocket costs doing something for which they do not get paid?

James I. Grieshop reports his findings on this subject in *California Agriculture* (July 1982). The Extension Specialist in Community Education Development at the University of California-Davis, says the first 2 years of the California Master Gardener program (1980–81) were monitored closely and studies were designed to find out why people join and stay in this particular volunteer program.

Data from questionnaires completed by the 95 trainees in 1980, and the 183 in 1981, showed the main incentive was that volunteers could increase their knowledge about gardening. The second and third reasons were to receive training and to gain new skills. Other reasons (in order) were wanting to share their knowledge, gain personal satisfaction, and provide a service to their community. Over 90 percent of the respondents to a second questionnaire "strongly agreed" or "agreed" with the statement that they had gained new knowledge.

Grieshop says the information is important in the design and implementation of future programs similar to the Master Gardener program.

To work to everyone's satisfaction, the program must deliver good, high-quality training that increases each volunteer's knowledge.

"It also has to meet the expectations of volunteers," he says, "by giving them opportunities to show off their knowledge—to extend it into their communities—and to socialize. In exchange for these opportunities, (Master) volunteers will give incredible amounts of time and energy." □

Volunteerism—At Home on the Range

Dave Mathis
Extension News Editor
University of Nevada, Reno

She drives 20 miles over dirt road to get her mail. She goes more than 50 miles over the same kind of roads—dust-choking in summer, mud-clotted in winter—to get to a copy machine. It's part of her "volunteer" job that she doesn't figure is volunteering.

Jean Schadler is chairman of the Modoc-Washoe Stewardship Program Steering Committee, the decisionmaking group for one of three experimental programs in the United States. This geographic area includes the northeast corner of California and the northwest corner of Nevada.

Caring for Land
The Stewardship Program was initiated as part of the Public Rangelands Improvement Act of 1978. It is based on the concept of encouraging users of public range and forest lands, through incentives and other positive approaches, to take better care of such lands. It also fosters the idea of resolving conflicts by bringing together, in the planning stages, the various interest groups involved with the rangelands.

The Modoc-Washoe area includes about 4,000 square miles of sagebrush and grass rangelands, over 80 percent of which is public domain. However, most of the water and riparian habitat are on private land. The public and private lands are integral parts of the whole, especially where wildlife is concerned. It is important that both are managed as a unit.

Jean Schadler and husband Lonnie own the Coleman Valley ranch in Nevada's northern Washoe County, about as far away from the "madding crowd" as you can get in the continental United States.

Private and Public Domain
In this association of private and public lands, the Coleman ranch is typical of many in Nevada. It also represents the system of ranching that has evolved in the state over the past 120 years. Ranches were established in the early days where water sufficient to grow forage flowed from a mountain range into a valley. A ranch was developed at such a site and an oasis was formed surrounded by hundreds and sometimes thousands of acres of semi-arid rangelands. Because of the water and intensive management and development, the private lands came to have many times the productivity of the natural rangelands.

However, those early ranchers found that they could extend the productivity of the ranch further by grazing their livestock on those vast range acreages during portions of the year. Most ranchers in Nevada today would have to reduce their operations substantially if they could not use the public lands. In many cases, ranches would no longer succeed economically.

Since so much public land is involved, staff of the U.S. Bureau of Land Management (BLM) and USDA's Forest Service work closely with the ranchers in the Stewardship Program. A number of other state and federal agencies are also involved. A key facilitator in the program is Cecil Pierce, Modoc County farm advisor and Extension agent. In addition, range management and other Cooperative Extension and research specialists from both the University of Nevada-Reno, and the University of California at Davis, provide scientific and technical assistance.

Stewardship Objectives
The specific objectives of the Stewardship Program are to develop innovative and creative management practices leading to improved range conditions and livestock production. Users are to develop and support incentives and rewards to public land using ranchers whose operations produce range improvement. They are to seek ways to integrate private and public land potentials; to promote practices that will improve wildlife and wild horse and burro habitat; to make available program information; and to encourage public involvement.

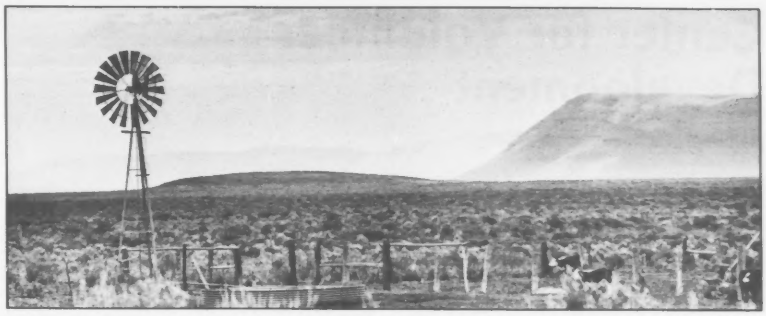
Rehabilitation Projects
The Modoc-Washoe Stewardship Program to date has already resulted in range rehabilitation projects, development of new water, riparian habitat protection, protective fencing of other key areas, and associated activity with multiple-use benefits.

"My function as chairman of the steering committee," says Jean Schadler, "is to try and keep the machinery running—that is, people communicating and acting. I'm a community organizer." To get this job done Schadler estimates she put in 93 days or almost 5 months of her time last year, and she made a "passel" of trips over those lonely, remote dirt roads.

"I'm not a volunteer," she says, "since one of my assignments in our business is to participate on the committee. The ranch corporation picks up my expenses." She fails to explain, though, that she is part of the corporation.

"If a cowboy is keeping up with his work on the ranch he's going all day, usually about 7 days a week. He just isn't up to reading 50 or so pages of BLM or other material in the evening, or going to a lot of meetings . . . that's why livestockmen need somebody to represent them and, in a sense 'watchdog' the agencies. As a rancher's wife I'm given time to do it. Maybe other ranch women will get more into it in the future."

Committee Concerns
The Modoc-Washoe Stewardship



Steering Committee is made up of 21 members representing different agencies and interest groups. They are persons, Schadler explains, who are at the "decisionmaking" level in their organizations. When it comes time to take action on the committee, they can do so without going back to their respective groups. "It takes unanimous consent of the committee before any action can be taken," Schadler says, "so anyone can stop what he doesn't agree with."

Aside from the Bureau of Land Management (BLM) and the Forest Service (FS), other organizations represented on the committee are the Agricultural Stabilization and Conservation Service, the Soil Conservation Service, the Conservation Districts, the State Wildlife Departments of both California and Nevada, the University of Nevada-Reno, the University of California at Davis, county commissions of counties involved, the U.S. Fish and Wildlife Service via the Sheldon Antelope Range, livestock permittees, The Audubon Society, wild horse and burro interests, and private wildlife groups.

Encouraging Approaches

The University of Nevada-Reno was involved at the beginning when Jack Artz, now associate director of Extension, aided in getting the program underway. Jim Linebaugh, Extension range specialist at UNR is a project consultant while Wayne Burkhardt, assistant professor of range management, belongs to the steering committee. Jim Clawson, Extension range specialist at UC-Davis, has also been a regular participant.

"I think what has been shown by the committee," Schadler says, "is that people who disagree on fundamental issues can agree to approaches to solutions of the issues. We agree to agree. We've had some head-on clashes and there have been a lot of axes to grind but the committee has been a common grinding wheel. In the process some old biases have been dissipated. I don't know if we as ranchers are any more sure about our future than we ever were, but we're encouraged by the stewardship approach."

Lee Delaney, BLM area manager for the Surprise Valley area, said, "Jean's leadership has been a factor in keeping the stewardship program moving. She's accommodated all the interests, and kept them participating and cooperating."

Talented, Secure Members

"The committee is made up of a lot of talented, secure people," Schadler notes. "And, some of them really fit the status of volunteer. Curt Spalding, who represents The Audubon Society and conservation groups generally, uses his own money to attend and participate in meetings. Many times, too, he has stood alone on an issue, but because he has, we've come out with a better, more acceptable result. Bill Reavley began on the committee as the Western Regional director for the National Wildlife Federation. He has since retired and no longer receives travel expenses. But, he continues to attend meetings on his own."

Finally, Extension farm advisor Cecil Pierce, a truly respected man in this area, has quietly kept everything going by arranging meeting sites, getting out information, and acting as a catalyst," Schadler says. "Because of Pierce's knowledge of the area and the people involved, he has facilitated committee functioning and has the confidence of a lot of people."

Background

Interestingly, Schadler's background in social programs in the sixties probably helped provide her with the kind of experience that adds to her ability now. She's a rancher's daughter, who grew up near Lakeview, Oregon, and graduated from the University of Oregon. For 10 years following college, she worked in social programs, often with the Office of Economic Opportunity.

"I came home to rest one summer and haven't left since," Schadler said, adding, "I began working for the Schadlers, met and married Lonnie."

Meanwhile, the quiet old land in that area where "dust devils" may be the only things moving at times remains cattle country. Only recently have persons other than the "cowboys and indians" become concerned about its stewardship. □

Center for Volunteer Development

William C. Burleson
Extension Information Director
Virginia Polytechnic Institute and State University

In today's troubled economic world, volunteer groups and those organizations that rely on volunteers need all the help they get. The Center for Volunteer Development at Virginia Tech is trying to provide that help.

Founded in 1980 with the assistance of a 5-year grant from the W. K. Kellogg Foundation and matching funds from the University, the Center is calling on the resources of the Virginia Cooperative Extension Service and the faculty at the state's colleges and universities.

"To continue to meet society's needs beyond this decade," Del Dyer, the center director, says, "we have to arrive at some new solutions to some old problems. We believe that this can be accomplished by linking the knowledge base and Extension expertise at Tech and Virginia State University, the two land-grant schools, with the volunteer and human service agencies in the state."

Graduate Curriculum
To accomplish this, the Center is encouraging Tech and Virginia State faculty and staff to give aid to volunteers and volunteer groups; involve faculty and staff from other Virginia colleges and universities in volunteer assistance; help faculty members understand how volunteerism relates to their fields of study and to teach their students about it; and encourage the development of a graduate curriculum in volunteer management at Tech.

The Center has provided assistance to volunteer groups across the state in a variety of ways. These success stories illustrate the type of problems that Extension agents, Center representatives, and faculty cooperate in solving.

Statewide Effort
In northern Virginia, a group which operates a crisis intervention hotline had a large turnover in volunteers because they identified too much with the callers and became depressed. The group needed responsible, skilled listeners who would be able to link the caller with an agency which could provide assistance. Two faculty from Tech's department of psychology helped the group clarify its problem and suggested specific actions that might solve the recruiting woes.

In Southside, Virginia, an Extension agent and other county agency representatives worried about those county residents who "fell between the cracks" of responsibilities of existing agencies. The Center for Volunteer Development helped organize a comprehensive volunteer program to fulfill those needs of county citizens not being met by other agencies or organizations. Now, through this volunteer program, the county offers a companion homemaker service, a visitor service to the sick and elderly, nutrition aides to assist persons in planning and preparing well-balanced meals, a telephone reassurance service, and a handyman project for needed odd jobs in homes of sick and elderly persons on a fixed income.

A city elementary school PTA wanted to develop a wooded playground area. Faculty in Tech's School of Forestry and Wildlife Resources and Extension community resource development personnel worked with a local Extension agent with horticultural expertise and the local director of parks and recreation. They developed plans for the PTA volunteers to use in the park project.

A southwest Virginia city asked the Center for help in devising a school volunteer program. Plans for such a program were developed through the cooperation of the school system, that city's Extension office, Voluntary Action representatives, and university faculty. The program led to pilot volunteer programs in four city schools.

Funds for Assessment
A county citizens' group wanted to relieve the mobility problems of the handicapped. Through the Center, a group of five faculty members met with the citizens' group. The group had expertise in forming voluntary associations, conducting surveys, interpreting laws relating to the handicapped, and designing building

D. M. "Rusty" Erskine, head of the Center's advisory council, speaks at awards ceremony.
The Center and local Extension agents cooperated in aiding one county group to begin a program to do a telephone check on homebound residents.
A school volunteerism discussion is led by Jane Asche, the Center's graduate intern (standing).

modifications to increase access to handicapped individuals. As a result, the group incorporated and received funds from the State Department of Rehabilitative Services to conduct a needs assessment of the handicapped persons' needs in three counties.

The Center, which functions as a part of Tech's Extension Division, has trained agents in 78 of the 109 Extension units across the state about how to work in the volunteer sector. Although the agents have some expertise in this area, they sharpen their diagnostic and interviewing skills in comprehensive training sessions on campus. Ultimately, at least one agent in each unit will receive such training.

"Our procedure really is very simple," Dyer explains. "When a volunteer group contacts the local Extension office, the agent designated to assist in this area helps the group to clarify the problem. If no resource is available locally, the agent forwards the request to us."

Match Up Service

"Our job then is to try and find a faculty member with the particular expertise to analyze the problem and make recommendations. The faculty member contacts the local agent with that information and he or she follows through with the group that originated the request," says Dyer, a former community resource development specialist.

Last year, 136 requests were handled in this manner. Local agents handled 28 problems without calling on the Center.

Perhaps one of the Center's most far-reaching efforts will be its work in developing a certified volunteer unit (CVU) with the cooperation of the National Extension Homemaker Council, Inc. (NEHC). The project began in 1980 when Jean Beard, advisory council member, the Center's first volunteer intern and vice-president-elect of NEHC, came to the Center for assistance in developing the idea. An $8,250 grant from USDA's Extension Service enabled them to print some program materials.

The CVU resembles the continuing education unit (CEU) offered by many adult and continuing education programs. Like the CEU, each CVU will represent 10 hours, in this case, of time contributed as a volunteer. Coupled with the recognition will be an educational effort designed to teach members the potential value of volunteer work for enhancing self-esteem and developing skills. The member may later use these skills to advance her volunteer career, obtain academic credit, and/or to obtain a paid position or a promotion to a higher level paid position.

"Too often," Dyer said, "people are not given credit for the valuable experience they acquire as a volunteer which can help them in other endeavors. This program could alleviate that."

The CVU idea has received the endorsement of many groups:

The General Federation of Women's Clubs, the National Federation of Business and Professional Women's Clubs, the North American Indian Women's Association, the American Medical Association Auxiliary, Inc., the Girl Scouts of the USA, the Association of Junior Leagues, Women in Community Service, Inc. (American G.I. Forum Women, Church Women United, the National Council of Catholic Women, the National Council of Jewish Women, and the National Council of Negro Women), the National 4-H Council, the National Association of Women Highway Safety Leaders, and the League of Women Voters.

Volunteers visit senior citizens in adult home. Program is one of several in Southside Virginia area which were begun with the assistance of the Center for Volunteer Development.

This year, four states, Maryland, Ohio, Oklahoma, and Oregon, are conducting a pilot program to determine how the program will function. "It could influence the volunteer movement in the United States, profoundly," Dyer says.

To recognize the faculty and staff members who participate in the program, the Center each year rewards those who make significant contributions in a ceremony involving ranking members of the Tech administration. Faculty who have made significant contributions are designated fellows, associates, or affiliates, and presented with suitable awards.

"They deserve the recognition," Dyer says. "Last year, we had 48 faculty, two of whom participated in our program for the first time. These newcomers devoted more than 900 hours of work to aid volunteer groups. In addition, we had more than 100 faculty and staff from the previous year who continued to help."

Faculty Assistance

Ultimately, the Center hopes to enlist the assistance of faculty from all of Virginia's 71 colleges and universities. Already, faculty from the University of Richmond, Randolph-Macon College at Ashland, Eastern Shore Community College, Paul D. Camp Community College, Ferrum College, New River Community College, Presbyterian School of Christian Education, and Clinch Valley College have assisted the Center in responding to requests from volunteer groups. In addition, two faculty members, one each from George Mason and Virginia Commonwealth Universities, serve on the Center Advisory Council.

The Center staff, which includes Dyer, an associate, an assistant director, and three regional specialists, also uses the experience of volunteers across the state in a volunteer intern program. The interns bring their expertise to the Center for up to 2 weeks of work, during which time they share their experience and ideas and contribute to the development of print and other media materials for the benefit of other volunteer groups in the state.

The Center also has two regularly funded graduate assistant or intern positions. It gains assistance from as many as three additional interns who have been supported by other Tech programs involved in volunteer development.

One of the first steps taken after the Center was organized was to appoint an advisory council. "We felt it was imperative that those of us in academia should be attuned to the needs of those across the state who are involved in some sort of volunteer activity. We were fortunate to find 14 persons willing to work on the council and give us the advantage of their volunteer experience," Dyer said.

Advisory Council

The Advisory Council is headed by D. M. "Rusty" Erskine of Botetourt County. She is a 30-year American Red Cross Volunteer and secretary of Roanoke Valley Red Cross Board. The remaining members represent a cross section of the state population and have a cumulative total of thousands of hours of volunteer work. In addition to the previously mentioned college faculty, the council membership includes a state legislator, the vice president of the National Extension Homemakers Council, a representative of the Virginia Division of Volunteerism, an Extension agent, business persons, and others who have organized or worked in the volunteer movement for a number of years.

The Advisory Council quickly divided itself into four groups and began working on job descriptions, the establishment of new links on and off the Tech campus, program development and evaluation, and publicity. They also work closely with the Center staff in planning the coming year's program.

"You can have all of the best people in the world but it will come to naught if there are no results," Dyer said. "In our case, the best people are getting results." □

Rainy Day Reporters

Greg Johnson
Extension Specialist-Agricultural Meteorology
North Carolina State University

North Carolina is a varied state, both in climate and topography. Keeping track of the weather in almost every county of the state, nearly 100 volunteers daily report temperature and precipitation data by phone to a National Weather Service computer in Suitland, Maryland. As a part of the nationwide Touch-Tone Weather Program in which 15 states participate, these volunteers help make North Carolina's unique Extension-sponsored Agricultural Weather Program a success.

Two specialists housed in the Department of Horticultural Science at North Carolina State University prepare agricultural weather advisories twice daily. Contained in the advisories is information ranging from poultry heat stress forecasts to soil moisture reports from different regions of the state. The volunteers' data is a key ingredient in making the advisories timely and pertinent for all parts of North Carolina.

Measure Temperature and Rainfall
Volunteers take daily measurements of temperature and rainfall with equipment supplied by the Extension Service. Data are coded and transmitted via phone line to a National Weather Service computer in Suitland, Maryland, where it is stored in a compatible data terminal.

County Extension personnel select interested observers in their county. In most counties there has been little trouble in finding people who want to be weather reporters.

In Catawba County, the Extension staff received space in the local newspaper and asked those interested to apply to be a weather observer. Twelve-year-old Brian Hass was chosen from 10 applicants. Brian, who hopes to pursue a meteorology degree in college, has been a very dedicated observer since the program began.

The program was initiated in 1979 by Professor Doug Sanders, an Extension Horticulture Specialist at NCSU. The Touch Tone program has not only been valuable to agriculture but to forecasters as well.

National Weather Service forecasters at the state forecast office in Raleigh use the data volunteers supply regularly. Observers' reports have helped fill in many of the gaps between regular weather stations.

Supplied Data about "Dennis"
On August 19, 1981 Tropical Storm Dennis moved northward along the Carolina Coast. Volunteer observer Jacquine Spake in Manteo reported 4.5 inches of rain at 10 pm—thus supplying the only report that evening along the entire north coast. This report, combined with radar and satellite data, helped forecasters assess just how heavy the rainfall was that evening over much of eastern North Carolina.

Low temperature reports from observers are particularly useful during spring and fall months when frost becomes a major concern.

Peanut farmers need to have accurate reports and forecasts of freezing temperatures in the fall, which can seriously damage harvested peanuts drying on the soil surface. Touch Tone reports showed temperatures as low as 26° on mornings when urban airport locations were reporting lows above freezing. Subsequent forecasts reflected these low temperature reports. Assessing "frost pockets" from several years of Touch Tone data is one objective of the Agricultural Weather Program.

Volunteers range in age from mid-teens to senior citizens. They also come from all walks of life.

Talking About the Weather
One observer lived through Hurricane Hazel, which lashed the North Carolina coast with 150 mph winds in October of 1954. Others have sighted tornadoes, reported 2-inch hail, and, on some mountains, observers have measured wind chill factors that would rival Minnesota.

The volunteer weather data has also been used outside of government circles. A private forecasting service for TV and radio has recently begun using the information in their statewide reports and forecasts.

A Base for Climate Update
In the future, the weather data from North Carolina's Touch Tone program will hopefully be stored in a computer, available for use in crop-weather models applicable to the Agricultural Weather Program. It will also serve as a data base for updating climate information in the state. □

Special Project—The Navy Family

Betty Fleming
Agriculture Extension Specialist
Home Economics
Extension Service, USDA

Do you think of the Navy when someone talks about the city of Norfolk? Probably so. The Norfolk, Virginia, Naval Base is the largest such complex in the world.

Ships . . . Docks . . . Sailors . . . Uniforms. All come to mind. But what about those Navy families? Uncle Sam looks after the Navy—its hired personnel and equipment. But who looks after Navy families?

There have always been some limited special Navy services for Navy families. But in 1979, with reenlistments dropping and with family problems—high divorce rates, family violence, adolescent suicides, changing roles of women, and younger marriages—clearly identified, a new program began. It was called the Norfolk Navy Family Services Center, a joint Navy-United Way venture. Today, there are approximately 14 Navy Family Services Centers all over the Nation—with 62 projected for 1984.

The Norfolk Family Services Center serves the needs of the area's 98,000 active duty personnel, 18,500 retirees and their families. There is a telephone information service handling hotline calls with the help of trained Navy/Marine personnel. At a walk-in center, families obtain social services help from professionals in the field. They are also referred to civilian agencies for help. A personal services center rents hospitality kits of cooking and eating utensils for new families in the area and provides "Welcome Aboard" packets of information. Other services include: legal assistance, child development information, and Navy Relief for emergencies.

Extension's Role

Where does Extension fit into all this? Navy Family Services Centers

are fairly recent arrivals on the scene. But it didn't take the Navy long to see the potential tie-in benefits with Extension. In March 1980, they approached Virginia Cooperative Extension Service for assistance. Under the leadership of VPISU Family Resources director Barbara Fite and Charles Perkins, SE District agent, a project proposal was written and a 3-year pilot project funded October 1, 1980 to:

- provide educational assistance to a targeted group of Navy families in the Norfolk area.
- demonstrate the kinds of services the Cooperative Extension Service can provide military families in other parts of the country.

The Carper housing development in the Virginia Beach area of Tidewater became the site of the pilot effort. Carper is in the Tidewater region. Carper contains 600 (4 and 5 bedroom) townhouses housing 600 senior enlisted men's families (3,400 residents) including approximately 2,500 children. When school lets out, watch out!

Navy Families

The Navy has increasingly recog-

A growing, dynamic program is under way in the Carper housing project at the Norfolk Naval Base in Virginia. Extension's Annie Gilmer, a home economist, shown with Captain James Karlen, director of the Norfolk Navy Family Services Center, is making things hum with the assistance of some highly trained, talented aides plus some hard-working creative volunteers. You'll be hearing more about this ES-USDA pilot project!

nized that they benefit from investing in Navy families. Married personnel are more likely to choose the Navy as a career. Married Navy personnel achieve promotions more rapidly. The family can contribute—not detract—from a Navy person's performance. In today's Navy, nearly 50 percent of all personnel are married.

What are some characteristics of Navy families? Family unity—the feeling of working together—is one. Mobility is another; which, if not handled successfully, can result in disruption of family support systems. Financial security is achieved to a certain extent but a mixup in pay handling or late delivery of an allotment check can cause havoc in a family that has to budget carefully to make ends meet.

Separation is another key factor in Navy families' lives. The average Navy career calls for at least 7 out of 20 years spent away from home. Separation can be stressful; so can reunions which bring about abrupt changes in family routine. Divorce and re-marriage are common.

The Carper families are not unlike the typical Navy families described above. Their men are frequently at sea. Their women often are home alone becoming the single parent, adapting to a new environment, developing new friendships—again!

But many Carper women want to do positive things for themselves and their families. They see neglected lawns, vandalism, evidence of drug use, and they want to become involved in their home community.

Project Operations

Extension's Navy Project, under the leadership of home economist Annie Gilmer (a Navy wife herself), has proven to be a valuable addition to Carper residents' lives. It operates out of two mobile units provided by the Navy so that Gilmer's two technicians, Jackie Brooks and Donna Kendrick, can be near the families. Gilmer's office, originally at the Family Services Center (20 miles away), is now nearby, so that the home economist can administer a growing program. Two new technicians, Linda Jones and Melba Smith, are now on staff. A new permanent teaching structure is going up at Carper to replace the mobile units.

Even before the mobile teaching units were operational, Gilmer trained the technicians to survey family needs from door to door. Working with Navy Family Services Center staff, Gilmer knew that these general areas needed to be addressed: foods and nutrition; personal and family resource management; clothing, home furnishings and textiles; and family life, child development, and human relationships.

As a result of the joint Navy-Extension survey, she targeted specific interests such as diet/exercise, meal management, food shopping, money management, decorating on a budget, upholstering and refinishing furniture, discipline, and understanding teenagers. Other needs have since been identified: stress and time management, talking to teens about sex, coping with inflation, self-awareness, and marriages where families are frequently together and apart.

The project's teaching methods have developed rapidly since the early

stages of the program. Gilmer has trained her aides to teach in groups and one on one and to work with volunteers. "Sometimes I teach," says Annie, "but we use other community resources, too, especially nearby Extension resources."

The soil for Carper lawns or gardens is very poor, but Virginia Beach horticulture agent Randy Jackson is working with residents to help them. He's even trained some "master gardeners" to teach others. Gilmer also works closely with Extension SE District chairman Charles Perkins and with Extension staff from Virginia Beach, Norfolk, Chesapeake, and other offices in the Hampton Roads area. "I have a liaison job to do," the agent says. In addition, she draws upon state Extension resources, reports regularly to Barbara Fite and others, and—in her spare time— is writing a how-to-do-it manual for other states!

Navy Ombudsmen

Another group that Gilmer draws on are the "Navy Ombudsmen," the wives of senior enlisted men. "They are key people," she says. "Volunteers who help us get things done."

Some Navy Ombudsmen wives participate in specific programs. Donnalene Miller says Extension's money management help meant that she learned how to space her one monthly pay check over the full period. "I can see where my money's going now," she says. As part of her volunteer work, Miller calls in vital family information to "Group 8 Headquarters" (her husband's group) for other families. This news goes out to sea wherever the men are. Sometimes, Miller delivers information directly to families. When it's good news, she enjoys it!

What Navy Project results can be seen? A series called "Take A Break and Explore" provided 100 Carper families with consumer information on food buying and financial management. Participants reported that they reduced spending, worked on budgets, set goals, organized time better, and learned to use management principles and to be more assertive.

The Carper development is divided into 23 courts. Some sessions take place on an individual court basis, especially in those courts where neighbors know each other well. Jackie Brooks says, "We've had people from as many as 18 of the 24 units in a court attend a session on food buying. Some women find it hard to get to the trailers because they have small children so we go where they are."

A series called "How To Prepare Super Family Meals On A Navy Budget" drew 250 Carper families. Sessions on buying and cutting meats were included.

"Our 10-week Diet, Exercise and Behavior Modification course (called

DEB) is one of our most popular," says Gilmer. "In addition to nutrition information, the women learn to identify and cope with some of the problems and stresses that have led to a weight problem."

Special Programs

As you might expect on a military base, there are often emergencies and rush jobs to do. "Nineteen Navy families who were transferred to Iceland lost all their household goods at sea," says Gilmer. "I had to quickly mobilize Extension resources, do some shopping research, and train the Navy Ombudsmen volunteers and the families themselves so that they could replace their household goods in Norfolk after they were flown in. Thank heavens, Extension had some good information already on hand for people who go through such a disaster!"

Gilmer and her staff have recruited more than 100 volunteers. "Some we train," she says. "Others come to us with marvelous skills such as furniture refinishing know-how. Minnie Yates, one volunteer, lost some priceless family pieces during a Navy move. Her husband taught her to refinish furniture and now she's teaching others. That's coping, isn't it?"

Extension agent Gilmer and technicians Brooks and Kendrick were recognized by VPISU's SE District for their outstanding work. "It all came in the same year (1982)," says Gilmer. Captain James Karlen, director of the Norfolk Navy Family Services Center, is excited about the Navy Project and says, "We're the envy of the other centers! We've had calls from the Army and Air Force about it, too."

The project's future is bright. "The Navy is considering expanding this program to all Navy housing sites in the area," says Captain Karlen. "We'll simply contract with VPISU." There are also possible plans for other Navy Projects connected to Family Services Centers in other parts of the country. □

Farmers Advise Farmers

John M. Sperbeck
Extension Communication Specialist
University of Minnesota

The Northeastern Minnesota Extension Referral Farmer Program is free, or almost free. But there is a catch.

The "catch" with this successful program is that the free, volunteer help furnished by farmer-teachers doesn't attract the attention that a $500,000 project would. So reports Dave Radford, area Extension agent for small farm programs with the University of Minnesota's Agricultural Extension Service headquartered at Cloquet.

Advising Younger Farmers
Radford has organized 16 farmers who volunteer their time to advise younger, beginining farmers. The 16 are top forage producers and their time and experience are worth "thousands of dollars," according to Radford. He believes the project is an excellent communications device. "Farmers relate in 'farmer talk' and there's tremendous credibility when a beginning farmer sees first-hand what an experienced, successful farmer has done to improve forage production," he says.

The program has caught the eye of Extension administrators. Associate Extension director Hal Routhe says he's long believed that programs should be set up "where there's at least one volunteer farmer per township who will agree to participate in educational programs himself, then agree to give volunteer assistance to neighbors."

Program Could Travel
Radford thinks the program should go statewide or nationwide, but he doesn't think it's well enough known. "A concern I have is that a program that doesn't look like it costs much may just be taken for granted. If a half-million dollars had been appropriated, everyone would be watching it. In this case, it's only the people involved and their neighbors," he says.

"Industry, other public agencies, and county Extension agents have made the program go," Radford states. Northrup King, Midland-Land O'Lakes, Monsanto, FMC Corp., and local feed stores in Carlton and Moose Lake have donated about $1,000 in seeds, chemicals, and other supplies. Agencies like USDA's Soil Conservation Service and the Agricultural Stabilization and Conservation Service have cooperated, as have county Extension agents in Aitkin, Carlton, Itasca, Lake, and North and South St. Louis counties.

Dave Rabas, agronomist from the North Central Experiment Station at Grand Rapids; Neal Martin, Extension agronomist; and Jim Linn, Extension dairy specialist, have also worked with the program. Radford estimates that roughly 400 people will come to county tours that relate to practices proven by local referral farmers.

Why Farmers Volunteer
Why do farmers volunteer their time and spend their gas money on the project? They give three basic reasons, according to George Saksa, district Extension director for northeastern Minnesota.

"Farmers say they don't like to see others make the same mistakes they did. It makes them feel good to know they're helping someone—call it a sense of personal satisfaction.

"They see the program supporting agriculture. A strong agriculture—meaning more farmers in the area—helps farmers market their products. Fewer farmers means that markets are harder to keep.

"And third, the farmers in the program are singled out to get the latest research fast. They see this as something that helps them."

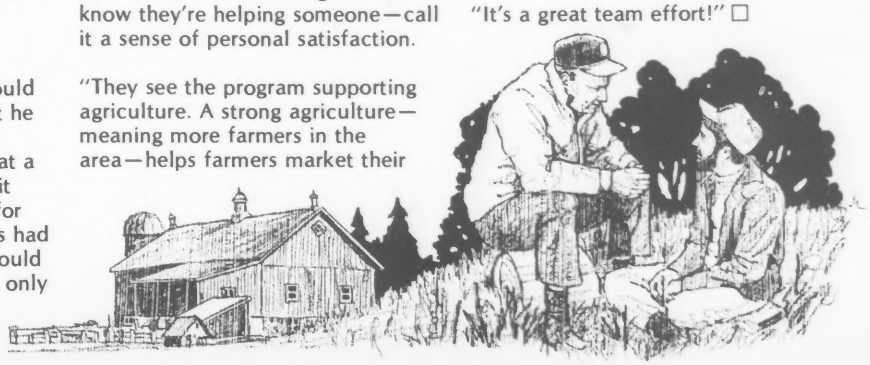
So far, referral farmers report that the program hasn't taken a lot of their time. "Farmers tell me there's lots of teaching done when they see each other at the feed store. They'd be talking to each other anyway, but now there's an exchange of farming ideas," Radford says.

People who have questions are apt to come to the farm to get answers to a few specific questions, or to call on the phone. "I was worried about the time commitment," says Radford. "But so far it looks like most of the communicating is done through the grapevine."

Forage production is being emphasized in the program's first years, but beef management and tax help are also offered.

Nothing Succeeds Like Success
"It's fantastic to see people copy the top management practices of their successful neighbors," Radford says. "There's one farmer with the same design on the corrals, outside calf housing, holding areas and top quality forage as his contact in the referral program," Radford says.

"It's a great team effort!" □



Veoila Bennett— Community Advisor

Valorie Freeman
Media Coordinator
North Carolina State University

Veoila Bennett, a newly appointed member of North Carolina's Extension Advisory Council, and one of the board of directors of the Low-Income Housing Development Corporation of North Carolina, works with 4-H youngsters at Hampton Homes Playground in south Greensboro, N.C.

"You have to first know yourself before you can begin to help someone else solve their problem," says Veoila Bennett, an Extension Advisory Council member for the North Carolina Agricultural Extension Service. She speaks from 15 years of experience in helping low-income residents solve community problems.

For the past decade and a half, Veoila Bennett has been on the board of directors of the Low-Income Housing Development Corporation of North Carolina and has served as den mother, Sunday school teacher, and Y-teen advisor. Currently, she is a 4-H volunteer and advisor for 4-H'ers in the Hampton Homes public housing community of south Greensboro.

Extension Advisor
Her newest appointment is to the North Carolina Extension Advisory Council. The Advisory Council helps Extension keep its programs close to the people by identifying needs and setting priorities. As the A&T Agricultural Extension Program representative to the 10-member statewide council, Bennett shares her insights in working with inner-city youths and low-income communities. She advises the council on problems and issues that the N.C. Agricultural Extension Service might address.

Lay Leaders Seminar
Recently, Bennett attended the National Extension Lay Leaders Seminar held at the National 4-H Center in Washington, D.C. The 3-day seminar included visits with members of Congress and their staffs. Lay leaders from all 50 states shared common experiences, problems, and successes. Group discussions were arranged to ensure maximum interaction among lay leaders from each region.

"The seminar on foods and nutrition was especially interesting," says Bennett. "A dietician from Philadelphia gave some good information on choosing inexpensive foods with the same nutritional value as the more expensive foods."

According to Bennett, lay leaders from states with a high concentration of low-income communities wanted to know how involved Extension is willing to become in addressing the needs of low-income residents. She says that a very positive response was received: "Extension professionals told us that total attention would be given to the problems of low-income and inner-city residents."

The problems of inner-city youths are a special concern of Veoila Bennett. "I love working around children and being with them," she says. "I feel there's something I can do to help."

Know Who You Are
One thing Bennett does to help is teach self-sufficiency and self-confidence. "I teach my 4-H'ers to earn the money for special projects for senior citizens and the handicapped. Don't ask for it, earn it. I tell them to have total confidence in themselves and think positive. Be proud and know who you are. You go further in life that way."

Veoila Bennett is a living example of the advice she gives to young people. She was confident and positive as she worked to transform a dirty landfill behind Hampton Homes into a city park and playground, currently known as Hampton Kiddie Korner, of which she is director and coordinator.

Concern for inner-city youths motivated her to lead a community effort to save the Devon Street Health Clinic which serves 1,500 children in the Warnersville area of south Greensboro, after Federal budget cuts threatened to close it.

Invaluable Asset
According to Dr. Daniel Godfrey, administrator of the Agricultural Extension Program at North Carolina A&T State University, Bennett "is an invaluable asset" to the Extension Advisory Council.

"Her dedication to young people and concern for Extension's work with limited-resource audiences will have a definite impact on future programs Extension will offer to the people of North Carolina," Godfrey says. □

Retiree Rides to Rescue

Earl J. Otis
Information Specialist
Cooperative Extension
Washington State University

Low-income people in Skagit County, Washington, are getting firsthand tips on stretching their home budgets thanks to the efforts of Extension agent Betty Evans and volunteer Thelma Zamzow.

Together, they put out a unique newsletter that reaches people not involved in regular Extension programs. Evans, a home economist, supplies the information and Zamzow helps personalize it and type, mimeograph, and mail it. The newsletter carries articles on everything from child care, food storage, and recipes to purchasing used clothing.

According to Evans, the newsletter might never have gotten off the ground, if it were not for Thelma Zamzow. "About the time final arrangements were made to start the newsletter, our office lost a secretary because of budget cuts," says Evans. She admits that a good concept might have gone under then and there, but one of the community members, a retiree, came riding to the rescue.

That person, Thelma Zamzow, probably doesn't see her role in the program as being quite that dramatic, but her volunteer work has made the difference. Zamzow had been Mt. Vernon's city clerk for nearly 20 of the 30 years she worked in that department; she had no inclination to retire completely.

Knows Her Readers

Thelma already had a job of writing a newsletter for her Trinity Lutheran Church but she didn't hesitate to take on the new job for Extension. There were some built-in ties, she felt. Her work with the Church was a part of it and so were her contacts while in city work selling food stamps. She brought with her an understanding for the people who would be reached through her writing efforts.

Thelma brings her interest in being a homemaker to the newsletter and gives the information that Agent Evans supplies a special touch. Thelma's familiarity with the material endows her writing with the warmth of a personal letter.

Working through the Department of Social and Health Services Office, Agent Evans is able to get paper and equipment for the newsletter. Extension provides postage and envelopes.

Two years ago, a mailing list was developed when DSHS inserted a questionnaire with public assistance checks for Skagit County. More than 550 returned the insert requesting the newsletter.

Positive Responses

"I feel very good about the whole thing," Evans says, "since the responses we have received are all so positive. People share information from the newsletter with others. Some make scrapbooks or files of the articles that especially interest them."

Ms. Evans feels that with all the proposed budget cuts, using volunteers is a viable way of keeping Extension programs going.

When Thelma volunteered for her newsletter work, it was her first experience involving Cooperative Extension. She quickly became a strong advocate of the program.

Thelma began work for Extension by volunteering her skills to the Retired Senior Volunteer Program (RSVP), a Federal "action" program, begun in 1971, designed to provide senior citizens with meaningful volunteer opportunities. Retired senior volunteers contribute over 40,000 hours of service yearly in support of numerous non-profit agencies in Skagit County. RSVP has provided

Extension agent Betty Evans holds an editorial conference with volunteer Thelma Zamzow. The newsletter they produce is proving useful to low-income families in Skagit County, Washington.

many volunteers for such well-known programs as the Peace Corps and VISTA.

Both Agent Evans and Mrs. Zamzow, in spite of long years of experience, have been surprised at the things they have observed in carrying out the newsletter. By working closely with the people to whom the letter is addressed, they recognize tips worth passing on.

They came to know that some families do not have cookbooks and cannot afford magazines and newspapers from which to get recipes. So, recipes have become a small, but important, part of the newsletter. Recipes focus on seasonally available foods, or how to use foods that are currently available as surplus foods.

But, Agent Evans concludes, no amount of good information and homemaking tips will make any difference if the information doesn't get to the ultimate user. And, without volunteers such as Thelma Zamzow, the Skagit project is one that might have died before it was born. □

Cherokees Stage Family Festival

Ora Lee Kirk
Extension Home Economist
Oklahoma State University

Chief Ross Swimmer, principal chief of the Cherokee Nation in Oklahoma (who is also an attorney and banking executive), sounds almost awed when he comments on participation in the annual Indian Homemakers Festival. "I was particularly pleased to see such a large involvement of the Tribe and community in a venture that really helps the people," he says. "I have never seen such a large number of Indian people participate in an educational event of this nature."

The festival was put on primarily through the efforts of Indian volunteers and was held at historic Dwight Mission is Sequoyah County, Oklahoma.

Fry Bread and Coffee

The Indian Homemakers Festival, a 1-day educational program begun in 1976, offers "something of interest" for each family member. Activities begin around 9 a.m., with fry bread (squaw-bread) and coffee during registration. Throughout the day participants will hear guest speakers and musical numbers, see fashion shows featuring traditional Indian dress, watch a hog fry, eat a barbeque or chicken lunch, enjoy other entertainment and teen events, and choose from among as many as 70 learning centers. The centers are exhibits, booths, demonstrations, audiovisual presentations, puppet shows, and other methods that present topics of interest ranging from "Basketmaking" to "Fileting Fish" and from "Food Preservation" to "Soil Conservation."

For example, at last year's festival held October 1, registrants could attend miniclasses on such topics as drying foods, container gardening, quilting, simple plumbing repairs, and low-cost meals. In the Family Cultural Arts section of the day, they could attend workshops on traditional crafts, beadwork and feather fans, silversmithing, pottery, basketry, and other Indian arts and crafts. Later in the day, family members could learn about the Cherokee Nation CETA Program, employment assistance, Indian adult education, the Bureau of Indian Affairs, and other educational services.

The segment on "Management as a Survival Skill" covered many useful areas such as housework, farm records, clothing, energy, loans, small animal enterprises, recreation, good nutrition, and money.

Health of participants received considerable attention in clinics on hypertension and blood pressure, diabetes, glaucoma, eye screening, arthritis, cancer, heart rate, and other aspects of health.

The range of educational events prompted Chief Swimmer to say: "All the activities from 'Home Canning' to 'Family Planning' were well presented and well received. I wish we could have this kind of festival in every area of the Cherokee Nation."

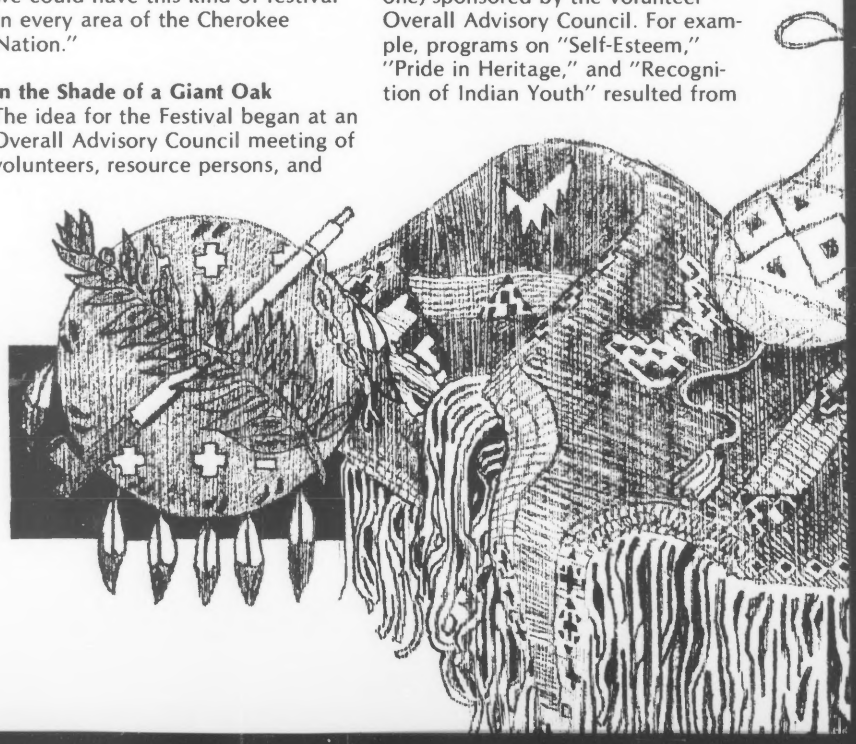
In the Shade of a Giant Oak

The idea for the Festival began at an Overall Advisory Council meeting of volunteers, resource persons, and Extension staff members held under the shade of a giant oak on the beautiful campus of Dwight Mission. After identifying the concerns of Indian families, the Council (the Overall Advisory Council for Indian Programs of Oklahoma State University's Cooperative Extension Service) was seeking a way to reach a greater number of Indian people with educational programs.

Richard Chuculate, a volunteer Council member and currently its Chairman, made a suggestion: host a family-oriented 1-day event with entertainment, fry bread, and lunch, interspersed with exhibits and demonstrations on a familiar site revered by generations of Indian families. The Festival, held now for 5 years, has become a special event in the lives of many Indian families.

Other Special Activities

The Indian Homemakers Festival is only one of the educational events and activities (although the largest one) sponsored by the volunteer Overall Advisory Council. For example, programs on "Self-Esteem," "Pride in Heritage," and "Recognition of Indian Youth" resulted from



Council activities on needs and interests of Indian young people. Practical "how-to" educational activities in agriculture and home economics areas are presented for older family members.

The Cherokee Nation, the Overall Advisory Council, and the Bureau of Indian Affairs (BIA) honor outstanding Indian members of 4-H at country 4-H Achievement Banquests during the year.

OSU Extension workers, BIA employees, Cherokee Nation tribal members, volunteers, and others contribute their skills, resources, and expertise to shape practical programs relevant to the needs of area Indian families. Program titles include "Sewing for the Family," "Basic Nutrition," "Saving Energy," and "Canning workshops."

Activities draw heavily on educational expertise and resource materials available through the Cooperative Extension Service at Oklahoma State University in Stillwater. As Extension Home Economist for Indian Programs at OSU, I serve as the catalyst and motivator, bringing together the diverse groups, keeping them informed, and kindling enthusiasm when it lags.

What Makes Successful Volunteers?
Aside from aspects unique to Indian traditions and customs, such as their being more informal and less structured, characteristics of successful Indian volunteers remain the same as characterisitics for those not of Indian descent.

What is needed to develop successful volunteers?

1. Provide the opportunity for volunteers to have meaningful responsibility. The volunteer must feel that what he or she does is worthwhile.

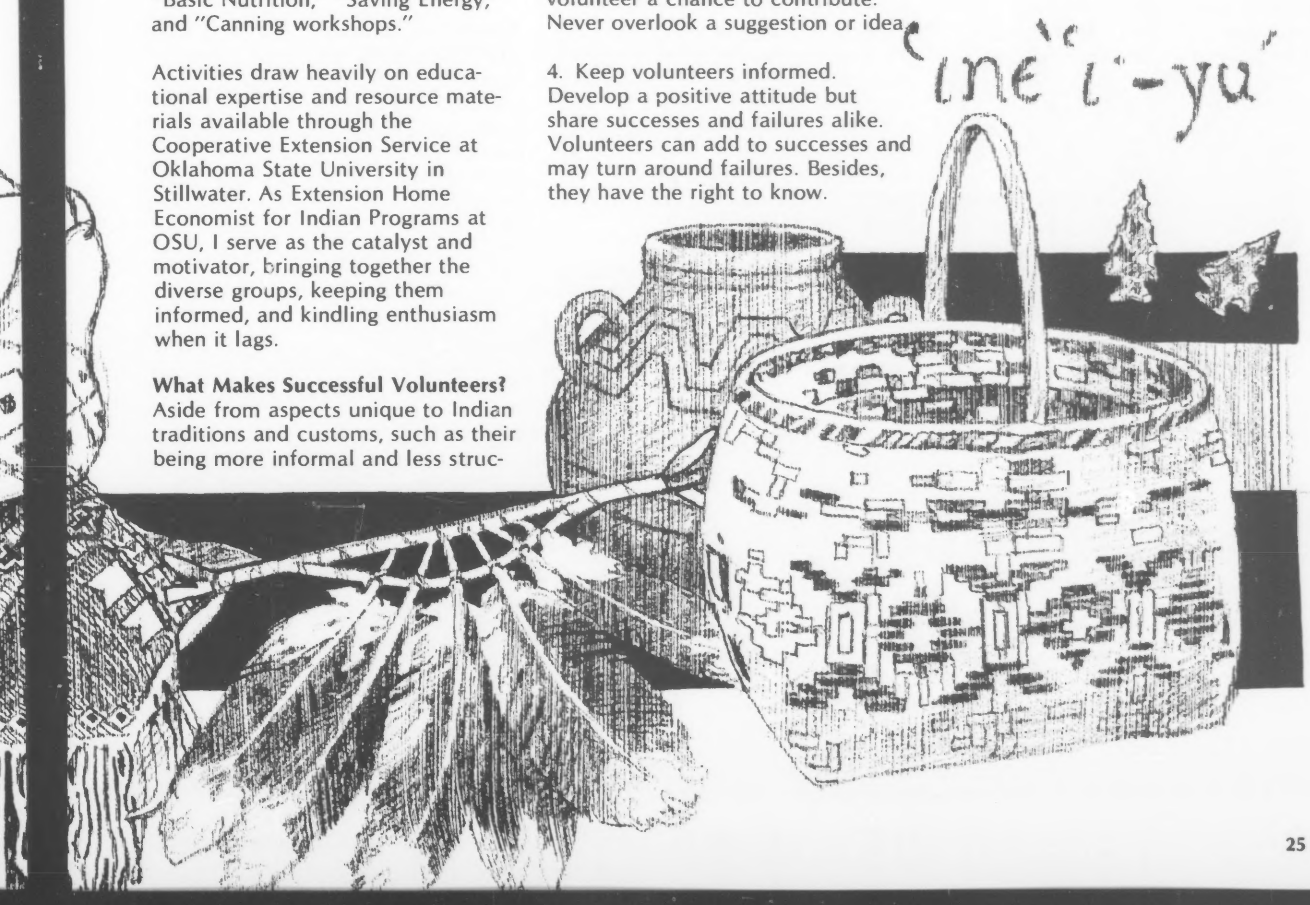
2. Communicate the need for assistance from volunteers.

3. Provide the opportunity for volunteers to perform. Each volunteer is important and each has a special talent, skill, idea, or influence that can be used. Give the volunteer a chance to contribute. Never overlook a suggestion or idea.

4. Keep volunteers informed. Develop a positive attitude but share successes and failures alike. Volunteers can add to successes and may turn around failures. Besides, they have the right to know.

5. Provide recognition for a volunteer's service. This may be the simplest and most important of these suggestions. Introductions at meetings, certificates, recognition events, use of names on programs and in news releases, and appreciation teas, all contribute to volunteers' feeling needed and appreciated. Sincere, consistent, thoughtful recognition builds dedicated, dependable, helpful volunteers.

To accomplish our objectives in the Extension Service, we rely on dependable, dedicated volunteers for help. Most certainly, these volunteers are worthy of all the efforts necessary to develop their gifts. □



Money Talks Balance Iowan Budgets

Jane Schuchardt
Communication Specialist—Home Economics
Iowa State University

A young mother, a high school consumer math teacher, a college senior, and a women who wants to re-enter the labor force share a common goal—getting more Iowa families in control of personal finances.

"Money Talks"
They're all volunteer money management counselors for a Polk County Extension project called "Money Talks." Susan B. Harris, Extension home economist and project coordinator, judged from requests there was a definite need for such an educational service. Yet, it was virtually nonexistent in the Des Moines metropolitan area.

Extension has traditionally taken the role of teaching money management and, if necessary, counseling privately with families. All the necessary elements were there—confidential, free, nothing to sell, no strings attached, no lecturing, just a credible presentation of the options.

Yet, with more families on the brink of financial disaster in this economic climate, the missing link was time to handle all the requests. Speaking from her experience in counseling with families, Harris said it takes time to teach them how to keep records, sort wants from needs, handle credit wisely, and communicate about money.

Volunteers, 18 of them since the project started in June 1981, have filled the resource gap. Sixty-eight individuals or family members have "graduated" from the program when they've felt the time was right. A similar program, to be reported on in the next issue of *Extension Review,* has been operating the past 13 years by University of Maryland Extension home economists. Many aspects of this program were incorporated into the Iowa program.

The results aren't in yet. (Formal evaluations in the form of phone interviews are underway.) An informal check with volunteers provides a gauge of the program's success.

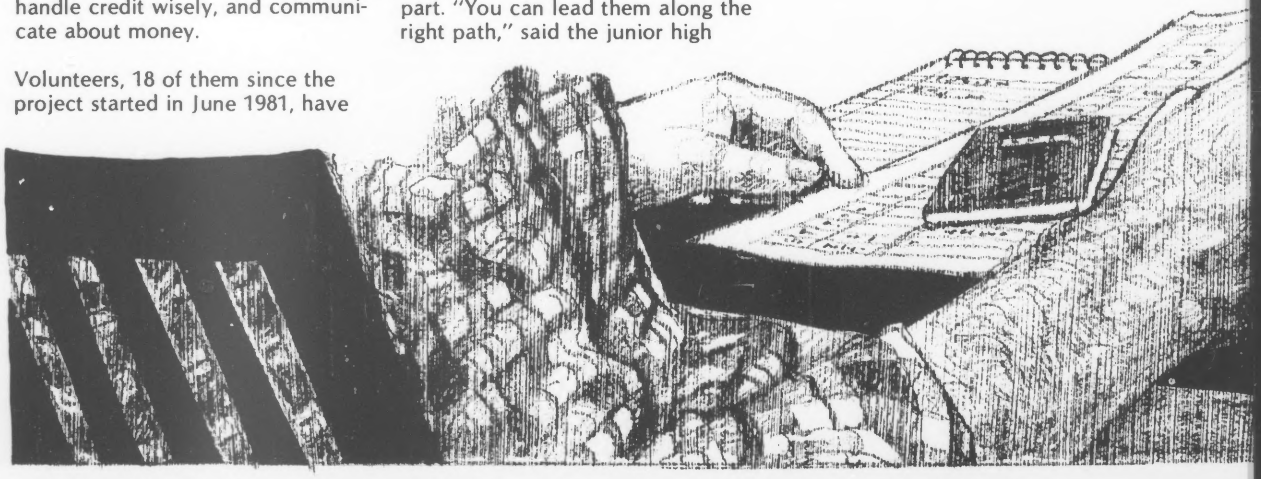
Seeing the Options
Volunteer Doris Smith, Des Moines, said, "Sometimes the families can't sort out the difference between wants and needs . . . They're so close to the problem, they can't see the simple answers." That's where this counselor, who has chosen to stay home the last 15 years to care for two children, now teenagers, makes an impact. "Clients arrive so depressed. I help them see the options—they make their own decisions," she said.

From the volunteer's point of view, Linda Thomson, Des Moines, said not dictating to clients is the tough part. "You can lead them along the right path," said the junior high English teacher and mother of two pre-school sons, "but they have to choose to go down it."

Dennis McGowan, a senior majoring in finance and bank management at Drake University, Des Moines, remembers wanting to say "just file bankruptcy" to one family seeking financial counseling. Instead, "I went through the procedure we had been taught, asked the client to bring in records and receipts, made some suggestions on where to cut back . . .

"After 4 or 5 weeks of counseling, the family wasn't completely back on its feet, but creditors were willing to back off. The family was so overjoyed, they referred friends to the service."

Counselors Trained
The "procedure" McGowan mentioned is taught in an intensive 8-hour orientation for financial counselors. Harris said the training, spread out over 3 nights, starts with information about the economy and budgeting basics. Effective counseling procedures are taught, along with how to manage a crisis and take advantage of community resources. Volunteers also receive



inservice training every other month on such topics as bankruptcy laws, loan consolidation, human service programs, and assertiveness.

Counselors sign a 6-month contract and generally work with two families at a time. Most volunteers interviewed said they put in 1–2 hours a week meeting with families at the Extension office, plus extra time preparing for the counseling sessions.

Volunteers Benefit Too

"Time well spent" was the repeated evaluation by volunteers. Being able to help people and simultaneously improve their own personal financial situation were common benefits mentioned. Other benefits are specific to the volunteers.

Bruce Bennett, West Des Moines, uses the experience to sharpen his skills as a high school consumer math teacher. McGowan, originally from St. Louis, said the counseling experience helped him become more sensitive to the public's financial problems. He suspects this will be a valuable asset in his planned bank management career.

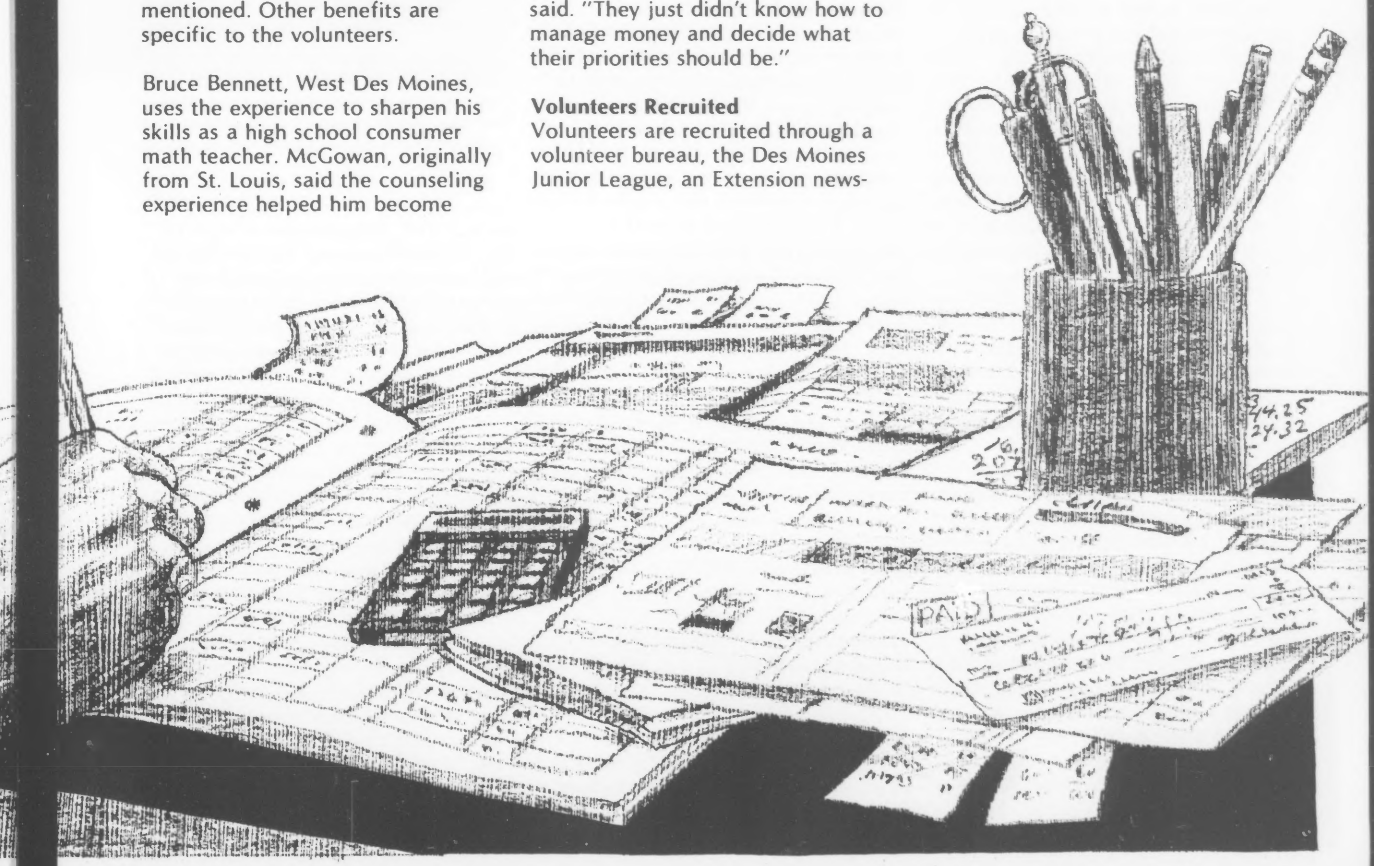
Doris Smith, who wants to re-enter the labor force again soon, hopes this experience will strengthen her resume. She's interested in finding paid employment as a financial counselor.

Linda Thomson said the counseling experience helped her gain a better understanding of the wide variety of people with financial troubles. "The people I counseled were decent and intelligent. One family had an income of $35,000 a year with one blank spot in their educations," she said. "They just didn't know how to manage money and decide what their priorities should be."

Volunteers Recruited

Volunteers are recruited through a volunteer bureau, the Des Moines Junior League, an Extension newsletter, and the Polk County attorney and parole offices. The Des Moines Junior League designed and paid for the printing of a flier which offers the service to families. A nonprofit community information clearinghouse also refers potential clients to the Extension Service.

Harris said she hopes to continue the "Money Talks" program for another 3–4 years. "At that point, hopefully we'll have enough information and statistics to prove to the financial community this service should be offered full time by them. Extension could act as training consultants," she said. □



Nevada Life Savers—Emergency Treatment Volunteers

Barbara A. Gunn
Extension Specialist, Health Education and Human Resource Development
University of Nevada, Reno

"If you're going to have an auto accident, plan to have it in Eureka County, Nevada," advised Paul Harvey in a recent national broadcast.

Chances are you'd be miles from the nearest hospital, he explained, but in Eureka County odds are good there'd be someone close by who'd know what to do.

It hasn't always been that way. When Joe Marion arrived as the sole Cooperative Extension agent in Eureka County 9 years ago, there seemed to be no one in the county who had been trained in emergency medical procedures. The ambulance drivers were just that—drivers—and they drove as fast as they could—but they didn't know how to give emergency treatment.

When Joe Marion realized that no one in Eureka County knew emergency medical procedures—not even the ambulance drivers—he had an idea: Train residents as volunteer Emergency Medical Technicians (EMT's) to provide emergency help in every community in the county.

Lonely Landscape

Such emergency help is crucial because, in Eureka County, like so many rural counties in Nevada and other Western states, it's a long way to a hospital emergency room. Eureka County covers an area of 4,189 square miles and has a population of approximately 1,000, mostly engaged in ranching and mining. There is one small clinic in the county which is open 9 a.m. to 4 p.m., 5 days a week—that is, when the county is able to get and keep a physician. The nearest hospital is in Ely, 77 miles to the east, across four mountain ranges averaging road summits in excess of 7,000 feet.

These are some of the reasons residents are motivated to marshal their own resources to deal with many health and medical problems close to home.

This is how Joe Marion's dream became a reality:

Early in 1974, he got 17 volunteers (including himself) to sign up for a state-sponsored EMT course to be given in Eureka. They received 81 hours of medical emergency instruction, including 12 hours in either the hospital at Ely or in Elko (110 miles away). After the first volunteers completed the course, more volunteers signed up for the next one.

Volunteer Instructors

When the state was unable to fund another course, four of those trained in the original course (including Joe Marion) determined to become certified instructors themselves—and they did—traveling at their own expense to Ely and Elko for further training.

The four instructors graduated their first class of volunteer EMT's in the fall of 1975. From those 24 graduates, came the nucleus of a new plan: To provide aid stations in mines and in homes of trained EMT's living in remote areas of the county. The owners of the mines at Diamond and Windfall purchased first aid equipment and two EMT's purchased their own supplies to keep in their homes.

Meanwhile, volunteer EMT instructors continued to provide training for additional volunteer EMT's. Transportation for the hospital-based training was by carpool, or, at times, the school bus.

Funding for Home Aid Stations

Then, in 1978, came the opportunity to expand the number of home aid stations. Nevada received special needs funding from the Extension Service, U.S. Department of Agriculture, for three special health education projects. All the projects were designed to motivate local people to take more responsibility for their own health care. The funding made it possible to set up six additional home aid stations and to equip them with emergency oxygen, air splints, and a variety of first aid supplies at a cost of $600 per station.

Volunteer EMT Linda Summers displays first aid supplies available in her home aid station in Crescent Valley, Nevada. When necessary, Linda loads these supplies into her car to take them to a person requesting medical aid.

Early in 1981, training meetings were held at each home aid station so that residents would be aware of the location of the stations and what kind of help they could expect to receive from the EMT's there. Road signs saying "Emergency First Aid" were made for each station by the State Department of Transportation, which charged only for the materials used.

Volunteer EMT Rita Brown takes blood pressure reading for health project coordinator Barbara Gunn in her home aid station 35 miles outside Eureka, Nevada. Brown is delivering health education "suitcase" seminars at her home this fall.

The community took responsibility for maintaining the stations once the initial equipment was supplied through the project funds. First aid supplies were replaced either by the hospital with the patients billed or the patient replaced the supplies directly.

In July 1981, an additional aid station was established at the ranch of Ralph Young in Big Smokey Valley in adjacent Lander County. The Young ranch is about 2 miles from a rapidly growing housing development whose nearest hospital is in Tonopah, 76 miles away.

Joe Marion moved to another county—but not before logging over 3,000 volunteer hours himself, mostly by being on call 48 hours on weekends. Joe's replacement was Dave Torell, who also took EMT

A heavy snowfall did not deter these residents of Diamond Valley, a rural area in Eureka County, from traveling to their new EMT home aid station to learn about the medical assistance they could expect to receive.

training, and then began another phase of the plan, expanding the role of the EMT to include health education as well as emergency care.

"Suitcase" Seminars

First to present six health education "suitcase" seminars (developed as another part of the special project) was Linda Summers, whose home aid station is in Crescent Valley, 10 miles from the volunteer ambulance and 60 miles from the hospital in Elko. Her friends and neighbors attended the seminars and added tributes to Linda on the margin of the evaluation forms.

Rita Brown, whose aid station is 30 miles from Eureka, mostly on dirt road, plans to present the seminars this fall. The neighbors' response is perhaps best summed up by one rancher's remark, "You give a party, Rita, and we'll come."

So, a new role for Extension volunteers. How is it working? Today in Eureka County:

- There are 90 volunteer EMT's—that's about 1 for every 7 adult residents.
- There are five home aid stations and another in adjacent Lander County.
- An ambulance doesn't roll without an EMT. He or she tells the driver how fast to travel.

At least one life has been saved. Doctors in Elko say the life of one Crescent Valley man who had a severe bleeding ulcer was saved by the quick availability of emergency oxygen from the aid station.

But most cases aren't immediately life threatening—only painful—as some of the log entries attest: "crushing injury of hand between thumb and forefinger (sledge hammer)," "middle finger and hand cut by nail while shoeing horse," "hay hook caused deep puncture and tear," "fell off hay truck and tore shoulder."

Most important for the people of Eureka County is the reassurance that comes from knowing there's a home aid station near by—a place to go for emergency aid as well as for blood pressure checks, oxygen for an asthma attack, and for advice on what to do about a baby's high temperature.

And EMT's are versatile and not without a sense of humor when it comes to filling out reports. EMT's are trained to perform only what is within their capabilities and to refer to a physician for further treatment. So it seemed Birdie Morris had gone beyond her capabilities when she reported a compound fracture of the leg which she set and splinted. Then, later she commented: "People bring you the darndest things. I sure hope nothing happens to Don's pet skunk!" Although names are always blocked out on the report form, under "age" she had written "nestling."

These days even the animals are fortunate to live in Eureka County—thanks to volunteer EMT's. □

Training— A 4-H Tradition

Stu Sutherland
Public Information Officer
Extension Service, USDA

What makes volunteers go through long hours of training, then give even longer hours of time in service?

4-H Training in Indiana
With an assumption that "practice makes perfect," consider the 4-H adult volunteer leader training in Indiana—known as the Rotary 4-H Adult Leader Conference. This series of training conferences was initiated in 1939, when leaders of Rotary International's districts in Indiana and the 4-H staff developed the first conference for adult leaders. The 1982 version of the series was the 43rd annual conference. Rotarians hosted 1,173 4-H volunteers in 31 different locations during March. Now over 50,000 adult 4-H volunteers have been trained in this way in Indiana.

Planning for this year's series of training sessions started last October (1981) with a special session held during Indiana's annual Extension agents conference for all agents who would serve as hosts for the 31 locations. A state staff subcommittee was appointed to develop the program for 1982 for a theme of "4-H Local Club Program Planning." Three 4-H staffers and three doctoral students in instructional development from the Department of Education at Purdue University composed the committee membership and designed the program.

Helpful "Doodles"
Among the training "tools" used in 1982 were a slide/tape presentation to give an overview of program planning, a teacher's guide, posters, and "doodles"—plus a program folder for all trainees that included Rotary District Governors' messages and information about other training available on state, regional, and national levels. The "doodles" are single-sheet easy-to-remember lesson aides, adapted by the committee from program planning materials done in Wisconsin.

Indiana's Hoosier 4-H Leadership Center at West Lafayette will host Indiana's 4-H Adult Leaders Forum late this September. So although there is a center for training, people want to maintain the tradition of the Rotary 4-H Leader Conferences so that the volunteer leaders learn about Rotary, and Rotarians learn about 4-H and the volunteers "that make it go."

Texas Training Center
If you look at a map and let your eyes wander to the "more or less center" of Texas, you will see Lake Brownwood (not far north of Brownwood, if you spot that first). For 4-H leader training, that is the Texas 4-H Center. The Center was constructed with funding from 4-H members, parents, and the private sector, and is owned by the Texas 4-H Foundation. Its replacement cost today would be about $4 million.

Fully self-contained with its own water and sewage systems, the Center sits on about 93 acres and offers year-round outdoor activities. Adult and youth leaders come from every county of Texas for conferences, forums, weekend workshops, and camps, taking home ideas and skills to share, thus multiplying the benefits of the training center programs.

The Texas 4-H Center, heated and air-conditioned, contains 13 meeting rooms including a main auditorium that seats 300, closed-circuit television capabilities in every meeting room, and beds for up to 260.

Volunteer training begins at the Texas Center in August and concludes the following May; camping programs for 4-H members take place during summer months. Groups other than 4-H'ers and leaders can use the Center on a cost-plus basis, which helps hold down costs for 4-H members and volunteers. The no-stairs facility offers complete service for the handicapped.

Multiplying Volunteer Leaders
Just over 900 volunteer leaders were trained at the center from August 1981 through May 1982. About 9 hours of training are devoted to each volunteer per workshop, so over 8,100 hours of training were provided. Milton Boyce, 4-H-Youth Assistant Deputy Administrator for Staff Development and Training at Extension Service-USDA, concluded that volunteers return 11 hours of service for every hour spent by Extension 4-H agents in their county. The Texas 4-H Center estimates that 89,892 hours of service will be given by the volunteers trained last season. Figuring volunteer service time at $5 an hour yields a $449,460 return on the 1981-82 training investment at the Center. To carry that idea one step further, it is estimated that each volunteer trained at the Texas 4-H Center trains at least six others.

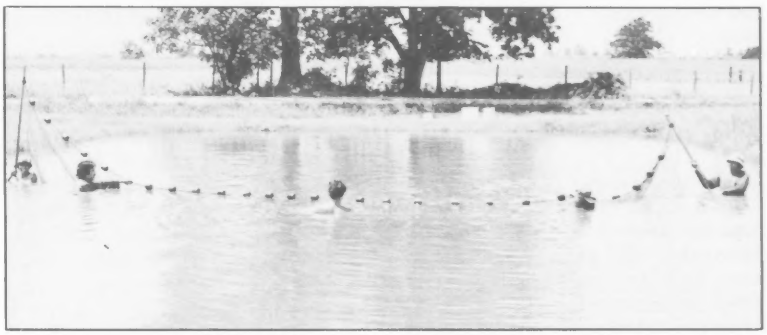
In Indiana and Texas, surveys or other methods determine the training needs of volunteers. One nice touch to the Rotary/4-H tradition in Indiana is that local Rotary clubs host, and Rotary members join the local/county volunteer trainees at a meal, for most training sessions. Extension agents submit topics for consideration for the Rotary/4-H sessions, roughly a year in advance. In Texas, grants from the Texas 4-H Foundation, companies, and individuals, support most of the workshops at the Center.

On a fiscal year basis, the volunteer training needs are established through a survey done in cooperation with the Volunteer Leaders Association of Texas—to establish what training the volunteers wish for themselves.□

Fishfarming On The Prairie

James T. Davis
Extension Fisheries Specialist
The Texas A&M University System

Volunteers are helping to make aquaculture a success in Texas by taking part in demonstration programs. For farmers, this sometimes means making land and special facilities available—or providing money—or taking the time to show visitors around.



Soaring Crawfish Production
Amos Roy, Orange County, Texas, built four 1-acre ponds in 1977 to demonstrate the effects of improved crawfish production methods. Now, 5 years later, the number of crawfish producing acres has jumped from 63 in the state to 4,000 and production itself has increased from 167 pounds per acre to over 800 pounds per acre. People bought so many crawfish in 1982 that the Texas market could not be saturated.

Herbicide Demonstration
Stanley Glaser, Milam County, Texas, has used his pond to prove just how effective certain herbicides are in controlling algae in fish production ponds. This meant delaying some production operations so that interested persons could see the results. At the same time, Glaser provided the time to apply the herbicides.

Most demonstrations efforts are paid for by the land owner. In the Catfish Farm Pond Program the farmer provides the pond, buys the toxicant, restocks the fish, provides the feed, and monitors and records the harvest.

Feasibility of Co-op Buying
Volunteers are also participating in the Cooperative Extension program for small- or low-income farmers in Texas. The volunteers cooperate with farm pond demonstrations, showing the feasibility of co-op buying of feed and of marketing the catfish they raise. This is a joint project of the Texas Agricultural Extension Service and Prairie View A&M University, which are part of the Texas A&M University System.

"What really drives the programs," says one Extension spokesman, "are the efforts of the volunteers with their abilities to sell others on the success of the systems. At the same time, when people see what has been accomplished in person they are more impressed than by any 'speechifying' on the part of the cooperator or professional." □

Curtain Call for Volunteers

Mark Dearmon
Media Specialist
North Carolina State University

It all started simply enough. After seeing two talented tap dancers perform at a regional 4-H talent show, some of us at North Carolina State University thought that 4-H could provide many new opportunities for 4-H'ers interested in the performing arts.

Idea into Obsession
That idea became an obsession: an obsession that with the help of three 4-H agents and a group of talented 4-H volunteer leaders evolved into the first North Carolina 4-H Performing Arts Troupe.

For years, "Share the Fun" talent shows have been popular in North Carolina and in other states. This program gives 4-H'ers the chance to "share the fun" through some talent they may have. Individual effort is the key to success. A logical extension of "Share the Fun" was to encourage some of the more gifted 4-H'ers in the performing arts to grow more—in a team effort—a performing arts troupe.

The Troupe Forms
The North Carolina troupe's formation was announced to 4-H agents in November 1981 and applications were accepted beginning in January 1982. Requirements were simple: if you have talents in music, drama, or dance, let us know. Soon, we had over 75 applications from across the state for the 30 parts in the Troupe.

Troupe Leaders Chosen
Also in January, we selected four specialized volunteer leaders, called core leaders, to direct the three major parts of the show—music, choreography, and dramatics. Wendy Leland, a volunteer from Ashe County, was chosen as overall director. Wendy had been involved in many 4-H dramatic efforts in her county—the only county in North Carolina with a significant program in the performing arts at that time. Wendy was also coauthor of the 4-H dramatic arts project in North Carolina.

Deborah and Derek Hoskins from Harnett County were selected as our choreographers. They had considerable experience in dance and they run the Dance Academy in Dunn. The Troupe was their first involvement in 4-H. Another relative newcomer to 4-H was our music director, Sue Ellen Hall, from Edgecombe County. She had previously been artist-in-residence in Edgecombe County.

An Energy Celebration
Under the expert direction of these volunteers, the Troupe's first production, "An Energy Celebration," soon took shape. The energy theme of the revue was chosen to coincide with the state 4-H project for the year: energy conservation.

In early March, the four core leaders and the project coordinators, Dan Cook, 4-H agent in Harnett County, Julie Landry, 4-H agent in Ashe County, and I, met to review the 75 applications for parts. Applicants ranged from 12 to 19 years and came from all over the state.

Casting the Show
Selecting Troupe members solely from their applications is not the easiest or best way to do it. But, in our case, it appeared to be the only way. Our first performance at the State 4-H Congress in Raleigh was only 4 months off. Time and money did not permit traveling around the state to hold auditions.

After half a day of discussing and rating the applications, the leaders selected 41 4-H'ers to be in the first Troupe. Eight more volunteer leaders were chosen from over 20 applicants to work in staging, costuming, makeup, and other areas.

Things looked almost too good to be true. What had begun as a few song and dance numbers became a troupe of talented 4-H'ers and a dynamic group of volunteer leaders with experience in the performing arts. The script had been written and the music selected.

The Final Hurdles
The first and probably most formidable hurdle was that of music. The project had already exceeded our original dream in effort necessary, so we did not want to attempt "live" music. Live singing and dancing would be enough to stage. Yet finding instrumental arrangements that would suit the performance was proving almost impossible.

Once again, the volunteers and donors rescued us. A local recording studio gave a weekend's worth of studio time. Randy Friel and his band "Dr. Groove" agreed to arrange and record five of the nine selections. The end result was as professional as you could want.

Now to handle the second and remaining hurdle—sound and light support. We discovered that local Explorer Post #711 specialized in sound and light for everything from talent shows and beauty pageants to boat races. Working with another youth organization excited us. The Post members voted to provide all the necessary technical assistance

for the Troupe's first performance in July 1982.

Thus, the foundation had been laid for a truly memorable experience. Many hours of work remained. We had yet to meet the 4-H'ers and volunteer leaders who would make the program a success. That moment would come at a weekend Performing Arts Retreat in early April 1982.

The Retreat

The retreat was really the start of the magic, the magic that happens when talent meets talent. From the start, the retreat ran at a fever pitch. This was the first time the leaders could see if the performers were as good in person as they had looked on paper.

Friday evening began with workshops in music, dance, and drama. Later that night, the core leaders met until 2:30 a.m., to assign each of the 41 performers to one of three core groups based on their talents.

On Saturday morning, the casting results were posted and the scripts passed out. For the first time, Troupe members knew exactly what they would be doing and what was expected of them. Our expectations were high but many of the Troupe members saw theirs as a unique opportunity to grow and to shine.

In the next day and a half, the Troupe learned all three acts of "An Energy Celebration." We had no breaks except for meals; yet not a complaint was heard. By noon on Sunday, the Troupe had run through the entire performance under the direction of the volunteer leaders.

The magic really burst into bloom that weekend. Members of 4-H who had never danced before had become lead dancers. The Troupe gave 41 able individuals the chance to meld as a talented team under the 4-H banner.

Getting Ready

In the next 3 months, the leaders worked on costuming, staging, and other production elements. Troupe members received cassette tapes of each of the nine musical selections so they could practice along with them. Extension homemakers made nine large cloth banners—one for each form of energy—for the stage backdrop. The state 4-H Fashion Revue winner and two friends sewed on what seemed like miles of Roman Shade tape so the banners could be dropped on cue during the show.

The Performance

The Troupe's first performance of "An Energy Celebration" went even more smoothly than the full dress rehearsal. A standing-room-only crowd of over 1,300 4-H'ers, leaders, and donors, along with North Carolina Governor Jim Hunt, watched the Revue with great excitement, giving two standing ovations. The whim that became an obsession had become a reality.

"An Energy Celebration" began with formation of a troupe in act I. Director Antonioni Fellini, after being contacted by telephone, asked all performing artists to make themselves known and the performers ran onto the stage. After brief auditions and selection of the energy theme, the Troupe brought to life traditional energy sources—solar, electric, and wind—in act II, and human energy in act III. Musical selections ranged from "Aquarius/Let the Sunshine In" (solar) to "What a Difference You've Made in My Life" (a tribute to 4-H volunteer leaders) to "Celebrate," the final number. Dance routines included tap and jazz and ballet. A unique addition was the use of multi-image slide support for backgrounds and other visual effects.

After the performance, there was not a dry eye backstage. The Troupe felt good, the leaders felt like proud parents, and the audience was astounded.

"The amount of work and dedication put into the Revue was evidenced and appreciated by us in the audience," wrote one 4-H agent.

Troupe member Kim Wagoner later wrote me, "One 4-H leader remarked that it looked as though you all have been practicing the show for months *together*." Actually, total rehearsal time together had been only 4 days.

Needless to say, "An Energy Celebration" is just the beginning for the North Carolina Performing Arts Troupe. Plans are being made for a new production next July. Our hope is for the Troupe to be 4-H ambassadors who can, in their own special way, share the 4-H experience with others. □

Homemaker Volunteers Active Nationally

Marilyn M. Reed
Assistant Editor, Extension Home Economist
The Ohio State University
and
Jim Wolfe
Writer-Editor
Extension Service, USDA

The "Ohio volunteers" . . .
A Civil War regiment? A volunteer army? No way! The Ohio volunteers are the army of volunteers who freely donated their time and energy to make a high success of the National Extension Homemakers Council (NEHC) meeting held at the Ohio State University, Columbus, in August. Volunteer efforts—which included everything from registering participants to conducting tours—resulted in what participants called "the friendliest meeting in years."

For Family Life and Community
NEHC was established in 1936 and represents over a half million members from 45 states and Puerto Rico. It is an independent, voluntary organization and a support group of the State Cooperative Extension Services (CES). The objectives of the NEHC include: improving the quality of family living in cooperation with CES and USDA; providing progressive improvement of home and community life; and promoting programs to preserve the American home.

Extension homemaker members annually contribute an average of 56 hours in volunteer service. The most popular categories of volunteer services are family-related community work; maintaining homemakers organizations; community services; and sharing information. Other important categories are: leader/teacher projects; fund-raising projects; leadership for youth; and expanded food and nutrition education programs.

Helpers Everywhere
"Volunteers literally did everything at the 1982 meeting," says Linda Roberts, program coordinator, Ohio Cooperative Extension Service, and campus liaison officer for the national meeting.

"At the meeting itself," Roberts says, "they set up audiovisual equipment, assisted with cultural arts exhibits, directed people to dormitory and meeting rooms, and even carried luggage and served meals."

These vital activities were accomplished by a 300-member unit of Ohio homemakers led by Eva Barger, Champaign County, Ohio hospitality committee chairperson. Mabel Stocker, Wayne County, Ohio, steering committee chairperson, guided the volunteer effort both before and during the meeting.

Youth Program
The 5-day Ohio meeting was the first family conference for the NEHC and the first year a youth program was offered. Volunteers conducted a daily program for children ranging from infants to teens. Youth program chairperson, Carolyn Ropp, Logan County, Ohio, examined facilities to make certain all was suitable for the young visitors. Volunteers conducted a mini-day care center for pre-schoolers and provided babysitting during conference evening events.

Handmade Souvenirs
Each of the 2,100 participants received a handmade Ohio tote bag as a conference souvenir. These and other banquet and reception items were produced by various Ohio county homemaker groups. Also, the Buckeye Shop, a souvenir center operated by volunteers, netted over $4,500. This money was used to defray conference costs. A low-cost transportation service to and from the Columbus airport was coordinated and conducted entirely by volunteers. Cars were kept available during the meeting for delivery service and to chauffeur participants and speakers. "We couldn't have had this meeting without the volunteers' help," says Naurine McCormick, assistant director, home economics, Ohio Cooperative Extension Service. "The Ohio homemakers generously gave thousands of hours. Their contribution and the help given by our Extension agents and other professionals made this meeting a huge success."

Around the Nation, Extension homemaker programs are strengthening volunteerism in our society while accomplishing Extension and community objectives. Some examples follow:

Inflation Fighters
Cooperative Extension economics specialists at the University of Illi-

National Extension homemaker meetings are always full of life. The volunteers' faces reflect their enthusiasm and dedication in extending the outreach of the Cooperative Extension Service system. These photos were taken at the 1981 NEHC meeting in New Hampshire.

nois are helping families find new money-management strategies to cope with the high cost of living. The program, "Why and How to Fight Inflation," focuses on what inflation is, how it is measured, how it affects our different roles, and what citizens and the government can do to control it.

As a result of an educational program involving 355 adult leader volunteers, and 83 county advisors, thousands of homemakers learned to cut costs and find new ways to keep pace with inflation. Materials supporting the training were newsletters, radio interviews, news releases, and a self-study course.

In a random sample drawn from 2,958 homemakers in three counties, homemakers were asked how their money management behavior had changed as a result of the program. Approximately 71 percent of the homemakers reported cutting food costs; 71 percent lowered transportation costs; 42 percent reduced utility bills; 58 percent designed or revised family budgets; 63 percent increased savings; and 90 percent reported reduced impulse buying.

Families learned new options for using their "shrinking" dollars through the program. It is estimated that approximately $234,626 could be saved in one year by participating families through improved food purchasing.

Leadership Development
A homemaker program fostering leadership principles is encouraging Indiana women to volunteer for public policy activities, Ann Hancook, specialist in Consumer and Family Sciences, Purdue University reports.

"Many skills were developed as a result of the leadership course taught by Extension agents," says Hancook. "Topics included preparation of agendas, organizing and presiding at meetings, speaking in public, and working with people. Ninety-two percent of the 205 persons surveyed said they were somewhat or much more likely to accept other leadership roles after their Extension experience."

With the growing need for family understanding of and participation in policy activities at the local level Hancook says, it is hoped that more women in Indiana trained through the homemaker organization will become members of policy boards in their communities.

Energy Efficiency At Home
West Virginia Extension home economists have implemented a program to help families in that state assess their energy use patterns and take new steps to conserve fuel and energy in the home.

State Extension office provides an energy checklist to help family members identify potential energy-conserving areas. Once the areas are identified, families compile a list of energy-saving actions.

Extension energy specialists provided publications for the program leaders, evaluation plans, and training for agents and local volunteer leaders.

For the initial effort, enrollment was secured through the West Virginia Extension Homemaker Club program.

Of the 128 participants who completed evaluation forms, 77 percent reported that they planned to take new steps to conserve energy in their homes. In addition, over 50 percent stated that they plan to reduce energy consumption in general by managing energy used for heating and cooling, cooking, lighting, and household equipment more efficiently.

Lap Reader Project
To promote the psychological growth and development of preschool children, Extension home economists at the University of Arkansas have recently promoted a "Lap Reader Project" in 13 counties in the state.

Extension held leader training meetings, education activities, and general meetings. The clientele includes young families and preschool children.

Preschool children learned such skills as reading, listening, buttoning, and differentiating shapes and colors. Two hundred Homemakers Club leaders were trained and, it is estimated, 1,400 children benefited from their instruction. □

At The Wheel— Volunteer Drivers

David J. Cyra, Director
Statewide Transportation Program
University of Wisconsin—Extension

Volunteer driver programs throughout the country are making life easier for many elderly and handicapped persons by providing transportation for medical appointments, grocery shopping, and other essential trips. And for persons who aren't able to get out often, the drive away from home sometimes is as enjoyable as the trip destination itself.

Volunteer drivers and program coordinators, who provide the service, also gain personal satisfaction knowing that their efforts are appreciated. Without their assistance, many passengers would have no transportation available to them.

To better understand this lifeline to basic needs, the Extension staff of the University of Wisconsin asked coordinators, drivers, and passengers involved in 11 volunteer transportation organizations in Wisconsin to comment on the operation of and need for volunteer transportation. Organizations represented were the Department of Social Services, the Department of Aging, the Red Cross, the Commission on Aging, FISH (a Christian organization providing volunteer services), and RSVP (Retired Senior Volunteer Program).

Volunteer Driver Coordinators
Most of the coordinators surveyed were women who are responsible for arranging services provided by 12 to 250 volunteer drivers. They have worked as coordinators for periods of less than 1 year to 16 years. Except for FISH, all of the organizations pay coordinators for their services. Red Cross has salaried and volunteer coordinators.

According to the coordinators, the most enjoyable aspects of their jobs are working with people and helping to serve the less fortunate. As Colleen Barnett with the Department of Social Services in Grant County says, "From the side of the volunteer, I feel very good participating in a program which helps the private community meet more of its own needs. Helping people also makes me feel good. Many of the elderly have worked hard all of their lives. They are often reluctant to ask for help, but we try to assist in a way that preserves their sense of independence."

The coordinators are proud of attempts to incorporate cost-effective measures into their operations. Gail Schwersenska of Waushara County advocates setting up some kind of dispatch system. Originally the commission on aging where she works had participants calling their drivers directly. "There is not enough control with a system like that and no opportunity for ride sharing," says Schwersenska. "It is important to stress that people may be asked to share rides."

Concern for Volunteers
"Inform people of the need to recruit volunteers and then let them know they are appreciated," says Jo Ann Pussehl with the Department of Aging in Walworth County. "Safeguards need to be taken to prevent clients from 'using' volunteers. Make your volunteers feel important, be friendly, and present a very positive approach," Pussehl says.

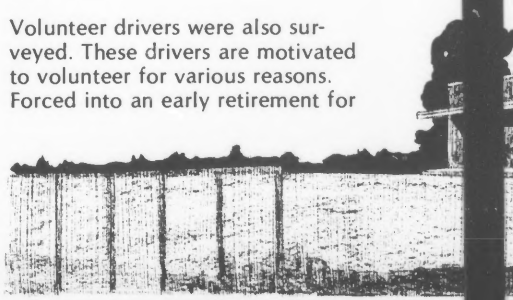
Contrary to what many surveys indicate, people are volunteering, according to Florence Bohannon with the Department of Services in Sheboygan County, who has served as a coordinator for 8½ years. "Busy people employed full time, who lead active lives, will volunteer if the tasks they perform have meaning, are needed, and afford them satisfaction," she says. Bohannon feels it is important for a coordinator to get to know volunteers well enough to be sensitive to their needs, to involve them in the planning and decisionmaking, and to assign them tasks that are worthwhile.

In new service fields, there is often a need to organize advocacy groups, if only to focus attention on what needs to be done to make improvements. For example, a joint effort by the University of Wisconsin's Extension Office of Statewide Transportation Programs, the State Insurance Commissioner's Office, and the Association of Volunteer Coordinators, succeeded in making available a special classification of liability insurance that counties have purchased to further protect volunteer drivers. Efforts are also being directed toward the passage of pending legislation that would allow volunteers the same mileage deduction that businesses use for income tax purposes.

The slow—but sure—progress demonstrated in Wisconsin in human service transport programs is a collective accomplishment with interested parties meeting, sharing common concerns, and facilitating action for improvement. In constantly striving for communication and cooperation, a bond of trust is created that promotes consideration for everyone in the system.

Volunteer Drivers
The volunteer driver program has provided support for independent living and vital services for health care.

Volunteer drivers were also surveyed. These drivers are motivated to volunteer for various reasons. Forced into an early retirement for



medical reasons, James Sieber, age 60, works with the Department of Aging in Walworth County. Driving gives him a feeling of self-worth, and he enjoys meeting people he would otherwise never have met.

Sixty-nine year old Mary Ellis, a volunteer driver with RSVP in Waukesha County, explains perhaps the reasons she volunteers are selfish. "The feeling of being appreciated gives great personal satisfaction. Too, I may be in the same situation some day and hope that there will be someone who cares. . . ."

Volunteer job problems that cause dissatisfaction are for the most part due to communication gaps in the system—such as mixups in appointment scheduling—which occasionally happens in any organization. Increased understanding within the community the volunteers serve could resolve some of these. For example, Vernon Frisk, a 72-year-old driver with the Department of Social Services in Grant County, suggests it would cut down on drivers' waiting time if medical personnel could give a little priority to patients who use volunteer transportation services.

Volunteers in most cases are not only donating their time, but are also contributing financially. Drivers who are reimbursed for mileage receive only 19 to 27 cents per mile. Estimated total cost of operating an automobile is approximately 40 cents per mile.

Passengers

Passengers who answered the survey primarily request a ride to medical facilities, although at times other essential stops are made along the way.

Volunteer drivers are willing to make unscheduled stops at the pharmacy, bank, or grocery store for passengers on the way home from doctor appointments. "This 'extra mile' is very much appreciated," says Amy Buckingham of Waukesha County.

"Without this program my life would be worthless, as I never leave my apartment, unless I am with someone," said Wanda Kupp, age 80, of Waushara County. "The volunteer drivers are my friends, my family, my eyes and my legs. Without them I would have to go to a home."

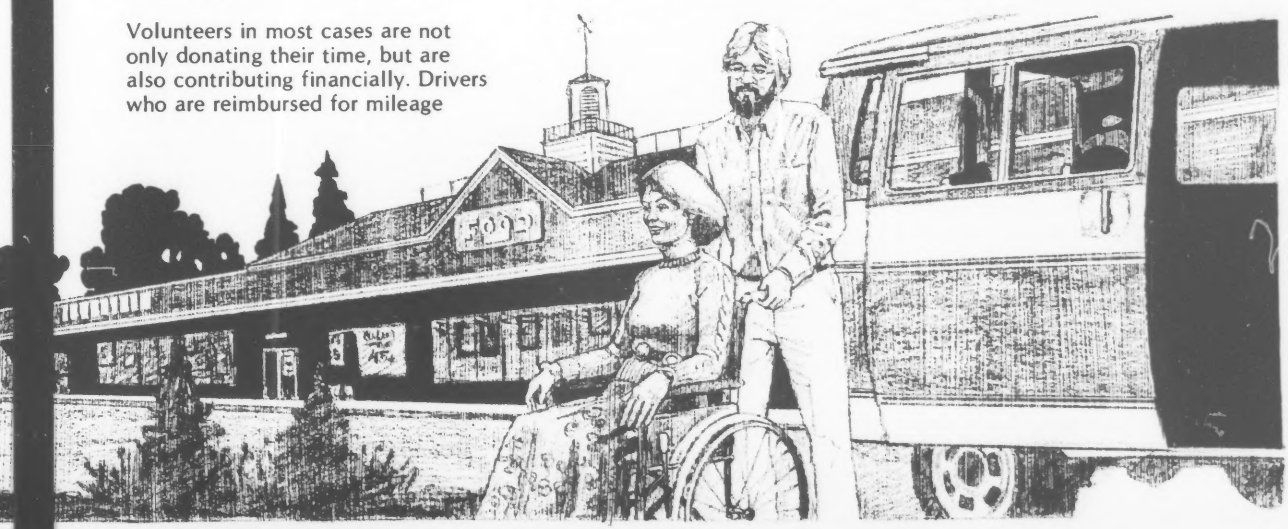
Future Volunteer Driver Programs

The need for human service transportation will always be with us, especially in rural areas where there are many miles between transportation centers and no public transit exists. With cutbacks in federal funding for transportation, there is a greater emphasis for some less expensive transport service to meet personal needs.

There is a group of individuals responding to the call for volunteer assistance, however, who are the able-bodied elderly.

What is still called for are more effective ways of recruiting, recognizing, retaining and rewarding these drivers. Using personnel management techniques borrowed from private industry has been shown to be an excellent way to enhance the image of the volunteer job. Job descriptions, formal training programs, and procedures for evaluating and rewarding volunteer performance could be included in volunteer driver programs.

As the need for volunteer drivers increases and the job gets tougher, programs must be as responsive to the volunteer's need for job satisfaction as they are to the needs of the people they serve. □



Volunteer Vignettes

Volunteers and 4-H Make History

Stu Sutherland
Public Information Officer
Extension Service, USDA

Volunteers have helped make 4-H a success from its beginnings before 1900 with corn and canning clubs for young people. Little would have happened in 4-H without the thousands of enthusiastic adults involved during its early years. Today, adult volunteers are still important in 4-H, and the numbers and types of activities have increased.

These volunteer 4-H efforts appear throughout a new book, *4-H: An American Idea 1900–1980,* by

Thomas and Marilyn Wessel of Montana. They point out that as new programs began over the years in 4-H volunteers offered support. When the IFYE and LABO International youth exchange programs started, for example, American families hosted the foreign visitors.

The new book, introduced this summer at ceremonies in Washington, D.C., and in at least 30 states, also documents volunteer efforts on advisory committees and in program development. Millions of volunteers have served as project leaders/teachers or as cooperators when a test plot or demonstration was needed. Volunteers have also worked as facilitators for indirect services to 4-H and as fundraisers at the local, state, and national levels as "friends of 4-H."

4-H today serves about 5 million young participants in this country; and in 80 other countries another 5 million youngsters are active in programs like 4-H. Volunteers continue to make these efforts possible.

Note: The book is available at $15 a copy ($12/copy for orders of 5 or more) from Educational Aids, National 4-H Council, 7100 Connecticut Ave., Chevy Chase, Maryland 20815—indicate title and item number LI 107. □

PRIDE—Vehicle for Volunteerism

Les Frazier
Extension Specialist
Organization and Leadership Development
Kansas State University

The Kansas Community Development program, PRIDE (Programming Resources with Initiative for Development Effectiveness) combines theory and practice for maximum citizen volunteer efforts.

In 1980, 105 communities of Kansas were enrolled in the program. People undertook 1,593 projects and contributed 233,055 hours for improvement of cities and towns. The funds, materials, and labor (calculated at $5 per hour) added up to more than $1 million. Professional staff assistance from the Cooperative Extension Service of Kansas State University and the Kansas Department of Economic Development added up to 4 staff years.

Since PRIDE began in 1971, over 300 or almost half of the communities of the state have participated. For the paid staff hours involved, the impact of this model in the state has been large.

In McPherson, Kansas, which has a population of 11,000 people, 1,150 individuals were involved one year on community improvement (PRIDE) projects. Two hundred and forty-one volunteer hours were expended to reduce water use 1.4 million gallons per day. To register 2,000 new voters, volunteers donated 940 hours. To complete an accurate city census, 600 people contributed 3,800 hours of door-to-door polling. □

Family Life Stronger With Volunteer Help

James E. Van Horn
Extension Family Sociologist
The Pennsylvania State University

Family Life Education in Pennsylvania operates more efficiently because of volunteers. They work side by side with the Extension home economists in many counties to plan and carry out programs. Sheila Burcin, Washington County home economist, holds volunteers in high esteem: "Lay leaders can efficiently plan and implement programs as they are kept abreast of current information related to family life."

Cambria County home economists Eunice Tibbott and Kathleen Hostetler also believe in volunteers. "In a large county, like ours, in the mountainous region, it would be difficult to reach many families without volunteers." Tibbott and Hostetler have trained and they support individuals in many of the small, isolated communities of their county. Over 45 young women have become leaders who have successfully planned and taught dozens of workshops, like the very popular "Toys for Children" program.

In 1981, the programs planned and presented by the volunteers involved over 1,800 persons.

Building Leadership Skills
Volunteers in Extension's family and parent programs also benefit from their experiences. Frequently, a potential leader will attend a regional training day, return to his or her county, and present workshops for other parents. Two parents in Lebanon County's Twins Club participated in a training day focusing on "Developing a Child's Self-Concept." One of the parents taught a successful workshop on self-concept. She admitted later she was "terrified to get up in front of a group" before she assumed her volunteer leader position.

You and Your Preschooler
Volunteers are an integral part of the statewide "You and Your Preschooler" program, which has two parts: the learn-at-home program consists of study units mailed to parents and workshops held in local communities. Annually, over 50,000 families participate.

Prenatal Education
Jefferson County home economist, Nancy Covert, relies heavily on volunteers in her Family Life Education Programs: "Our prenatal education program depends almost 100 percent on volunteers. Through their efforts, this Extension program has grown in 4 years from no prenatal classes to weekly classes held at both of the hospitals in the county. Every year, over 375 young couples about to be parents for the first time enroll in the programs which are conducted in the two hospitals that service our entire county."

Kid Stuff
Often Extension brings together, face to face, a group of volunteer parents and professionals. Over the past 6 years, in the rural, sparsely populated Sullivan County, the Extension home economist has worked with a group to plan and present "Kids Stuff for Parents," an educational program for parents about the concerns parents have. 4-H members conduct the children's part of the program, thus enabling many parents with younger children to attend.

Building On Strengths
Volunteers are so much a part of Pennsylvania's family life program that a new program, "Strengthen Your Family," incorporates them throughout. Home economists will be relying on volunteers to ask families and to analyze their strengths. Based on their responses, educational programs will be developed that volunteers can use to help the families identify and build on their strengths. □

Kansas Farmer-Rancher An Effective Extension Advocate

William S. Sullins
Extension Information Specialist
Kansas State University

John Haas, a farmer-rancher from Pawnee County, Kansas, has been a top volunteer leader and innovator for Extension. He has testified on Capitol Hill in behalf of Extension and recently completed a term as the national advisory group's first president.

Haas is not stepping out of character when he "wears many different hats." Helping to bring about meaningful change is also one of Extension's roles, he points out. John does not mind picking the brains of county agents, specialists, scientists, administrators, or anyone else who may have some new or different ideas.

Beginnings With County Council
Membership on the county council whetted his interest in Extension. After he took an agronomy degree from Kansas State University in the early 1960's, he returned home to Larned in Pawnee County where he became a farmer-rancher and a member of the Pawnee County Extension Council.

This membership stimulated his interest in Extension. It eventually led to membership on the Kansas Area Extension Council, Kansas State Extension Advisory Council, the North Central Region Advisory Council, and the National Extension Advisory Council.

During the past year, Haas, as president of the national advisory group, has constantly reminded Congress of Extension's priorities.

Despite these important time-demanding occasions, Haas manages to find enough hours to farm 2,500 acres of land and feed several hundred cattle each year.

Modest about Honors
Haas would rather talk about his family—wife Carolyn ("She's my combine operator"), son Charles, and daughter Kista—or about volunteerism and what 4-H can do for young people, than to talk about the recognition that he has received.

But one can guess that the honors he received in 1980 and 1981 rank high with him. First, he received the "Kansas Friend of County Agents Award." The next year he went to Washington to receive the "National Friend of Extension Award" from Epsilon Sigma Phi, Extension's honorary fraternity.

Kansas Extension director Fred Sobering recently attempted the difficult job of describing Haas in a few words. "John is able, articulate, enthusiastic, and effective," Sobering said. □

SOS Learning Networks Revitalizing Rural America

Robert H. Flashman
Extension Family Resource Management Specialist
University of Kentucky, College of Agriculture

An SOS Learning Network is an informal way for people to share their ideas, talents, hobbies, and knowledge with others who are curious to learn. It is a forum for meeting community needs, a project that extensively involves the grassroots people of a community and gives them a measure of control over their lives.

Learning network activities can be built around almost any subject of community interest such as home landscaping for energy conservation, preventive medicine, beginning guitar, cardiopulmonary resuscitation (CPR), macrame, creative writing, automobile mechanics, and stress management. It is an excellent method of dealing with the needs of the elderly or addressing community action problems.

Beneficial Skills
Recent Extension surveys have shown that Kentuckians are ready to fully tap the storehouses of skills existing within their own communities. Recently, respondents in 15 Kentucky Extension geographic areas were asked if they believed that most of the people in their community possessed skills that would benefit the community at large. In 12 of these areas, over 80 percent of the respondents answered, "Yes!"

Forty-five percent of the respondents in the survey said they would be interested in sharing skills with others. Males (51 percent) were more interested in sharing skills than females (40 percent). Persons between the ages of 20 to 40 (61 percent) were most likely, the survey showed, to be willing to share skills. Persons over 65 (28 percent) were the least likely to be willing to share their skills.

In a report to the National Extension Homemakers Council in 1981 the eight existing SOS Learning Networks were surveyed. In each of the eight networks, there was an average total of 20 teachers (volunteer sharers) offering a total of 19 different courses. Total average enrollments for all networks were 3,231 with 2,178 people constituting "new involvements"—a previously unreached audience.

Majority Want Activities
Rural people have shown a definite interest in establishing and participating in SOS Learning Networks. Surveys have shown that approximately 64 percent are interested in attending Learning Network activities.

The network appears to revitalize rural communities. As one community participant commented: "This project caused more excitement than anything our county has ever experienced." □

Saving Money For City Hall

Robert M. Dick
Professor, Communication Specialist
Community Development
University of Wisconsin—Extension

"I pay my taxes. Why should I give my time to my local government too?"

Americans give freely of their time and talent for many worthy causes—a recent Gallup survey found 31 percent giving at least 2 hours a week to some community service. Contributing "work" to a township, village, or city hasn't caught fire, though.

Some cities have tried and succeeded. Over $5 million of volunteer time are contributed annually by people working at a variety of tasks in New Orleans, Louisiana. The National League of Cities reports that volunteers "adopt" parks, supervise activities, handle day care centers, drive vehicles, answer telephones, and type reports.

Other communities have failed utterly in attracting volunteers to this kind of service. Organization appears to be the key.

Wisconsin Training Program
University of Wisconsin-Extension specialists looked at Wisconsin communities experiencing funding cutbacks and wishing for volunteers. Drawing upon a half-century of its own volunteer relationships, hospital and nonprofit agency volunteer directors, and several cities and towns, the Extension staff developed a training program for Wisconsin's local government officials.

In many respects, volunteerism in municipal service resembles that in other nonprofit organizations.

Unique Issues
But there are unique issues in municipal volunteerism. Does a volunteer displace a paid worker? That may violate a labor contract.

Municipal liability is also an issue. If the unpaid volunteer is injured on the job, does the municipality's workman's compensation insurance cover the claim? What if the volunteer accidently injures someone else?

There are no standard answers as every community is different. But by identifying the issues and bringing them to the attention of local government officials who may be hoping to use volunteers, Extension is helping Wisconsin's towns, villages, and cities to capitalize on this talent and avoid costly problems. □

Training for Cold Water Survival

Stephen R. Stewart
District Extension Marine Agent
Michigan Cooperative Extension Service

Cold water (less than 70° F) is found year-round in Michigan's great lakes and inland waters, posing a unique

safety problem for those who venture onto the waters. Recent information indicates that cold water may be a significant factor in assisting in the eventual recovery of drowning victims.

Advisory service efforts have centered in on two areas. The first deals with cold water survival and includes the problem of hypothermia, and treatment and personal survival in cold water. The second on cold water near-drownings—what they are and what new treatment methods can be utilized in these accident situations.

In southeast Michigan, the marine agent has coordinated a statewide effort on the part of other marine agents, as well as county Extension staff, to make Michigan citizens aware of the unique problems and

opportunities that our cold waters present. Workshops have been held to train "first responders" in the treatment of cold water near-drownings. Similar problems focusing on cold water survival are given to recreational and other groups.

Funds for these efforts have come from the sea grant program, and staff time has included district marine agent and secretarial time as well as the time donated by program cooperators (County Extension staff, U.S. Coast Guard personnel, Sheriffs' Department staff, etc.).

The major accomplishment has been the training of "first responders," those whose job it is to rescue and aid cold water victims. Emphasis has been on training those who could in turn train others.

A secondary accomplishment has been the training of many persons in cold water survival and hypothermia treatment. Additional programs have been requested and cold water emergency contingency plans have been established. The number of drownings in the Great Lakes area has diminished by 20 percent, in large part due to such educational efforts, according to the U.S. Coast Guard.

These efforts will continue until each coastal county in Michigan has been included in programming, and until requests for further assistance have ceased. □

Teaching 'em Hunter Safety

Barry W. Jones
Extension Communications Specialist
Mississippi State University

Eight years ago Vivian Armond was a shy, reserved widow and mother living in a mobile home park in Vicksburg, Miss., and working at various jobs to make financial ends meet.

That same year she noticed the children in her neighborhood, including her son, were playing with air rifles and BB-guns. She decided they needed to be taught something about gun safety. Calling upon the knowledge she gained hunting and fishing while growing up in Sharkey County, she set out to teach them.

Vivian Armond's first small effort at community service in her own neighborhood led to new and larger volunteer jobs, first with the 4-H program in Warren County and finally to a full-blown career in hunter education.

Armond today is a hunter education supervisor with the Mississippi Department of Wildlife and Fisheries. What began as a volunteer effort for six kids in a mobile home park has grown into a 20-county program and the number of kids in Mrs. Armond's classes today ranges into the thousands.

The timid widow is now selling wildlife and hunter education safety programs to community and school leaders and recruiting other volunteers all over southwest Mississippi.

Twice in the last decade tragic accidents have brought that importance home to her life. She was widowed in 1971 when her husband died in a work-related accident, and in 1980 during a swimming mishap in the Mississippi River her only son, Billy Wayne Jr., drowned.

Through those personal tragedies, Armond has emerged as a strong and relevant voice for hunter education in Mississippi, because what she teaches saves lives.

"Something to Say"

"My work with 4-H members and leaders taught me self-confidence and how to communicate," Armond says. "4-H taught me that I have something to say and that others could benefit from my own background as a hunter and outdoor person."

Armond took the 4-H training in 1974 and became the leader in charge of the hunter safety program in the county.

She launched an ambitious city and county school program to instruct every child in the seventh grade in wildlife education and hunter safety.

Not One Accident

"Not a single student we have had in hunter education has ever had a hunting accident," Armond said. "As an instructor, it is an important thing when you put your name on that certifying card. You have to know in your mind that this youngster is a safe hunter."

It was Armond's success with the 4-H hunter safety program that attracted the attention of the Department of Wildlife and Fisheries. They hired and trained her in the summer of 1978.

Honored by 4-H

Last November, Armond's volunteer work was recognized by the national 4-H organization. This month she will attend, all expenses paid, the 47th North American Wildlife and Natural Resources Conference in Portland, Oreg., as one of only five individuals so honored in the Nation this year. □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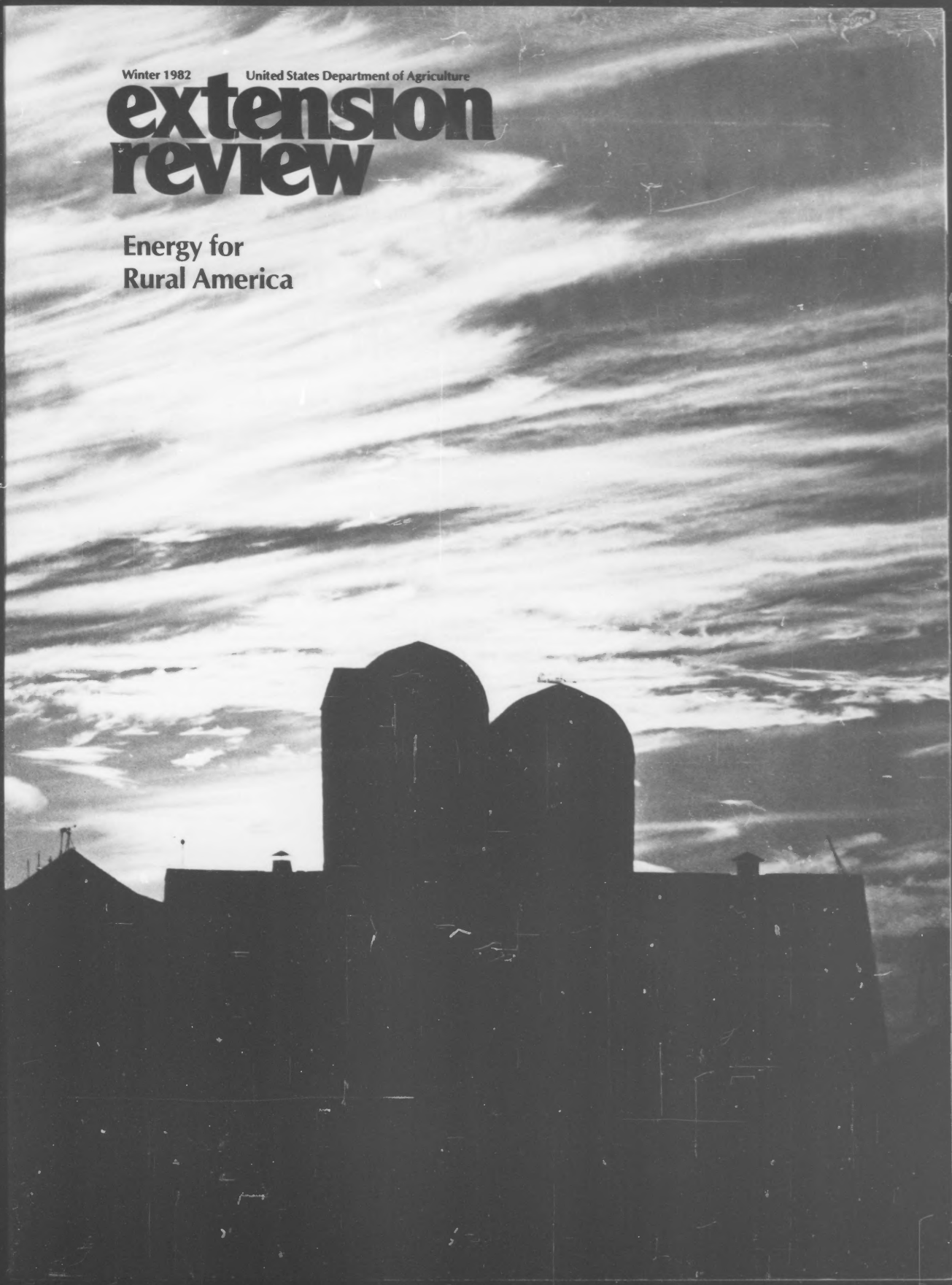
extension review

Energy for Rural America



review

Energy: Will There Be Enough?

What are the alternatives?

All Americans are concerned about the rapid increase in energy costs and the prospect for continued increases. Many are frightened by the prospect of not having enough energy at a price they can afford. Whether or not they believe there is an energy shortage is debatable. The cost increases are real!

Analysis of the concerns and problems confronting citizens reveals the vital importance of the need for them to understand the energy-economic situation and future projections to make appropriate decisions and adjustments for the future. To make changes, people must become more knowledgeable about energy resources, the rapid rate of depletion, and projected increases in cost of energy. Often the differences between good decisions and costly mistakes is the information, or the lack of it, on which the decision is based.

The challenge for the Cooperative Extension System for the remainder of this century will be to reach consumers with information that will help them make sound decisions in a changing economy and live in a society that must adjust to limited resources and to a less energy intensive lifestyle for this and future generations.

While experts may disagree on how long known energy sources will last, the facts are clear:

- Known sources of energy are limited.
- We are using energy faster than nature can produce it.
- American lifestyles require astonishing amounts of energy.
- Our national security depends upon the availability of energy.
- Energy is necessary to maintain our food and fiber system.
- Energy costs continue to increase.

In our highly industrialized society, the availability of energy determines the availability of goods and services, employment, and quality of life in our home, community, and country. No matter who we are or where we live, the availability of energy, or the lack of it, touches our daily lives.

The population in the United States makes up approximately one-sixth of the world's population yet accounts for one-third of the world's energy used each year. Current lifestyles have been built on the premise that energy resources are abundant and inexpensive. Consumption has increased nearly fourfold since 1950.

All sectors of the economy must evaluate the impact and devise ways to utilize the known energy sources more efficiently to extend the supply, in order to gain time until new sources and/or new forms of energy are available.

Conservation is the least costly, more environmentally safe, most readily available source of energy. It is cheaper to save energy than to find new sources. Conservation must be interpreted not as doing without, but as using less to accomplish the same tasks or getting more work from the energy we do consume. Conservation alone cannot solve the problem. We must encourage and support research and the development of new or alternate energy sources that will be economically sound, environmentally safe, and socially acceptable. This will require money and time. Tradeoffs will have to be made; we can no longer have our cake and eat it too.

Progress is being made, both in cutting back on waste and in developing other sources. The cost of energy continues to take a larger part of the operating budget each year. This increase can be offset, somewhat, by improved management and application of new technologies.

Cooperative Extension programs can make a significant difference

by focusing on the following:

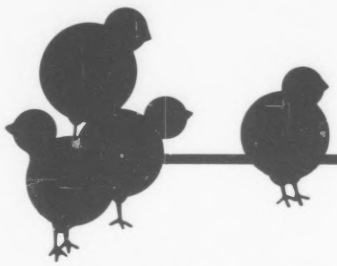
- Help eliminate practices that are inefficient and wasteful.
- Teach decisionmaking for potential conservation in the home, on the farm, or in the community.
- Provide research-based information on alternate resource use.
- Help people cope with emergency situations.
- Assist in managing expenses resulting from increases in energy prices.

With this issue of *Extension Review,* we take a good look at ways various states tackle the problems of rising energy costs. In Nebraska, irrigation scheduling—applying the precise amount of water at just the right time for economic crop production—will be a reality for nearly all 7.4 million acres of irrigated farmland, predicts Paul Fischbach. David McCowan, in the chilly Northwest, hasn't paid his water heating bill in 3 years and the authorities are after him—for some hints on how he does it.

Extension agents from all over the country and the people they work with are proving they can teach us all a few things about conserving energy. In fact, that's exactly what they're doing. They conduct workshops, conferences, and home energy audits; publish materials on a wide variety of practical cost-cutting measures; and bring area citizens and local government together as a team. You can't ask for more than that. But we did, so they sent us their stories.

Glenda Pifer, Energy Coordinator,
Extension Service- USDA

contents



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Shrimp Boats Still A'Steaming As Computer Cuts Fuel Costs

James Booth
Writer
Mississippi Cooperative Extension Service

Rapid diesel fuel price increases have forced many Gulf Coast shrimpers out of business, but new facts on fuel management may now help some of those who have held out.

The information is coming from studies of fuel use conducted on board shrimp boats by professionals from the Sea Grant Advisory Service of the Mississippi Cooperative Extension Service.

"We're trying to classify the activities of the commercial fishing industry," says David Veal, head of the Sea Grant Advisory Service. "We want to determine how much time is spent fishing, going from port to port or between fishing areas."

Veal is using special computer equipment on board to monitor the use of diesel fuel 24 hours a day so that fuel use can be measured at every phase of the shrimping process.

"Obviously, fuel consumption rates are different when going from the port to the fishing area than while actual trawling is taking place," Veal says.

To help accomplish the project, Veal also recruited Tommy Schultz, owner and captain of the Biloxi shrimp boat "Reva Rose." As the "Reva Rose" goes about her routine shrimping chores off the Mississippi coast, Veal's computer is hard at work in the engine room.

Costs Conflict

Rising fuel costs pose a difficult problem for shrimpers, because fishermen have faced a 900-percent increase in the price of fuel in the past 8 years. Unfortunately, the price of their catch has not risen accordingly.

"In 1973, fuel was 11 cents a gallon," said Capt. Schultz. "In six months it went to 21 cents a gallon. The price of shrimp was about 80 cents a pound, and that was fine until 1976.

"Then the cost of fuel ran wild. It went to 70 and 80 cents and on to $1.17, the price it is today. The price of shrimp has remained about 80 cents a pound. At 90 cents a gallon, vessel owners lose 1 cent per pound."

"This fuel consumption program could make the difference between survival and going out of business for shrimp fishermen," Veal says. "Fuel costs for the fishing industry have gone from $10,000 or $12,000 a year to $80,000 or $100,000 a year per vessel in the past decade.

"When you have a vessel that will take on 20,000 gallons of diesel fuel a month and a fixed resource to fish from, the difference in staying in business and not being in business is the ability to manage fuel consumption."

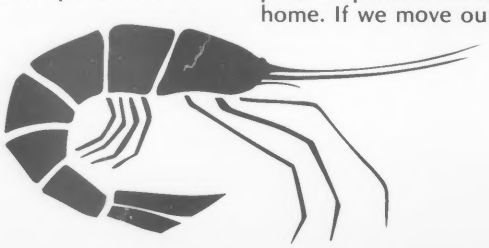
The computer often can help shrimpers save more than a hundred gallons of fuel a day without any measurable loss in production.

"We can save a lot of money just by cutting down on engine power," Capt. Schultz said. "We're going to have to cut down on running from place to place and stick closer to home. If we move our operation, we're going to have to move it to an area we decide on and stay there." he says. "We used to be able to run back and forth with our shrimp, but we can't anymore. We have to unload at the nearest place for the best possible price we can get."

"When shrimp are available, we are going to have to put in every single day we can in the Gulf to make it pay for us," Capt. Schultz says.

Production Practices

Marginal production practices must be cut altogether, or shrimpers can prepare to go out of business. That is a hard, but accurate, reflection on



the state of today's shrimp industry. But the results of the computer's work are showing up in fuel dollars saved every day.

"One of the observations that we have made already is the difference in efficiency between two different nets," Veal says. "Typically a Gulf boat will use two nets. In the last 2 or 3 years, there has been a trend to go toward what are called 'quad trawls,' two small nets pulled on each side of the boat."

"Although we are pulling four nets, in many cases we actually have less fuel consumption and a larger catch," Veal says. "The difference is 4 or 5 gallons an hour. This 4 or 5 gallons an hour for 24 hours a day is a lot of money in a year's time."

Saving fuel is the primary object of the computer's work, and it seems to be doing the job well.

Capt. Schultz says that if he had the money, he'd buy the computer. "That is how much I think of it," he says. "It will show us where we are making errors. Correcting these errors can save fuel and money."

Savings Possible

Just how much money can be saved on fuel by following the computer results?

"With the information we are gaining from this, and good fuel management techniques, an individual vessel owner can save as much as 15 percent of his fuel bill," Veal says. "At $1 a gallon, we are talking about $10,000 to $15,000 a year."

The Gulf Coast shrimp industry still faces many problems, and the findings on board the "Reva Rose" are still being distributed to shrimpers. Others may not be as receptive as Capt. Schultz, but one fact remains: A much higher degree of professional management will be required to survive in the shrimping business.

Conservation Tillage—The Time is Now

Stu Sutherland
Public Information Officer
Extension Service, USDA

No-till farming cuts down dramatically on the energy necessary to prepare a field for planting. Also, soil erosion is reduced by leaving a residue of the previous crop on the surface to protect the soil from water and wind.

During the last decade there has been a dramatic upswing on the part of farmers to adopt the practice of no-till farming. Of the various land management practices to simultaneously control soil erosion and enhance environmental quality, conservation tillage is considered to be the single most effective method, and the least costly in time and energy, both of which mean saving money.

Reducing soil erosion is a high priority for farmers and has caused increased interest in conservation tillage. But, improved efficiency and reduced costs are their primary reasons for adopting the practice.

What then is conservation tillage? In essence, it is farming on a soil surface that is protected from water or wind erosion by a mulch of all or part of the residue from the previous crop. It is generally done by eliminating the use of the moldboard plow and the unnecessary secondary tillage prior to planting. As new plants come up, the mulch holds the soil where it needs to be.

Kentucky

Kentucky farmers are well aware of soil losses on their rolling and sloped farmlands. They recently became aware of a University of Kentucky Extension demonstration project where wheat, corn, and soybeans were grown for 4 years on 6- to 12-percent sloping hillside with virtually no erosion—and 4-year crop yields of 145 bushels per acre for the corn, and 47 for the soybeans (high yields for the silt loam soil type). Word of the test field results was spread by the CES staff via mass media and field day activities.

With and without practical no-till experience, Kentucky farmers have shown new interest by seeking information about it. In areas of the state where there has been little or no use of no-till, producers have requested educational meetings and more field studies. Extension education meetings in the Owensboro area drew 620 people; in Crittenden County, 155 people; and in the Purchase area some 370.

Indiana

Interest is not just in Kentucky. In Indiana, over a period of 15 months, two extension specialists participated in 134 meetings in 54 counties on conservation tillage. Latest data indicates some type of reduced tillage was used on over 3½ million Indiana acres in 1980; that's up some 2 million acres from 1974. In response to the increased interest, Indiana Extension has released four publications with supporting material and two slide-tape sets.

Iowa

In Iowa, it is estimated that more than 13 million of their 22 million acres of row crops were under some form of conservation tillage in 1980—more than a sixfold increase over the less than 2 million acres in 1970. For that state's farmers this means an estimated annual fuel reduction of at least 13 million gallons of diesel fuel when compared to conventional tillage. Also when compared to conventional tillage with a moldboard plow, there's a farmer's time saving of from 0.5 to 2 hours per acre. In March 1982, a statewide conference on conservation tillage is scheduled.

Pennsylvania

Pennsylvania, where soil erosion occurs on many of the rolling and hilly fields, is one of the leading northeast states in no-till crop production. The no-till corn acreage there in 1981 reduced on farm diesel fuel requirements by about 2 million gallons compared to conventional tillage as practiced in

1970. In one Pennsylvania county (Centre County) less than 5 percent of the 1971 corn acreage was planted without tillage—that figure in 1980 had shot up to over 60 percent. Meetings, media, and demonstration plots are all part of an extensive Cooperative Extension educational effort to ensure that growers have access to current information on successful production practices.

In these four states—and many others—Cooperative Extension is working with agricultural producers to develop a better understanding of conservation tillage. Some are waiting to see if their neighbor's no-till cropping pattern either fails or is successful before they adopt no-till. More than likely, others are waiting for more research in the field—and it is underway with vigor.

Both public and private funds are being used in an effort to understand. Research workers have devoted considerable effort in evaluating the changes that occur in pH, soil phosphorus distribution, nitrogen utilization, herbicide response, pesticide runoff, soil and water runoff, manure management, soil compaction, labor and energy requirements, and those most important crop yields—when various tillage techniques are used.

The Cooperative Extension Service educational program provides growers with a production system that conserves energy, soil, and labor while lowering the cost of production. It will be continued.

And so will this story in another issue.

Alabama REMAPS Electrical Costs

Grady Wakefield
Randolph County Agent Coordinator

Dennis Evans
Community Resource Development
Alabama Cooperative Extension Service

There were many Alabama winters when Robert Clark, 83, could feel the cold wind blow through the cracks in his small, white-framed house on a quiet street in Roanoke.

Clark, who lives alone, always had a problem keeping his house warm, and his efforts did little to prevent his energy bills from rising dramatically. Until recently.

Today, Clark says he's never been more comfortable. His little home in Randolph county is now warm, tight and cozy, because of a unique pilot project in Alabama that appears well on its way to success.

As part of this project, sponsored by the Alabama Department of Energy, the Alabama Power Company, and the Alabama Cooperative Extension Service, Clark's home is weatherized—including installation of storm windows, caulking and weatherstripping. And he is quick to praise the project's work. "My home is now 100 percent warmer. Everyone should have their homes weatherized."

Called REMAP, this special project is much broader in its scope than Robert Clark's home. It involves every member of the Roanoke community and encompasses industrial, residential and commercial sectors.

The project, Randolph Energy Management Action Program (REMAP), is primarily concerned with electric power, although it equally addresses solar energy, natural gas and other energy sources.

Major Goals

The REMAP program is designed to help reduce the peak demand of electricity at the community level, specifically in the residential sector. The electricity saved can then be freed for commercial and industrial use. These savings can represent a substantial amount of energy.

Ralph Sherer, District II agent coordinator with the Alabama Cooperative Extension Service, says Randolph County was selected for the project because of the outstanding leadership and motivation of its citizens. "Recently, the residents of Randolph County were able to attract the largest industry ever to the county, even during a time industrial development in many ereas was at a standstill," Sherer points out. "That industry accounted for one in six new jobs created in Alabama during 1980.

Randolph County was selected also because of its outstanding Extension programs and personnel, and because of the cooperation between city and county government.

"This project," Sherer states, "involves a method which the Extension Service has for years proven is the way to get things done. That is, to get people involved, to aid them in identifying the problem, and then work together in solving the problem."

Development Committee

Project work began in August 1981 when John Spence, Alabama Power Company; Dennis Evans, Alabama Cooperative Extension Service; and Ralph Stanford, Alabama Department of Energy, met with the REMAP committee members to outline an energy conservation program.

Committee members were selected through a survey conducted to determine leadership in the community. Forty leaders were chosen by the 200 survey participants. At least half of the 40-member committee were members of the Randolph County Development Association.

Robert Clark weatherstrips his window.

Joe Turner, first president of the Randolph County Development Association, became chairman of the REMAP committee.

REMAP was divided into nine committees: industry; agriculture and commerce; churches; senior citizens and low-income families; schools and hospitals; government agencies; dealer promotion and energy audits; publicity and promotion; and rules and bylaws.

The Committee established six goals:

- Develop educational programs that promote efficient energy use;
- Promote weatherization and retrofitting of existing buildings;
- Promote the use of energy-efficient methods, equipment and materials in new construction;

- Encourage the use of energy-efficient appliances and properly sized, high-efficiency heating and cooling equipment;
- Organize dealers and energy providers to promote the sale and installation of energy-efficient equipment and materials; and
- Solicit the support of community leaders and organizations.

Programs

Residential energy audits are an integral part of the project, and much effort has been spent promoting them. Under the sponsorship of REMAP, Alabama Power Company personnel conduct free computer analyses and on-site inspections of residences. They give customers information on recommended retrofit practices. Payback periods for installing energy-efficient equipment and materials are also computed.

In November 1981, a weatherization demonstration program was held in Roanoke. In this program, two low-income homes were retrofitted under a specially sponsored Community Action Agency program for low-income homeowners.

The actual work was done by members of the Community Action program. The REMAP committee organized and publicized the demonstration involving members of the Roanoke Senior Citizens Nutrition Program. Transportation was provided first to a house that was in the process of being weatherized with blown insulation, storm windows and caulking. Next, they visited a house where the weatherization process had already been completed.

One subcommittee is actively developing a series of "energy parties" for small gatherings of friends and neighbors. These parties will feature discussions and demonstrations of energy-efficient appliances and materials. The program format and content are adjustable for different income levels and will feature equipment ranging from the complex heat recovery unit to the simple,easy-to-make draft stopper.

The U.S. Department of Energy awarded a $6,000 grant to the city of Roanoke for energy management efforts in the city. Local leaders and REMAP board members are currently determing how to use these funds.

Support Sources

Local ministers are actively involved in the REMAP project from several angles. Because of their positions in the community, they are excellent resources for helping residents become more energy conscious. Sponsors are encouraging ministers to distribute publications and other materials on energy conservation to their congregations. Ministers are also being made aware of resources materials directed toward energy management for religious structures.

The media are actively involved in promoting the REMAP program. Media representatives attend each meeting. Newspaper coverage includes special-interest articles and coverage of special activities. For example, during November and December 1981, attention was given to the subject of heating with wood. Future topics include solar energy and other energy-related subjects.

Evaluation

Evaluation—both formal and informal is a continuing part of REMAP. The project will monitor energy usage closely during the test period and obtain results for individual customers. REMAP is developing a sophisticated system to collect data for measurement and evaluation of results. This system will involve a number of electric substations in the REMAP service area.

The formal evaluation component of REMAP offers an opportunity to appraise the value of motivational and educational programs in terms of economical and potential energy savings.

At the end of 1982, the total REMAP program will be evaluated. The amount of electricity coming into the Roanoke area in 1982 will be compared with the 1981 record. If the number is smaller, this pilot project may be largely responsible. REMAP members have the utmost confidence in the total community involvement concept and believe they can't miss.

It Saves Energy—But You Have to Mow the Roof

It was bound to happen—4-H went underground.

They went under the ground, that is, beneath 350 tons of Michigan earth, concrete and insulating materials to demonstrate ways to save energy.

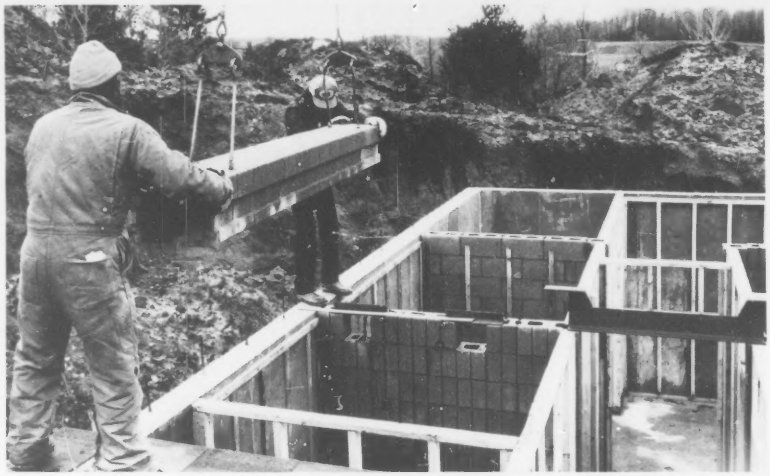
The Michigan 4-H Foundation recently built an "earth-sheltered home" at their Kettunen leadership training facility in the Northern part of the state and they say it saves from 20 to 50 percent in heating and cooling costs.

The structure is spacious, with three bedrooms; one and a half baths; living, family/dining and utility rooms; a two-car garage; a study; a kitchen and a handy mud room/entryway. Though there's no basement or attic, there are ample storage areas, including a large walk-in closet off the master bedroom.

The home is covered on three sides with earth to take advantage of the soil as a buffer against the elements.

"The ground itself is not a good insulator," says Ed Tonak, Kettunen Center manager. "But the earth takes a long time to heat up or cool down. It usually stays around 50 degrees year round, so there's only a small temperature range to deal with. With proper insulation, it takes very little energy to heat or cool the building," he explains.

For example, when it's 85 degrees outside, the ground surrounding the structure is a cool 50 degrees. Opening the windows maintains the temperature in the building at a comfortable 65 to 75 degrees. In the winter, when outdoor temperatures dip into the teens and below zero, Tonak says he's been able to maintain the indoor temperature at a comfortable 65 to 70 degrees with the help of a wood-burning stove and a circulating fan that moves the warm air throughout the building 24 hours a day.



Workers set concrete roof sections into place. More than 350 tons of dirt, concrete, and insulation materials were used to build this energy-saving structure.

Soil covers three sides of the home. The fourth side features large windows, which serve as emergency exits and provide ample natural lighting.

So far this winter, the new structure has required 1½ gallons of fuel oil a day. The contractor estimates that 1 gallon of that goes to run the water heater. Seldom is the oil furnace used as a backup heat source. Monthly electricity bills have averaged around $30, mostly due to the fan, which operates continuously.

The home has a southern exposure and a specially angled roof that allows the sun to shine in during the winter but keeps it out during the summer. Large windows along the exterior side of the building provide ample natural lighting and also serve as emergency exits.

Jayne E. Marsh
Information Coordinator/4-H Youth
Michigan State University Extension

Three-fourths of the new earth-sheltered home is below ground, but living quarters are comfortable, spacious and well-lighted.

Properly installed, a wood stove can supply nearly all of a home's heating needs.

Quieter and Cozier

Besides being energy efficient, the building also requires little maintenance. There's no need for painting or roofing or gutter repairs. As Tonak cheerfully points out, "All I have to do is mow the roof!"

An earth-sheltered home may be maintenance-free and energy wise, but what's it like to live below ground? Tonak says that he and his family have no regrets about their new quarters.

"It's much quieter, cozier and safer than ordinary houses," Tonak says. Because the building is made of nonflammable materials, it's virtually fireproof and indestructible. There's plenty of natural light from the windows, and we have all the comforts of a conventional home, plus a fantastic view of the woods. It's not at all like living in a cave," he explains.

Living in the middle of the center's beautiful natural area, the Tonaks have a dramatic view of the birch-filled woods. Because most of the building is covered with soil, the home can be landscaped to blend with the natural environment and not disturb the wildlife living there.

The cost of the unusual home was $45 per square foot, about $5 per square foot higher than the average above-ground dwelling. But the designer estimates that with today's energy costs, the earth-sheltered residence will recoup its higher construction costs in 4 to 5 years and then begin paying for itself.

"Real Advantages"

The earth-sheltered home took only 5 months to complete, and during its construction, there were plenty of curious visitors.

"Most people were skeptical and intrigued at first, because of the building's innovation design," Tonak says. "But now that it's completed, they've seen that this kind of structure has some real advantages.

To accommodate curiosity seekers, the Tonaks held an open house in early March to unveil the new building. More than 1,000 adults and children have traveled as far as 200 miles to tour the innovative home. Publicity about the open house was mostly by word of mouth.

The designer says that the public's tremendous interest in this kind of alternative housing is due to spiraling energy costs.

"Due to their impressive energy-saving potential, more and more people will consider an earth-sheltered home a real possibility," he says. "I think they'll become a popular trend in the future."

There are 11 similar homes in northern Michigan right now and many others in Wisconsin and Minnesota. Plans are underway to build an entire subdivision of earth-sheltered homes in northern Michigan soon.

Besides being a cost-effective and energy-efficient home for the Kettunen Center manager and his family, the home is an excellent example of the Michigan 4-H-Youth Program's interest in energy conservation and innovative programs. "The new building is a tangible illustration of 4-H's commitment to help cope with the energy crisis," says Don Jost, executive director of the Michigan 4-H Foundation, which owns and operates the state - 4-H leadership training facility.

"Not only is the earth-sheltered home a long-lasting, durable capital investment, but it's a great instructional tool as well," he says. "We plan on producing a slide-tape and perhaps a scale model of the building to explain the structure and its benefits. The building is also an excellent way to teach young people about new solutions to the energy crisis," he adds.

Conservation—Making Energy Affordable and Reliable

In Boston, 88 cents of every dollar spent on energy by homeowners, public institutions, businesses, industries, and others, *leaves* the city's economy. More than $1.2 billion are taken out of the pockets of the city residents each year, and put into the pockets of people in another city, state or nation.

That is one of the findings of the Suffolk County Cooperative Extension Service's Project for Reliable and Affordable Energy (PRAE), and it is a statistic they hope to change.

PRAE is the brainchild of Jay Vogt, the Community Resource Development Specialist for the county. In 1979, he began planning an energy education project for the county to focus on energy education. Working with individuals in the county who shared his energy concerns, Vogt drafted grant proposals and received funding from the National Science Foundation and the federal Department of Energy.

Vogt hired two more staff people, Alice Kaufman, project manager and Beth Dowling, project assistant. Their goal was to establish a project a step beyond basic energy education and show people how to establish energy policies for their communities.

Developing communitywide energy policies is not easy. In fact, for many people, the overall problem has seemed too large to even begin tackling.

"That's the attitude we want to change though," says Alice Kaufman. "We want to let people know they *can* take control," she states. "We see our project as a catalyst providing people with information, ideas, literature and other resources related to community organizing around a specific issue."

Key Issues

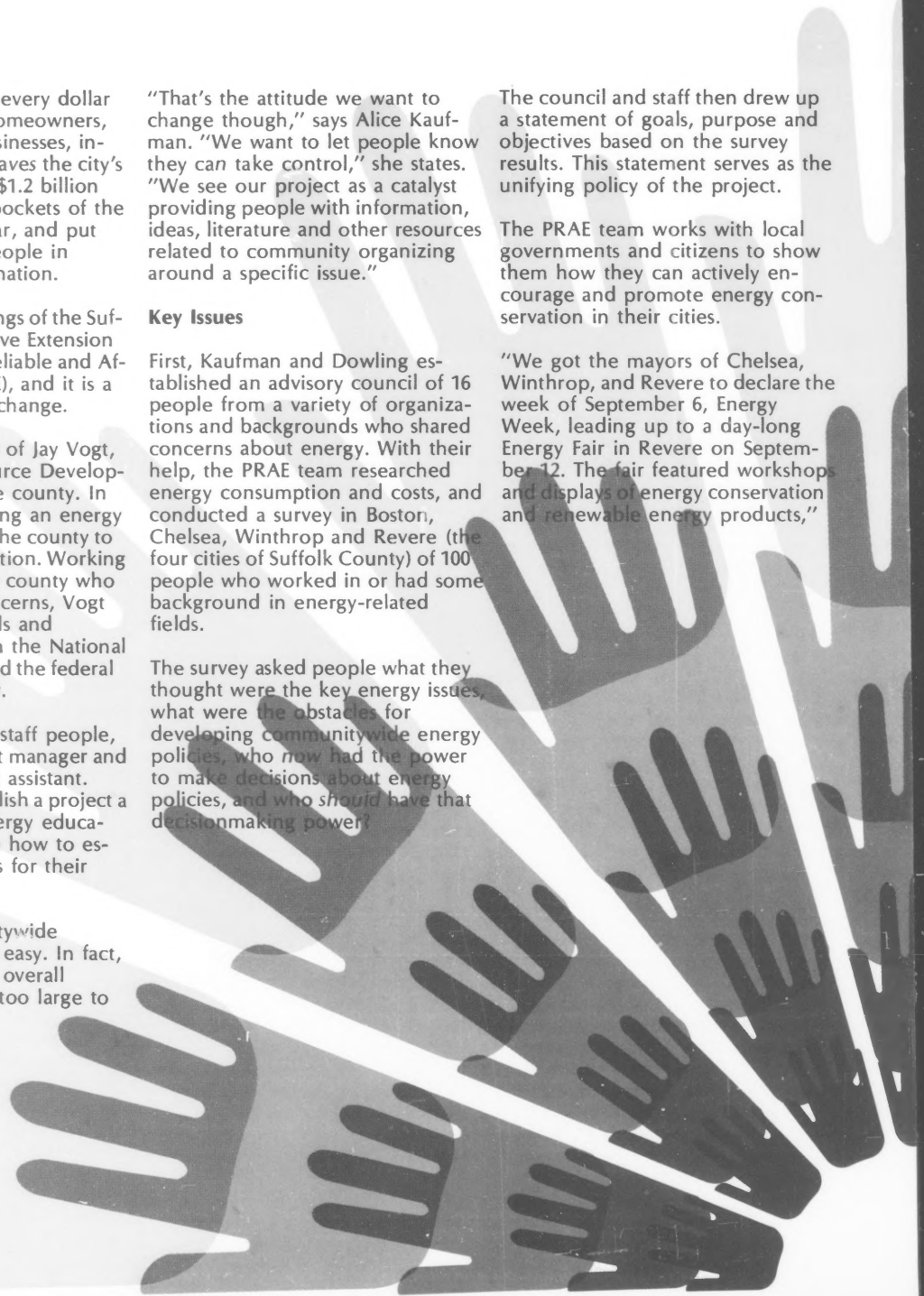
First, Kaufman and Dowling established an advisory council of 16 people from a variety of organizations and backgrounds who shared concerns about energy. With their help, the PRAE team researched energy consumption and costs, and conducted a survey in Boston, Chelsea, Winthrop and Revere (the four cities of Suffolk County) of 100 people who worked in or had some background in energy-related fields.

The survey asked people what they thought were the key energy issues, what were the obstacles for developing communitywide energy policies, who *now* had the power to make decisions about energy policies, and who *should* have that decisionmaking power?

The council and staff then drew up a statement of goals, purpose and objectives based on the survey results. This statement serves as the unifying policy of the project.

The PRAE team works with local governments and citizens to show them how they can actively encourage and promote energy conservation in their cities.

"We got the mayors of Chelsea, Winthrop, and Revere to declare the week of September 6, Energy Week, leading up to a day-long Energy Fair in Revere on September 12. The fair featured workshops and displays of energy conservation and renewable energy products,"



Susan Mitchell
Publications Editor
Extension Service
University of Massachusetts

says Kaufman. "We also gave presentations at Chamber of Commerce and Rotarians club meetings."

In addition, two day-long conferences focusing on the specific energy needs of business and local governments were held in late October and early November. The conferences were organized by volunteers from Suffolk County who worked together as "design teams." They ensured that the conferences featured topics that would be the most useful for the intended audiences.

For the business conference, workshop topics included: Solar Applications in Business Buildings; New Lamps, Ballasts, and Lighting Systems; An Introduction to Alternative Technologies for Business; The Ins and Outs of Heating and Cooling; and Energy Conservation and Alternative Energy Sources: Public/Private Partnerships That Work.

At the local government officials conference, workshop topics included: Financing Energy Conservation in Municipal and Industrial Buildings, Involving the Public in Energy Policy Planning, Removing Barriers To Energy Conservation in the Public Sector, Financing Community Energy Strategies, and Button-Up Northampton—A Model for Community Involvement in Energy Conservation.

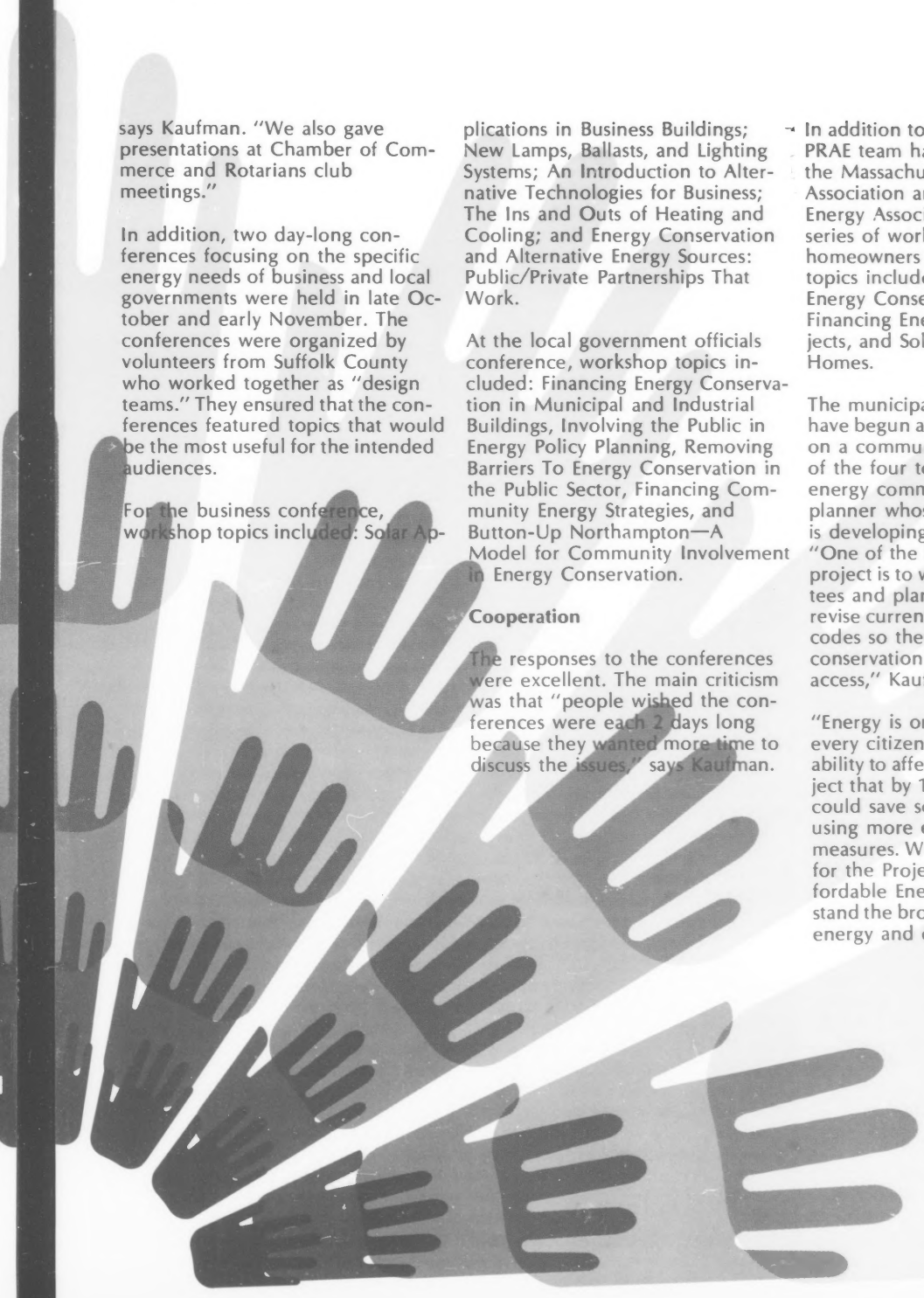
Cooperation

The responses to the conferences were excellent. The main criticism was that "people wished the conferences were each 2 days long because they wanted more time to discuss the issues," says Kaufman.

In addition to the conferences, the PRAE team has been working with the Massachusetts Audubon Association and the Urban Solar Energy Association to design a series of workshops for local homeowners in the four cities. The topics include No-Cost Low-Cost Energy Conservation Techniques, Financing Energy Conservation Projects, and Solar Applications in Homes.

The municipalities in the county have begun addressing energy issues on a communitywide basis. Three of the four towns have developed energy committees or have a staff planner whose major responsibility is developing energy policies. "One of the long-term goals for the project is to work with the committees and planners to investigate or revise current buildings and zoning codes so they encourage energy conservation and allow for solar access," Kaufman states.

"Energy is one of the issues that every citizen has the right and the ability to affect," she says. "We project that by 1990 Boston households could save some $96 million by using more energy conservation measures. We feel support growing for the Project for Reliable and Affordable Energy as people understand the broad economic impacts of energy and energy conservation."



Something New Under the Sun for Farmers

Stu Sutherland
Public Information Officer
Extension Service, USDA

You might say that Old Sol has seen it all. The sun was up there beaming its energy down to the earth long before humankind planted the first seeds for an agricultural crop, or domesticated the first farm animals.

If the sun was capable of taking any special interest in what's going on here these days, Old Sol might be winking inquisitively at the roughly 180 onfarm Extension solar heating demonstrations. The sun probably knows that such activity on these special farms in 14 states is simply following in the tradition of most Extension work—demonstrating on farms the results of research.

Some of the onfarm projects that will show how the sun's energy can be collected to heat livestock structures and to dry crops and grains are not operational yet. However, enough solar units are already providing usable heat so that farmers and others are beginning to take notice. Such interest comes from a public awareness component built into the projects before the first building plan was approved.

The Extension Service, USDA, and the U.S. Department of Energy, the federal cosponsors for the short-term program, wanted information about the practical use of solar heating by onfarm demonstrations to become widely known. Plans for solar heat collectors, both onfarm-constructed and commercial, look good on paper, but farmers want to know and see if they will work under everyday farming conditions and, more importantly if they will pay off for their particular type of operation.

After initial planning, the next step was to locate interested Cooperative Extension Services who were willing to go beyond the costs and time that the federal agencies could provide. The 14 states who answered the call are listed for the two main programs—four states are involved in both programs.

The first program to begin was the onfarm demonstations for solar heating of livestock structures housing swine, poultry, and dairy animals. With the program now in full swing, there are some 82 on-farm operational projects. Two more should be operational in time for the spring heating season.

The projects are located in Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, Ohio, Vermont, and Virginia. The demonstrations are on farms where the solar heat is being used to warm swine (64 farms), dairy (14), poultry (5), calves for veal (1), and one general farming enterprise.

Farmer Cooperation

Extension project engineers in the various states have found additional farmers willing to replace 10 to 17 formerly approved projects that were dropped due to various economic and other problems.

The program for livestock shelter heating—as does the program for drying crops and grains—depends upon a lot of cooperation by participating farmers. These farmers have agreed to a plan for a solar collector that is designed to suit their particular location and farm functions. They have also agreed to build the solar collector and pay for half of its cost.

Up to half of the cost of the demonstration collector was paid with special pass-through funding that was provided by the Department of Energy by cooperative agreements with the participating states.

The farmers also agreed to operate the solar devices for 2 years while they are monitored for problems and efficiency levels by the state Extension project engineers. And the farmers must also have agreed to some publicity activities. However, the solar collector becomes their property after the 2 test years, and the farmers will have no further responsibility to their contract.

The program process of design approval, construction and testing, completing the test, and a final report (on statewide projects by the project engineers) is basically the same for the program involving solar heat methods to dry crops and grains. Nine states were selected in November 1980 to participate.

For drying crops and grains the states are Florida, Illinois, Kansas, Maryland, Michigan, Missouri, South Carolina, Tennessee, and Virginia. As in the other program, each of these states will establish between 8 to 10 onfarm demonstrations.

By January 1982, designs had been approved for 68 of these crop/grain projects with all of the solar units scheduled to be operational by fall of 1982.

Because of the present unfavorable farm prices and the high cost of money, it is anticipated that some farmers with initally approved plans will drop out and new cooperators will be sought. With funds already made available to assist in the construction and testing phases of this program, the important onfarm demonstration collectors and their use with various structures and heat

This solar-heated unit in Illinois is used as a swine farrowing house and nursery building. Solar-heated air is also used for drying grain.

exchange devices will be in place to prove their worth to participating farmers and others.

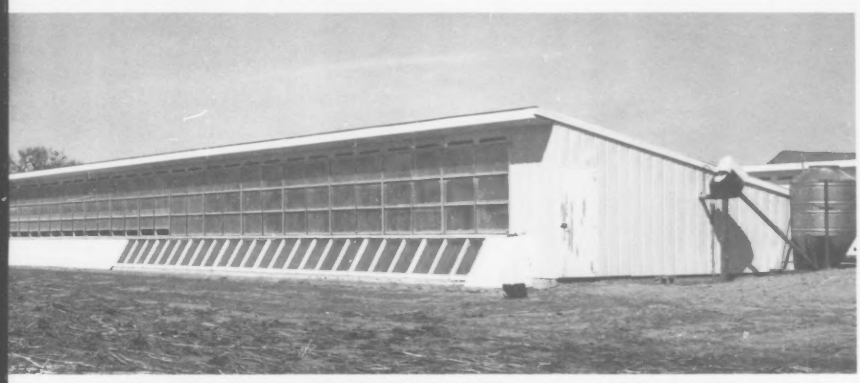
Media Exposure

The agricultural engineer with USDA's Extension Service who monitors plans, progress, and activities in both of the solar programs is Kenneth E. Felton, on assignment from the University of Maryland. Felton says that many farmers in the demonstration states, as well as vistors from other states, are picking up ideas from the onfarm demonstrations to use on their own farms—"because they like what they are seeing." Many of the visitors say they have read about the solar applications in full-length features run in several farm magazines, or they have seen program segments about them on television.

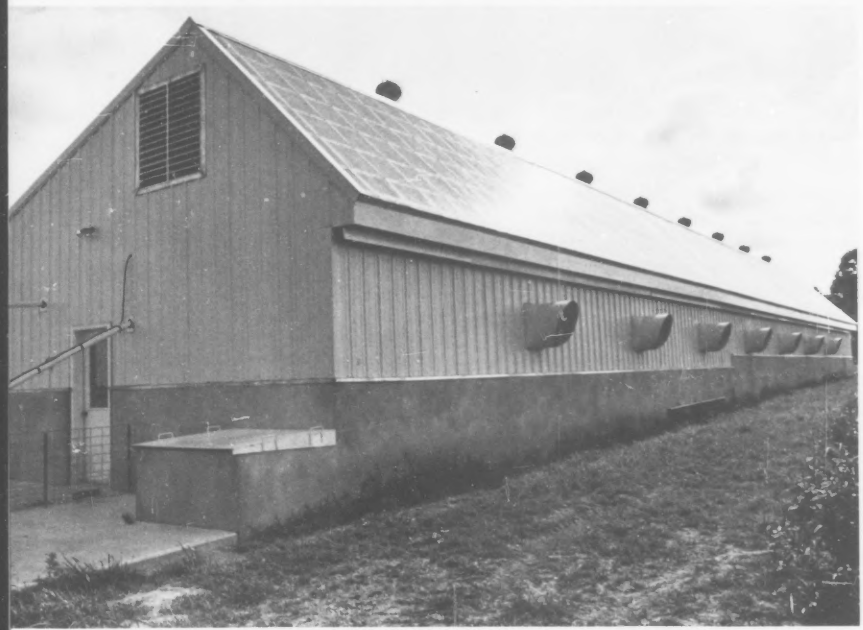
How do the farmers feel about the new installations? Felton had an opportunity to visit five of the participating states last fall where he toured several farms in each state. Felton reports that "in all cases where I asked the farmer about the performance of the (solar) system, he was pleased and would not hesitate to become a cooperator again."

Felton pointed out that both of the two major programs were established with five common objectives—though the first objective changes to fit the program. They are designed to:

- Demonstrate the technical and economic feasibility of using solar energy technology for heating of livestock structures, or for drying crops and grains.
- Test solar energy technology under operating farm conditions.



A solar swine nursery in Glenvil, Nebraska, holds as many as 550 head and has required no backup heating system since it was first used in October 1979.



A roof-mounted solar water heater preheats wash water for dairy cows on the Gale Snow farm at Wheatland, Missouri.

Mike Drewry, of Wakefield, Virginia, adjusts the fan in this unit designed for drying peanuts. Using available solar energy, preheated air enters the fan.

• Incorporate energy conservation techniques.

Minimize solar heating problems.

Identify incentives and opportunities for widespread farm application of solar energy technology.

Much of the monitoring of operating solar energy collectors, and the farm structures they heat, will eventually demonstrate if solar energy is feasible while in daily or seasonal use on the roughly 180 farms. Quarterly reports from the 14 state project engineers indicate that problems being encountered on farms with the units can be solved.

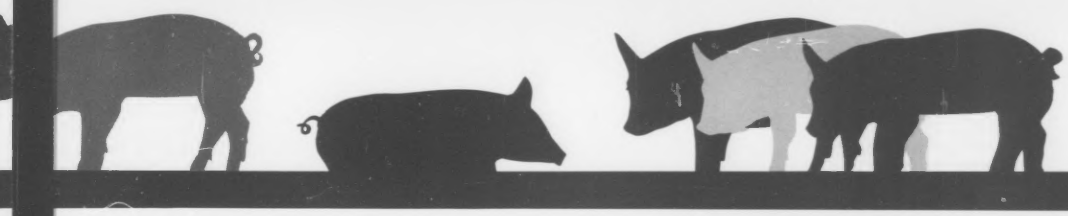
In one case engineers almost needed to redesign a mini-computer that controlled the various operations of one solar system. In another case they needed only to replace a part of the plastic covering for the collector that had been broken by a stone spun against it by a passing piece of farm equipment.

Variety of Materials

A very important part of efficiency level improvement for most of the systems involves the type and amount of insulating materials being used on the structure that is being heated, or the device used to store captured heat until it is needed.

A high percentage of the systems use solar-heated air to warm a certain area, so keeping unwanted (usually cooler) air out of the system means a big difference in efficiency levels. Many systems use solar-heated liquids running through pipes to furnish the heat where it is needed—such as heat to the cement floors of baby pigs' pens—and connecting pipes have to be made safe from freezing so the whole system doesn't break down during critical periods.

While a high percentage of the solar energy collectors are in fixed locations, such as on the roof or as



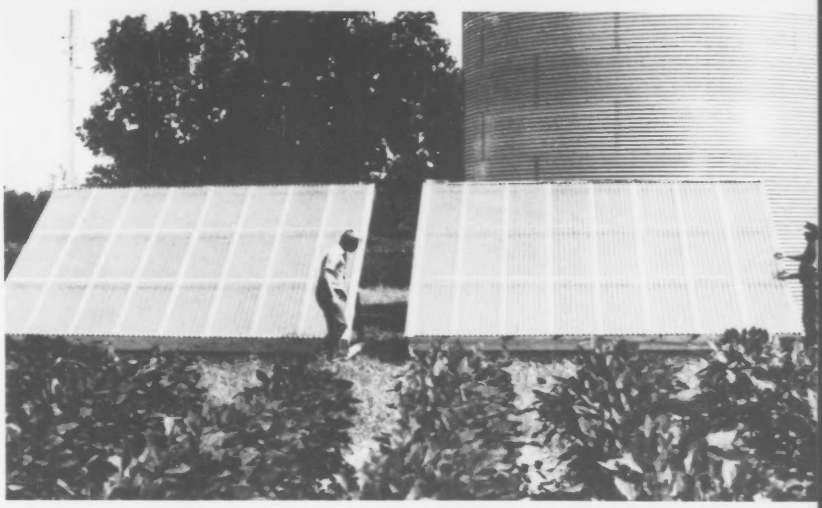
an entire wall of a structure, a few of them are portable. The portable collectors are generally built on "skids" so that farmers can pull them from one use to another with a tractor. One example of this is a Missouri farmer who wanted to use his solar collector to help heat his home when he is not using it to dry corn.

Of course, hot air and hot liquids are not the only way to "store" the collected solar energy. Crushed rock, or even washed gravel from a stream bed, is another good way to store the heat until it is needed during the cool of the night. Another storage material being tried in one of the demonstrations is salt.

Commonly being used as material are solid concrete building blocks. The face of each block that's pointed toward the sun is painted with flat black to absorb heat. The blocks are stacked in the form of a wall, without the use of connecting mortar so there are ¼-inch air spaces between them. Air is then drawn through the solar-heated blocks and into the area to be warmed.

Usually in such a wall configuration there is also a method to warm winter air by passing it through a plastic/fiberglass sandwich in front of the blocks at the same time as they are also being heated by the sun's rays. Thus, there is warm air from the sandwich air flow during the sunny part of the day and warm air at night from the blocks themselves.

In at least one such wall installation, the reverse becomes true when cool air of summer nights is drawn through the blocks to cool them. The cooled air is released into the animal area during hot days and the wall is shaded during daylight hours.



Mike Buschermohle, left, project engineer, and Robert Brabbam, a South Carolina crop producer, inspect a solar grain dryer.

Mixed Reports

It will be many months until all the final data are in and final reports are issued and digested on the two solar demonstration programs.

Media reports on them are mixed. While one farm-oriented magazine cautions that solar energy is probably not cost effective, reports from demonstration project farmers in another magazine include these comments about their solar system: "No changes (needed to the system) we're pretty well running the same"—"Still happy"—"Should have built it sooner"—and "It's working as good as ever."

Other public awareness activities that are underway as a part of the programs include state developed fact sheets and brochures, seminars using slides that show installations, models of the structures, and video tapes or films of the projects produced for television use. Tours of the facilities are also being planned into most project schedules.

In addition to several papers on the solar projects being presented at various meetings of the American Society of Agricultural Engineers, a paper was written and presented—and will appear in the proceedings—at the Third International Conference on Energy Use Management, Oct. 26-30, 1981, in Berlin, (West) Germany. An article has also appeared in a French swine producers magazine. From international contacts such as these, the programs are receiving favorable acceptance overseas.

To reach an Extension project engineer near you for more details, or to plan a visit to one or more of the demonstrations, contact Ken Felton for the project engineer's name, address, or phone number. Call Felton on (202) 447-5369—or write him at USDA Extension Service, Room 5533 South Building, Washington, DC 20250.

Wood Fuels— For Today and Tomorrow

DUE TO A LACK OF PHOT
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Wood is our oldest fuel. As recently as 1900, wood provided 90 percent of our Nation's energy requirements.

The switch from wood to natural gas and oil was triggered by the attraction of these new fuels. They were readily available, relatively cheap, and easy to handle. Today natural gas and oil are neither cheap nor abudant. With almost 80 percent of North Carolina's energy generated from petroleum and coal, many industries are looking for alternative fuels. Wood appears to be one of the state's best.

Wood energy can be used for more than just steam production. Space heating and electricity generation are additional uses. Gasification permits wood to meet a variety of industrial energy needs. Wood gasification is a developing technology with the potential for economic retrofit to existing oil and gas systems.

Use of wood from North Carolina's almost 20 million acres of commercial forests can provide a significant source of renewable energy and important economic benefits for the state.

Advantages and Disadvantages

Using wood as an industrial boiler fuel will provide a way to market otherwise unusable and wasted fiber. These new markets will not only create additional jobs and income for industry, but will also give private landowners the chance to upgrade forest land and at the same time receive income for fiber.

There are some disadvantages when using wood. The initial investment for equipment is high. The fuel itself is bulky. Handling and storage costs are higher and additional operator attention is needed relative to oil and gas. Handling wood is like handling coal.

Availability

The fuel wood resource in North Carolina can be divided into two categories: sawmill residues and forest residues.

Sawmill residues include mainly bark and sawdust. Recent surveys indicate fewer than 400,000 green tons not used each year. As more people realize its value as a fuel, this unused residue is disappearing.

Residues from the forest will be the major continuing source of fuel. They include low-quality standing timber, logging residue left in the woods after timber removals, and rotten and dead trees. From a forest management standpoint, North Carolina needs markets for at least an additional 14 million tons of this material per year. The energy in this amount of wood could replace 47 percent of the oil and gas used to produce energy by industry and commerce in North Carolina.

Wood in growing trees is wet. Wet wood chips cannot be used exclusively in most coal-fired boilers unless the boilers are modified. But a drier, more compact fuel such as wood pellets allows coal boilers to use wood without major equipment changes. Pellets can be produced by grinding, drying and compressing sawmill residues or forest residues.

Extension's Role

The opportunity to upgrade the forest resource through use of wood as an industrial fuel encouraged the

Larry G. Jahn
Extension Forest Resources Specialist
North Carolina Agricultural Extension Service

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Extension Forest Resources Department at North Carolina State University (NC State) and the North Carolina Forestry Association to cosponsor in 1977 four 1-day seminars dealing with wood as an industrial boiler fuel. The seminars were designed for managers and engineers concerned with energy production in industrial, commercial, and institutional facilities using oil, coal, or natural gas for the production of steam or direct heat, and those involved in the harvesting and procurement of wood resources. Extension forestry personnel and nongovernment speakers provided up-to-date information on the availability of wood resources across the state, methods for burning wood, and case studies on the economic feasibility of using wood as a fuel.

Later that year, the Governor formed the Wood Energy Coordinating Group to promote development of wood as a source of industrial and commercial energy. The group included representatives from different departments of state government and the university system, including Extension Forest Resources.

To meet the growing interest in the use of wood fuel, Extension hired a part-time engineer to handle technical questions dealing with wood combustion, equipment, pollution control and economic feasibility. With the addition of this expertise to the group, Extension Forest Resources could provide educational seminars covering all phases of wood energy. During the next 2 years, Extension sponsored numerous workshops, field trips and media tours. To complement these activities, publications, fact sheets, flyers and slide/tapes were developed for distribution throughout the state.

As time went on, it became clear that the most effective means of producing change was site-specific technical assistance promoting the use of wood fuel. This meant full-time combustion expertise and one-on-one case studies. A proposal meeting these needs was next submitted to the Southern Solar Energy Center. Southern Solar accepted the proposal and contracted with NC State to form a Wood Assistance Team (WAT) and provide this site-specific technical assistance. WAT was composed of representatives from three North Carolina organizations—the Industrial Extension Service, the Agricultural Extension Service (Extension Forest Resources), and The NC Department of Natural Resources and Community Development. WAT developed a methodology which identified nonforest product facilities that had a high potential of coverting to wood fuel. From a list of 7,000 firms, WAT selected four firms for in-depth case studies and made presentations to these companies on the merits of using wood as a fuel.

Recent Developments

The four firms in the WAT case studies are now deciding which type of fuel they will use. If the four companies switch to wood, it is estimated that fuel saved as an oil equivalent would total 11 million gallons or $5 million.

The combined efforts of Extension Forestry, the state of North Carolina and the Wood Energy Coordinating Group are now beginning to show dividends. Twenty-five nonwood industries currently burn wood or will do so in the near future. These industries include brick plants, textile mills, state institutions and other miscellaneous firms. Estimated annual consumption for these installations is expected to be 550,000 wet tons. This is equivalent to over 29,300,000 gallons of oil.

As an additional incentive to convert to wood, both the state and federal governments offer tax credits to industries which convert. The federal government allows a 10-percent energy tax credit in addition to the 10-percent investment tax credit for any system replacing oil or gas. The North Carolina state legislature has authorized a 15-percent tax credit for the installation of any new wood-fueled energy system.

Conclusion

With the abundance of wood in North Carolina and increasing prices for traditional fuel sources, wood energy can be expected to be increasingly important in the state's energy systems. Ten percent of North Carolina's annual total energy needs could be economically supplied by wood without depleting our reservoir of standing trees. The NC Agricultural Extension Service will continue to help in reaching this goal by assisting both wood and nonwood industries throughout the state.

Extension Offices for All Seasons

James K. Wolfe
Writer-Editor
Extension Service, USDA

In this period of soaring energy costs, county Extension agents, working with local planners, are proving that energy conservation starts in their own backyard.

At the Extension offices in Hamilton, Ohio, and Klamath Falls, Oregon, careful selection of energy components and ingenious use of local geothermal resources have resulted in offices that meet the seasonal demands for heat and cooling with low-cost energy-efficient methods.

The newly built Butler County Agricultural Building, on the outskirts of Hamilton, is Ohio's first public building designed specifically for energy conservation. It houses the Butler County Cooperative Extension Service as well as county conservation district offices and two USDA agency offices. Built into the slope of a hill with 75 percent of its area underground, the building takes advantage of the earth's natural insulation capabilities and features a heat-absorbing Trombe-wall that will provide an estimated 40 percent of the annual heating requirements.

The agricultural building, funded by county commissioners, was planned so that it would provide a comfortable working environment by using low-cost energy sources. It would save enough fuel over a 10-year period to justify the added expense of the various energy components.

Planners designed computer models of the Trombe-wall and ran year-long simulations to ensure that its thermal performance would be satisfactory.

The Klamath County office of the Oregon State University Extension Service.

The Trombe-wall is made of a 12-inch slab of concrete enclosed behind 712 square feet of insulating glass. When enough solar energy has been absorbed by the wall and the building requires heat, hot air is blown from the wall into the office areas. In addition, the wall's absorbed heat is naturally emitted into the office space both day and night.

Backup System

Heat loss that would occur at night or on cloudy days is prevented by an electronic eye that triggers a mechanism which automatically lowers a shielding energy quilt between wall and glass. A gas-fired boiler serves as a backup system for the solar heating.

Ventilation for the building is drawn through corrugated steel pipe buried in the ground. These "earth tubes" provide cool air to the interior living space. The underground setting of the building provides additional summer cooling. During the heating season, air drawn through the tubes will be warmed by the earth, which also reduces the energy requirements of the building.

Exterior walls are insulated with a combination of 4 inches of polystyrene and 6 inches of fiberglass. The roof is insulated with about 30 inches of blown fiberglass. Extensive caulking and weatherstripping are used throughout the building.

"Because the building is so well insulated," says Peggy Simmons, Butler County Extension home economics agent and county chairperson, "we do not lose that much heat or coolness overnight or even during the week."

Other energy-saving features include a vestibule installed at the main entrance to reduce the passage of outside air and "berm finwalls" that prevent direct winds from getting through the side doors.

Windows, each with its own window "quilt," are of double-pane insulating glass equipped with movable blinds for additional insulation at night.

The Butler County Agricultural Building houses the County Extension office in Hamilton, Ohio.

The building's heating-cooling system operates 11 hours each day. This system shuts off an hour after the office closes and restarts an hour before the office opens the next morning. A 7-day clock automatically shuts off the system on weekends.

Modern Conveniences

Inside the building partitions allow for flexible planning of work areas.

The 10,808-square-foot building has a combination meeting room and kitchen that seats 80 to 100 people. The kitchen has many modern conveniences—microwave oven, dishwasher, garbage disposal, and track lighting in the demonstration area.

Simons says that the utilitarian apperance of the kitchen ceiling captures the essence of the entire building. The ceiling is unfinished and its pipes are painted an austere white that contrasts with the red fixtures of the fluorescent lights. "The poured concrete building has a practical, modern look that was achieved without being extravagant," Simmons says.

According to architect Dave Maxfield, the cost of the building—including site work, paving, and parking lot lighting—totaled $48.60 per square foot.

Not a Cave

At first, Simmons was skeptical about moving into a building that was 75 percent underground. "The plans gave me the idea we would feel claustrophobic. . buried," she says. "I could just see us burrowing our way into the office every morning. But when it was built, the windows changed my mind. They provide a nice view of the surrounding landscape—and you don't get the feeling you're peering out at earth level."

Useful Information

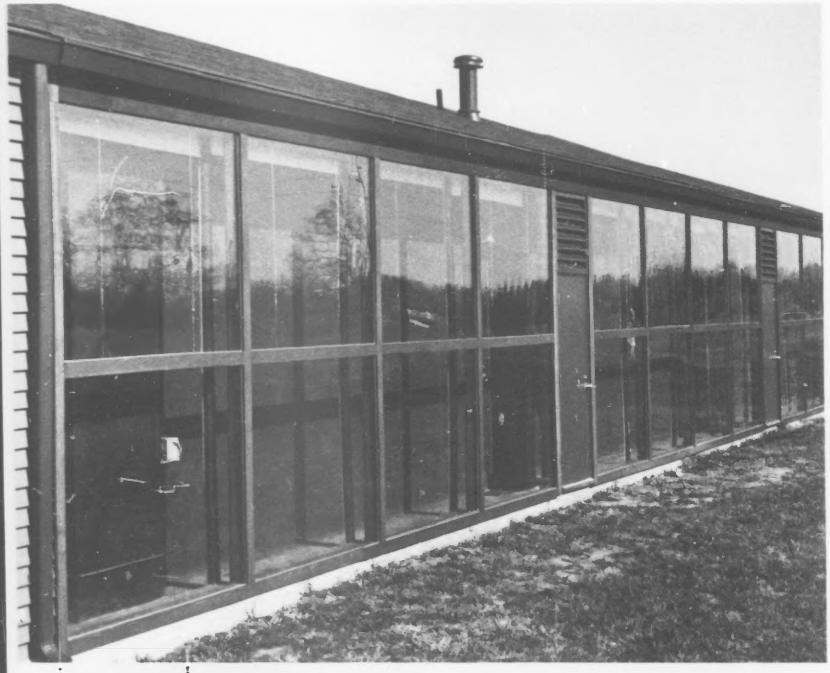
"I see any number of ways that both individuals and business people could benefit from examining our building," Simmons points out. "The windows are a perfect example of a well-designed energy component that could be used in any new home or office construction. The blinds are situated between double glass panes that are energy efficient and seldom have to be cleaned. Also, the energy quilts on the windows are so attractive they could easily replace draperies."

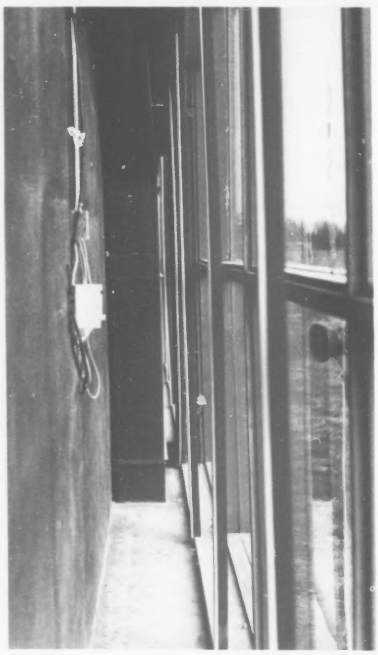
"We are building a data base on energy use of the building," Simmons says, "and hope to compile useful information we can disseminate within a year."

Underground Water Use

The Extension building in Klamath Falls, Oregon, uses geothermal resources in the surrounding earth for both heating and cooling. Local residents have, for over 80 years, known about and used the geothermal water beneath their feet, principally as hot water for space heating. Klamath Falls, located in south-central Oregon near the California border, has 400 hot water wells that heat approximately 500 structures.

Two views of the Ohio Extension office show the interior construction and an exterior closeup of the Trombe wall.





The Extension building is a modern 2-story structure with 5,000 square feet of floor space on the main floor and 4,000 square feet on the daylight basement floor. The main floor contains 9 offices, a reference library, and a sizable conference room. Extension agents designed the building in 1976.

Unlike the Butler County Agricultural Building which nestles into a hillside, the Klamath Falls building is perched on a windy hill 200 feet above the city. All offices have large double-glazed window areas to capture the panoramic view of the city to the south and east.

The design of the Extension building, coupled with its use of a geothermal resource, has permitted an annual savings of $800 in heating bills. County agents estimate the energy savings in cooling to be as high, but these costs have not yet been fully determined.

Highly Efficient

The building is well insulated. The R-30 insulation in the ceiling is equivalent to 9 inches of mineral wool; the R-11 insulation in the walls is equivalent to 3 inches.

The geothermal well being used is 1,150 feet deep and has a 130° F average water temperature. It flows at an estimated 300 gallons per minute. The Extension building uses about 65 gallons per minute of hot water at peak heating periods.

Eight heat pump units are used to circulate heated air through ducts to various portions of the building. In the heating cycle, only the coils of the heat pump units are used; in the cooling cycle, the heat pump is used as an air conditioner.

During the heating cycle, after hot water from the 130° F well runs through heating coils, it discharges into a nearby 88° F well. The return water from the heating coils is also used to melt ice and snow on the adjacent sidewalks.

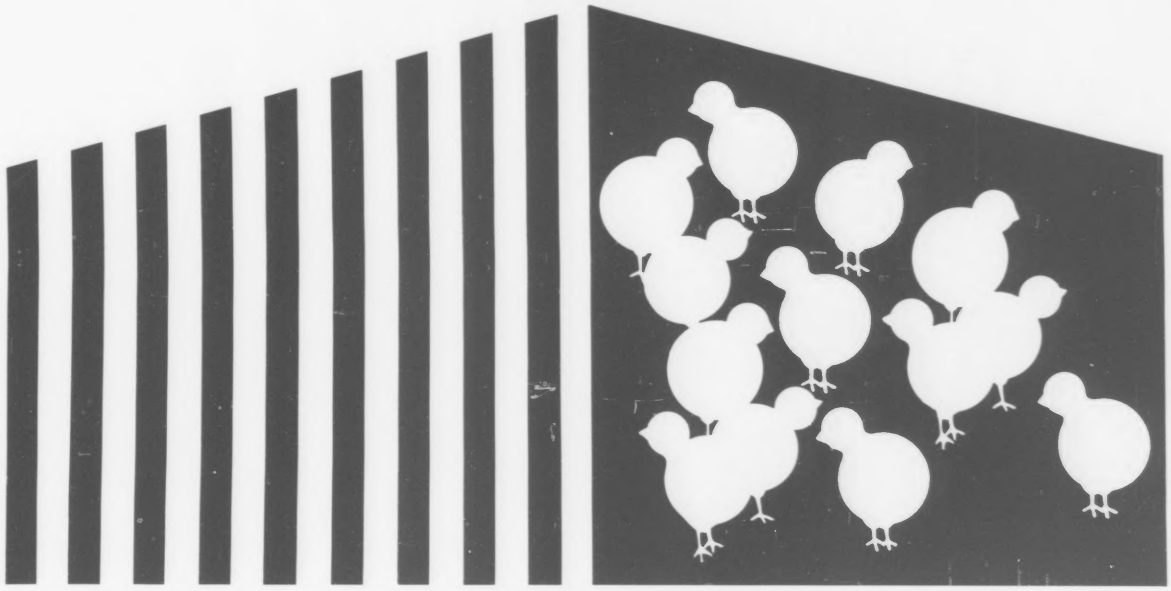
During the summer, well water from the 88° F well is used with heat pumps on the cooling phase and the cooling water is discharged into the 130° F well. The discharge water from the heat pump is also used to irrigate the lawns at the nearby county buildings.

Klamath county agents believe that as energy costs rise, the potential savings from these energy measures will also increase proportionately.

(Developed from information supplied by Bob Furbee, Assistant Extension Editor, Ohio State University; Walter E. Matson, Extension Agricultural Engineer, Oregon State University; and Billie LeSueur, County Home Economics Extension Agent, Klamath Falls, Oregon.)

Half-House Brooding For Chicks

James Booth
Writer
Mississippi Cooperative Extension Service



Saving energy for Mississippi chicken producers is as simple as cutting a house in half.

By using only half the brooding house, it makes sense that only half the expense is involved. With more than 1,700 chick producers in the state operating at least three houses, each filled with 60,000 baby chicks, savings from fuel bills can add up to big dollars.

Poultry producers call the alternative system partial or half-house brooding and it works simply by partitioning chicken houses in halves. Robert L. Haynes, poultry science leader for the Mississippi Cooperative Extension Service, says producers who have changed to the half-house brooding system are cutting their heating expenses in half.

Early Stages

"We use only half the house, because most of the heat for chicks is provided in the early stage of growth. We try to provide most of that heat for about the first 2 or 3 weeks," Haynes says. "If producers can confine the birds in about half the space, they can cut heating costs."

Haynes says it costs Mississippi producers about $300 in fuel costs per batch of 20,000 birds when they heat entire houses. That means some heat is provided from the time the chicks are 1 day old up to 8 weeks.

"With the half-house brooding method, a producer can provide the needed heat for $150 per batch of chicks. It is as simple as that," says Haynes.

"Typical Mississippi broiler farmers will raise five batches of chicks per year, and each farmer may have as many as three houses that will hold 60,000 chicks," Haynes says. "Some farmers even have as many as six or seven houses." For five batches the saving could amount to about $900.

Statewide Savings

"This could mean a very significant savings statewide if everyone used this partial house brooding system compared to conventional house brooding," he says.

Broiler houses are already insulated against the weather with a plastic sheet on the sides of the building. Using some of the same plastic, poultry producers cut a piece to fit across the inside of the house. It is set in place and a few boards are run across the floor to keep the young chicks from running under the plastic to the other side. All that is needed then is the heat.

Producers in Mississippi like the system. Carthage producer Raymond Wilbanks said he thinks this approach to broiler production will spread all over the country.

"It's practical even for small houses," Wilbanks says. "There is little labor or expense. All a grower has to do is adjust his feeder lids and watering system and put up the dividers."

Is Solar Heating Right for You?

Roger A. Peterson
Extension Specialist, Residential Energy
University of Minnesota

Cold winters and rapidly rising fuel costs in Minnesota have spurred tremendous public interest in alternative methods of heating in that state. Enthusiasm for solar heating is particularly high, but solar may not provide economy for all families.

In some instances, investing substantial sums in solar may not be economical when compared to other home improvements that could be made for the same cost. Even where the home site is suitable and the house is ready for solar, homeowners must be careful to obtain the most cost-effective solar equipment. Typical investments in solar equipment run from $1,000 to $10,000, so advance study and planning is important.

The University of Minnesota Agricultural Extension Service is building a research base in residential solar heating including both home and domestic hot water heating. These research findings are made public each year at workshops. Homeowners who made use of earlier research provide useful information back to the university on the practicality of various recommendations. Builders, real estate agents, building inspectors, code officials, bank officers, solar installers, and other professionals involved with solar frequently attend these Extension meetings.

Best Balance

Solar research is part of a broad body of research on economical heating. "Weatherize before you solarize" is a reminder given often to audiences. The researchers seek to find the balance between insulating the home versus capturing solar heat. The best amount of insulation is determined when calculations show the marginal return on investment from greater amounts of insulation is less than what solar would give. Extension teaching is careful not to generalize on what is best for everyone since contractors vary a great deal in bids on home improvement work. In new construction, the cost of an energy-conserving building technique is also difficult to generalize, since contractors vary in attitude toward new ideas.

The price of alternate fuels, including wood, is a key item in deciding if solar is right. In many rural parts of Minnesota, wood is available for the cost of time, a chainsaw, and a truck. But a small- to intermediate-sized solar system may be appropriate to conserve the supply of wood. Various off-peak, dual-fuel, and load management price rates are available for users of electric heating. The overall economy of solar must be analyzed, then, in terms of its actual effect on the monthly bills. Natural gas is available and still priced low to town dwellers, but rapid increases are expected soon.

The greatest uncertainty in using solar is that energy output of solar equipment and passive solar is not well documented for Minnesota. Various estimating methods and only a few cases of collected data are being used to predict output. The greatest need for expanding research is to document more solar houses in Minnesota.

Finally, the cost of solar installation in the marketplace may be the key to determining if solar is right. At present, contractors have difficulty obtaining parts and materials, and workers are learning the proper techniques of installation. Do-it-yourself solar appears very promising for homeowners who plan ahead, shop the solar equipment catalogues, and learn or use skills in carpentry, masonry, plumbing, and electrical wiring.

Increased Efficiency

Two major research projects are underway, one aimed at retrofit and the other aimed at installation in new homes. The retrofit project began in 1979, with solar panels added onto the roof of a self-standing garage in an urban neighborhood in Minneapolis. The hot air from the panels is fan-forced through an underground air duct to the house. In the 40-foot distance to the house, heat can be stored in an underground chamber filled with golf-ball-sized rocks. Meter readings on the electrically heated home show that solar is providing about 35 percent of the heating. When the home is further weatherized in a later stage of research, it is expected that solar will provide 65 percent of the heating needed.

The new home project began in August 1981. High levels of insulation are built into all parts of the house, including 2 inches of styrofoam under the basement floor, 2 to 6 inches of styrofoam on the basement walls, 8-inch wood frame walls, and 24 inches of cellulose over the entire ceiling. Windows are triple pane on north, east and west, and are double pane on the south. All windows have insulating covers for night use. Since the house has a "walkout" basement and faces south, both levels will receive "solar gain" on sunny winter days. A moderate amount of south window, 190 square feet, will test the concept of balancing passive solar with "super-insulation." The 2,500-square-foot home is expected to heat for less than $100 of electricity per year.

As greater numbers of homeowners in Minnesota become interested in substantial energy improvements to their homes, the research of Extension staff and the trial methods by "pioneering" homeowners will help the state economy as well as many individual families.

Heating Water With Wood and Sun

Joyce Patterson
Extension Communication Specialist
Oregon State University

David McCowen, an Extension agent in Oregon, has not paid a heating bill for 3 years. Dave Burtner has paid almost nothing to heat water in his home for 2 years. No one seems to mind. Nice place to live, Oregon.

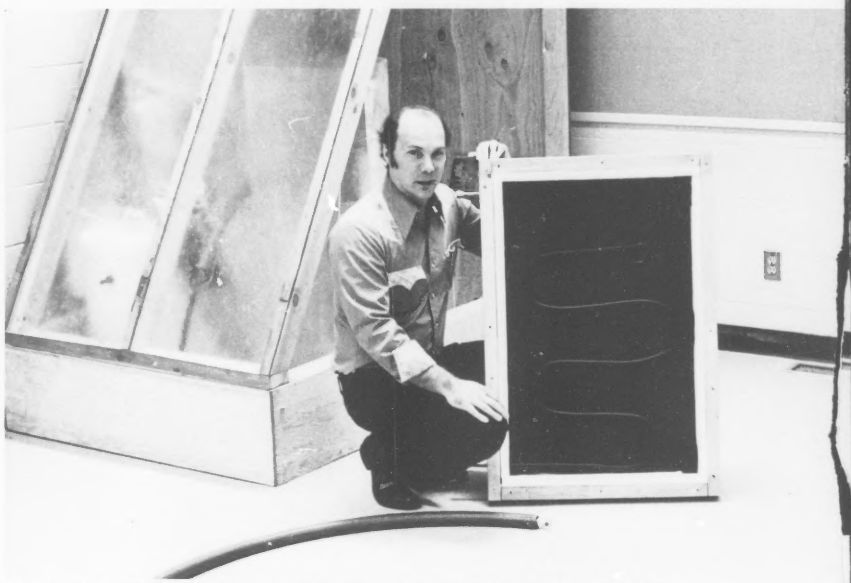
The way McCowen and Burtner avoid those annoying letters from the power company is by using solar energy in the summer and woodstoves in the winter.

They are among a half-dozen energy Extension agents who, for the past 2 years, have been teaching Oregonians how to conserve energy and save money by heating water with sun and wood, two power resources in ample supply in the Pacific Northwest.

Oregonians are listening to their message.

One of their workshops drew a crowd of 325 participants. Not bad for a night when the second game of the World Series was being played and deer-hunting season had just opened. Most participants have interests centering on the outdoors. As Burtner puts it, "Interest in solar energy in Oregon is simply exploding."

One person who got the message is Darrell Cason, manager of a beauty school in a Portland suburb. Cason attended a solar hot water workshop put on by Burtner in Clackamas County and Burtner's counterpart in Washington County, W. S. "Gus" Baker. The agents wanted to give do-it-yourselfers confidence as well as step-by-step instructions to follow in building and installing low-cost solar water heaters. Burtner says that panels built to their specifications cost about $5 per square foot compared to $15 to $25 per square foot for commercial panels. Each panel is 18 square feet.



Rich Topilec built this small-scale solar collector panel to display at energy fairs.

Solar Energy Pays

Building solar panels wasn't an everyday task for Cason, but he followed their instructions and was delighted when the thermometer on his water storage tank registered 170° F at the end of a sunny fall day.

He promptly built four more solar panels to heat water for his hot tub. Next, he built a solar system to heat water for the beauty school. Cason found that solar energy pays. He qualified for a 25 percent state solar tax credit and a 40 percent federal tax credit. He also got a $300 rebate from Portland General Electric.

Cason is one of more than 2,400 people around the state who have participated in similar workshops supported by the Energy Extension Service (EES) through the Oregon State University Extension Service.

The question was asked if Cason's was an isolated success story or one typical of workshop participants. To find out, the OSU Survey Research Center and a private polling firm were asked to evaluate solar water heating workshops in the Portland area. Telephone interviews with a 10-percent sample randomly selected from the first 1,000 participants revealed the following: About 15 percent of those interviewed had installed solar water heating systems; 75 percent said they expected to do so within a year.

Extension Energy Program Leader Owen D. Osborne was pleased with the findings. He says, "If you assume that 15 percent of all workshop participants have installed solar systems; that 85 percent of the systems they supplement are electric; that each electric water heater uses 4,800 kWh/year; and that the solar system replaces 40 percent of this electricity; then participants in our solar water heating workshops are already contributing more than 500,000 kWh/year in electrical energy savings."

Darrell Cason checks a fitting on the solar panels he built and installed on his home. He got his know-how at a solar water heating workshop conducted by Oregon State University energy Extension agents.

Using a working scale model of a completed solar water heating system, Dave Burtner, left, explains how the system operates.

Energy Fairs

Workshop participants often say that building and installing a solar hot water system is easier than they had expected. Before conducting their first such workshop, Burtner and Baker designed and built a working scale model of a completed system. It cost about $700 to build and attracts much interest every time they set it up. Lane County energy Extension agent Dale Armitage borrowed the demonstration model for a workshop in his part of the state.

In Jackson County, energy Extension agent Rich Topielec worked with volunteers who had taken his workshops to build a small-scale solar collector panel to exhibit at energy fairs.

The solar water heating workshops aren't just for people who plan to build their own systems. The agents also provide information on steps to take and questions to ask before buying a solar system. McCowen, for example, suggests about a dozen questions to ask when selecting a solar dealer. "Find out first what experience they've had with solar hot water systems," he advises. "Then talk to some of their customers."

Burtner and Baker coauthored an Extension circular explaining effective use of solar water heating systems in Oregon. In it, they advise making sure the installer puts the system in operation and demonstrates with a tank thermometer that solar-heated water is being delivered to the solar storage tank.

Data have been hard to come by on how much of an average household's hot water needs can be provided by a solar water heater. Dealers generally say from 60 to 75 percent. Extension agents are more conservative. They tell people "about half." A recent 6-month statewide study by Portland General Electric indicates annual performance may be even less than that.

Safety

People who heat or cook with woodstoves can use wood to heat some of their water. They just need to attach some plumbing pipes and fittings, a safety relief valve, and maybe a pump.

McCowen is the agent who has been most active in teaching people about this method of heating water. He has held three such workshops, and the public is asking for more.

Woodstove water heating installations are more difficult in some parts of the state than in Deschutes County, where McCowen is based, because building code interpretations vary.

A woodstove's high temperatures make safety a problem. But interest remains high. About one in 10 Oregon households use some form of wood as their primary heat source. Nearly a third use wood as a secondary source.

Burtner says solar workshop participants always ask about heating water with wood. One participant mentioned that he had installed a wood burning stove with plumbing to heat his home and hot water. He said that initial cost was not expensive. A water reservoir adds about $100 to the price of a stove. Since he buys the wood to heat his home, he figured he might as well use it to heat his water too.

That's the same reasoning McCowen and Burtner used when they decided to go the solar-woodstove route in their own homes. And it's becoming the way of thinking for more and more Oregonians.

Catalyst for Change

Philip Leslie
Associate Editor
The Exclaimer
University of Missouri Extension

People in the "Show Me" state are learning innovative ways to save energy at home through a program sponsored by the University of Missouri (UM) Extension and the state Department of Natural Resources Division of Energy.

Last spring, in the three-county Boonslick area, field specialists from three program categories presented an eight-session energy short course to homemakers, youth, construction people and commuters. Topics in the "Family Energy Project" included community energy planning, active and passive solar applications as well as basic energy conservation techniques. Some sessions attracted as many as 45 people.

Wanda Eubank, coordinator of the project based at UM-Columbia, says the sessions are a catalyst for change that allows UN Extension area specialists to develop energy programs for their clientele.

The four specialists involved in the project—Don Pfost, agricultural engineering; Dorothy Borchelt, food and nutrition; Martha Bowen, home economics; and Mark Peterson, community development—wrote a proposal for the project and received a portion of the grant money provided through the Family Energy Project.

Many of the people attending the sessions were interested in building their own homes or remodeling their present homes by adding such things as a greenhouse.

"We found many of the participants came to the classes to find answers to specific questions or to get more technical information about practices they were already aware of but didn't know much about," says Peterson.

Though the short course ended after 8 weeks, organized energy conservation efforts in the Boonslick area have just begun. Soon after the program concluded, 20 area residents organized a Boonslick chapter of the Missouri Solar Energy Associates, a nonprofit, statewide organization of people interested in solar energy applications.

Display Units

Four UM Extension specialists from around the state are developing a set of six portable display units on the subject of window treatments. The displays will be available for use throughout Missouri.

One display unit was used at several meetings in the five-county Kansas City metropolitan area, including the Kansas City Energy Expo last March and the Mid-America Cooling Conference in May.

The four housing and interior design specialists developing the displays and instructional materials on window treatments are Marsha Alexander, K. C. Metro; Marian Still, East-West Gateway; Cathy Oesterling, Green Hills; and Paula Hauber, Northwest Missouri.

Each had separate ideas for producing educational materials concerning window treatments. Through the Family Energy Project, they explored the possibility of pooling their efforts.

"We felt that window treatments have been overlooked in the effort to conserve energy," says Hauber. So the four submitted a proposal to the project leaders and received a grant for the materials required to produce displays and supporting information.

Slide programs and packets of "how-to" information are used with the displays. They also feature a computer terminal with access to programs which help answer questions on installation costs as compared with long-term energy and money savings.

"We're trying to present ideas on interior window treatments, such as insulated shutters, roller shades and insulated panels for people to consider," Hauber says. "It's up to them to decide how they use these ideas."

Organizing an energy tour for 200 people was the goal of three Extension specialists: Bev Wiles, housing and interior design; Robert VanHoozer, agricultural engineering; and Charles St. Clair, community development. The tour was designed to emphasize retrofitting existing structures with energy-conserving applications, though examples of energy-saving home construction were included on the tour also. Retrofitting applications included solar water heating, wood furnaces, and an underground heat

loop used with a heat pump. Construction designs seen on the tour included earth contact,in which one or more sides of the structure is underground; geodesic dome, a lightweight above-ground structure; and terra dome; in which the entire structure is underground. Agricultural applications were examined, such as a modified solar grain dryer.

Energy Encounters

The day's activities began with a slide program to show participants what to expect on the tour. They spent the rest of the day touring the selected sites to see what has been done in the area, by people like themselves, to conserve energy.

"Hopefully some of these people were encouraged to develop some kind of energy conserving practices in their own homes once they saw what their neighbors were doing," Wiles says.

Taking a different approach with the energy conservation theme, Mary Dwyer, Bootheel area housing and interior design specialist, presented a program to 80 Girl Scouts in March. Called "Energy Encounters of the Fun Kind," the program provided a look at basic energy conservation principles.

"Energy Encounters," conducted at a community center, gave participants the chance to observe such things as cooking with solar energy, how a photovoltaic cell produces electricity from the chemical reaction stimulated by light, and a solar collector. The program also involved a review of steps that could be taken at home to save energy.

A big part of the project involved the girls themselves. "To help ensure that the girls understood the concepts we wanted to get across," says Dwyer, "we asked the juniors (ages 10 to 12), who went through the program in the morning, to help teach the Brownies (ages 8 and 9), who went through the afternoon sessions.

"Helping to teach the ideas they had learned previously helped the girls to better understand what we were trying to teach," she says.

Viginia Vinyard, East-West Gateway area community development specialist, is working on a program to help inform St. Louis area citizens about a transportation alternative to motorized vehicles—the bicycle. "We're developing educational materials directed to the general public to show how autos and bicycles can be compatible," says Vinyard.

She was involved in a recent community project in St. Louis in which 400 participants toured 12 neighborhoods to view the progress on community projects in each of the neighborhoods.

A survey is another part of the campaign to promote bicycle transportation. "We plan to distribute the survey to 4,500 individuals—employers, local government officials, motorists and bicyclists to determine their attitudes concerning the bicycle as a means of transportation," Vinyard says.

"Good Business"

In the Mark Twain area, home and commercial construction firms as well as building material suppliers and bankers were the target audience of a seminar last December entitled "Energy Efficiency is Good Business."

Organized by three area specialists—Bob Miller, community development; Juanita Brown, family economics and management; and Jean Gatzmeyer, agricultural engineering—the program covered such topics as insulation and heat loss, passive and active solar energy applications, and conducting energy audits on structures in the planning stage.

"It was amazing the position response we got from local construction firms," says Gatzmeyer. "They were very enthusiastic."

"Our efforts were well received," says Brown, "and I feel that because of the success of this seminar these people have more confidence in Extension as a credible source of energy conservation information." Similar programs are being planned for next year, she says.

Last September, 50 high school students and 20 adult leaders from the Green Hills area attended a 4-day conference designed to help youth learn to manage their energy environment.

Jerald Morrison, 4-H youth specialist in the Green Hills area who helped organize the conference, says the project involved several organizations including three area rural electric cooperatives, the Missouri State Highway Patrol and some local VISTA Volunteers. During the event young people learned how to conduct a home energy audit and how to reduce energy losses in the home. Participants also examined community efforts at energy conservation.

"They saw how a community can deal with energy use and the decisions that can be made on a community basis to save money on energy," Morrison says.

Doctor Diagnoses "Home" Remedies

James Nugent
Instructional Resources Generalist
Cooperative Extension Service
University of Illinois at Urbana-Champaign

Joan Todd
Extension Adviser
Winnebago County Cooperative Extension
Rockford, Illinois

Doctor Bowman leaned back in his swivel chair, cleared his throat, and in a gentle but firm tone, prescribed the treatment that would be necessary if his patient were to survive the winter without severe financial hardship.

"I've examined you thoroughly," he said, "and I'm afraid you have a serious condition. You are suffering from 'Heat Deprivation.' But there are immediate remedies. We must thicken the insulation in your attic, install a new duct switch on your clothes dryer, and immediately replace your clogged furnace filter!"

In actuality, Michael Bowman, a construction trades teacher at the Area Vocational-Technical School in Rockford, Illinois, served a year as Extension's "Energy Doctor." As part of his duties, Bowman made "house calls" throughout Winnebago County, conducted walk-through home energy audits, and prescribed energy-saving methods that helped homeowners make their houses energy efficient.

Michael Bowman explains to Joan Todd the necessity of keeping furnace filters clean.

This public education program on energy was developed in late 1979 by the Winnebago County Extension Energy Advisory Committee with funds granted by the Illinois Institute of Natural Resources.

The committee needed an idea that would quickly evoke public interest in energy conservation. The project was funded for only 1 year.

"The message the committee wanted to get across was clear," says Joan Todd, committee member and adviser in home economics for Winnebago County Cooperative Extension. "The problem was . . . how to go about it."

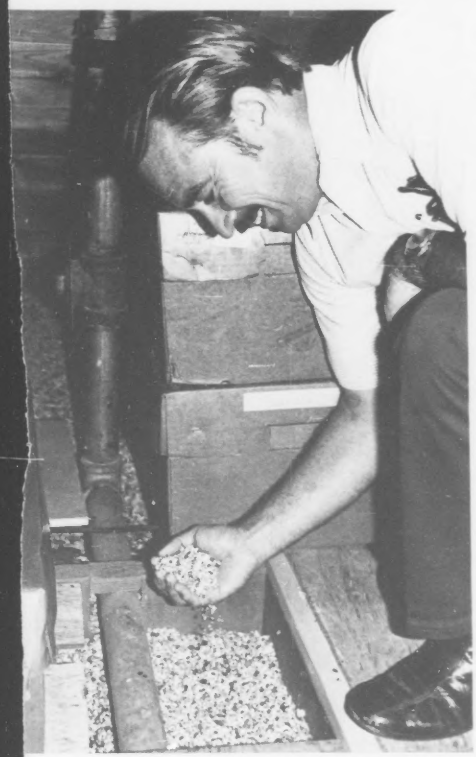
"I had just read an article in *Money Magazine*. It was about the successful program run by Princeton University Center for Energy and Environmental Studies. They had used an 'Energy Doctor'—a person who would make house calls and prescribe remedies for sick houses. I brought this idea to the committee's attention."

Want to be a Doctor?

Because of the project's deadline, the committee had to find a candidate quickly to be "the energy doctor." The doctor would have to know about construction, be able to teach, and be enthusiastic about energy conservation. Michael Bowman was chosen from 40 applicants. "He was the committee's choice," Todd explains, "because he filled the bill in every regard. A teacher of construction trades, Bowman was involved in energy conservation, and he was enthusiastic about energy conservation."

Bowman's background allowed him to get the project moving without extensive training. "By the end of the first month, I was ready to go public," he says. "The committee members introduced me to the people with agencies and programs in towns involved with conservation. Todd acquainted me with Extension operations and the materials and resources they had developed."

Bowman collected samples of insulation and conservation items, energy audits, how-to-do-it



Bowman checks attic insulation depth during a home energy audit.

publications, and a small portable display for an energy booth. The energy committee lined up the places to set up his practice. "I went to the county fair, shopping malls, hardware stores," he says, "and even a local factory."

The energy doctor in his white lab coat was an immediate hit with the public and drew crowds interested in his energy conservation message. "He had the facts," Todd said, "and his doctor routine made him easy to approach. Also, he was from Extension and I think people perceived him as unbiased."

During the summer and fall of 1980, the committee planned a series of workshops for the energy doctor. Twenty workshops were attended by 600 homeowners. The energy doctor gave them in-depth explanations of ways to conserve energy around the home. In addition, three tours focusing on alternate sources of energy were held along with special workshops on solar greenhouses and wind energy.

House Calls

House calls were at the heart of the original Princeton University Energy Doctor program. However, the energy committee decided early that the best way a part-time energy doctor could serve the Rockford community and Winnebago County in the limited time available was through meetings with large groups.

Still, a limited number of home visits were made by the energy doctor. Bowman visited 16 homes and conducted home energy audits in all of them. A followup questionnaire revealed that one-third of these homeowners followed advice and took steps to save energy. They reported that they either caulked or weatherstripped their homes as a result of the energy audit. Some had also installed water-heater blankets and flue dampers.

Evaluation

The workshops also showed a marked degree of success. In one energy conservation workshop, 9 participants out of 31 returned their followup questionnaires and all 9 reported using at least one energy-saving method in their homes as a direct result of attending the workshop.

The energy doctor's "believeability" was as important a factor in achieving results as his workshops, audits, and consultations. One respondent summed up Extension's contribution this way on an evaluation questionnaire: "The biggest benefit from your program was learning and believing energy-saving techniques from an objective source who supposedly didn't have any business interests in mind."

The energy doctor helped people decide among the different conservation strategies. The evaluation questionnaires suggest that his primary role was as an objective authority. He provided factual, unbiased information. The energy doctor was not the homeowners' sole source of information—energy advice is plentiful in magazines and on TV—he was just the most believable.

Implications

"The simple idea of calling the project leader the energy doctor," says Joan Todd, "gave our project high visibility from the start. Our doctor analogy caught on immediately with the press and we got a lot of valuable coverage. The public found it easy to figure out what the energy doctor's message was all about."

Temporarily, Michael Bowman has turned in his black bag and white jacket and retired his practice. During the year the energy doctor practiced, more than 7,000 people consulted with him and learned ways to relieve the pain of high energy prices with effective remedies for their energy-wasting homes.

"The energy committee and our county staff are looking for ways to bring the energy doctor out of retirement," Todd says. "His house calls and workshops proved to be cost-effective tools—good medicine—in the fight against high energy bills."

Saving Water Makes Energy Sense

James K. Wolfe
Writer-Editor
Extension Information
Washington, D.C.

Irrigation scheduling—applying the precise amount of water at just the right time to maintain economic crop production—will be a reality some day for nearly all of Nebraska's 7.4 million acres of irrigated farmland.

"The economics alone ensure that irrigation scheduling will be used on 95 percent of the irrigated farmland," predicts Paul Fischbach, Extension specialist on irrigation at the University of Nebraska.

"The savings gained from this water conservation practice would be more than substantial," he says. "Approximately $123 million would be saved in the state in fuel to power pumps and $55 million in fertilizers. The estimated $2.50 an acre farmers would pay for irrigation scheduling could trim at least 35 percent of their costs for water use and fuel bills."

If irrigation scheduling was applied to all the acreage in Nebraska that needs it, Fischbach says, the savings in energy would be equivalent each year to 120 million gallons of diesel fuel. At a cost of 91 cents per gallon, irrigation scheduling could save $109 million in energy anually. There could also be an important conservation of 54 million "acre-inches" of water. (An acre-inch is the amount of water needed to cover 1 acre with water 1 inch deep.)

For example, more than 100 of Clay County's 675 irrigation farmers practice some form of irrigation scheduling to prevent wasteful and costly overwatering of their crops—primarily cash grains.

Extension programs have encouraged the use of several water conservation techniques for improving irrigation systems. Among them are:

- *Soil moisture blocks.* These moisture blocks, equipped with electrical meters, inform farmers of the amount of moisture in the soil available to growing crops, and signal the proper time to irrigate.

- *Water meters.* When installed on an irrigation well, these meters ensure that the farmer doesn't use more water than the moisture blocks indicate is necessary.

- *Water conservation* during irrigation. Cutting water use per acre when irrigating can prevent the washing away of valuable nitrogen fertilizers from the root zone.

- *Tailwater reuse systems.* Reuse (tailwater) systems are now mandatory if the irrigator is using ground water. Nearly 50 percent of the surface irrigated acres have such a system; this recycling of surface runoff has resulted in a savings of 12 million "acre-inches" of water not being pumped from the ground water reservoir.

- *Automatic gated pipe systems.* More than 4 million acres are surface irrigated by gated pipe or siphon tubes in the state. Although installation costs are high, this system prevents excess water usage and automatically provides a water application and uniformity of 90 percent.

- *Furrow smoothing.* When this method is used on surface irrigated fields, in conjunction with automatic gated pipe, about 5 inches of water can be saved per acre. Furrow smoothing is now being used on about 1 million acres in Nebraska and has resulted in a savings of more than $7 million dollars in energy costs.

- *Low pressure nozzles.* New center-pivot sprinklers are equipped with medium- or low-pressure nozzles that reduce pressure by about 28 pounds per square inch. About 133,000 acres in Nebraska switched to the lower pressure nozzles in 1980 resulting in an energy savings of nearly $900,000. Extension specialists estimate that if 25 percent of the center pivots were changed, producers could save $4 million dollars in energy costs.

Adjusting The Pumps

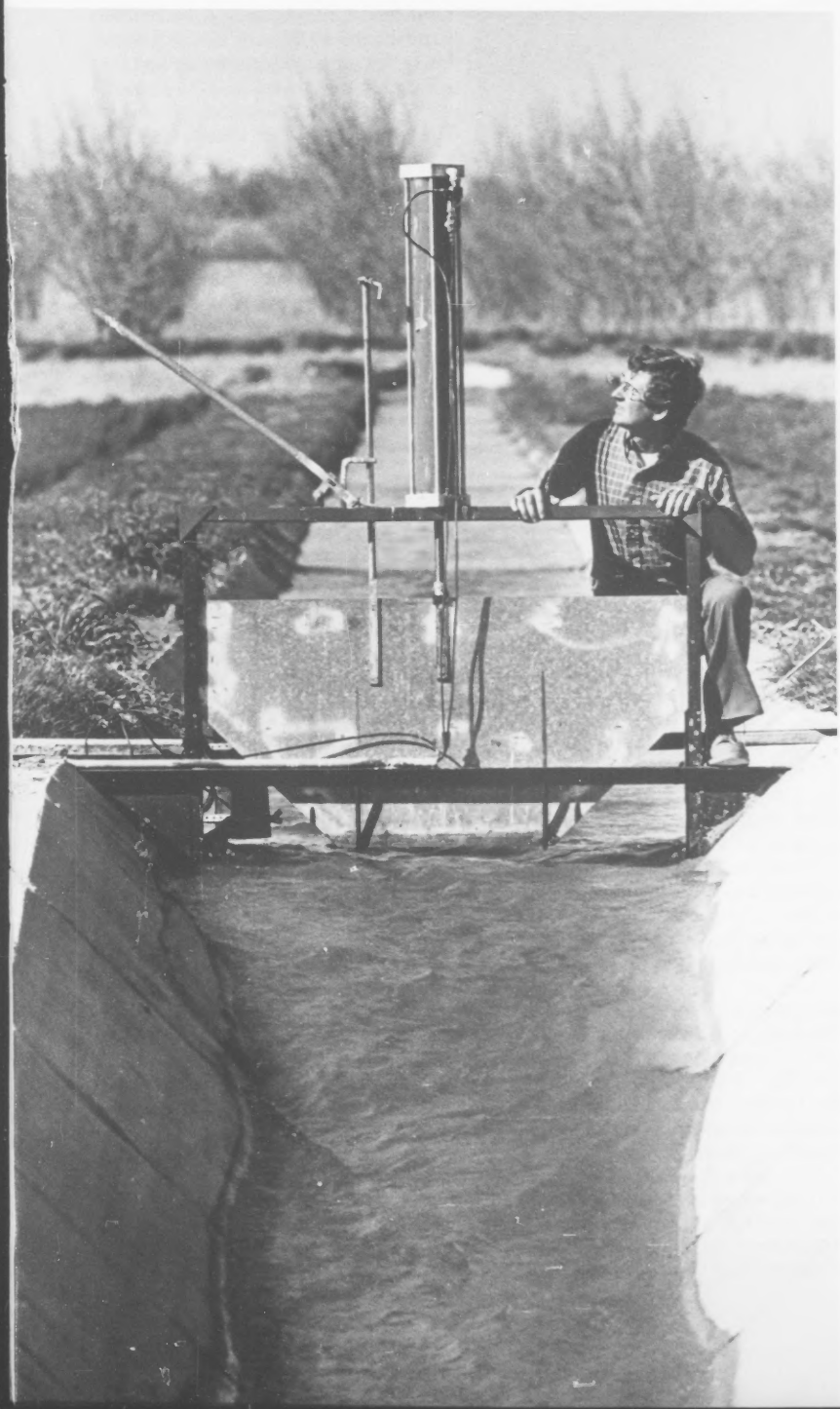
Tests revealed that the average pumping plant used 30 percent more fuel than it should because of improper adjustment, worn out pumping plants, or other changing conditions.

To correct this situation, Extension specialists held an irrigation pumping plant workshop to teach 66 potential testers how to engineer and test a pumping plant and how to analyze the various problems in order to make the necessary changes in equipment and the required adjustments.

"PUMP," a pumping unit management program, was recently conducted throughout the state at the request of county Extension agents. Extension held 69 demonstrations in 62 counties and more than 3,000 people attended. Two pumping plant testing teams conducted the tests, analyzed, and made adjustments to pumping plants. The audience consisted largely of irrigators with pumping plants, consultants, well drillers, and engine motor manufacturers.

"PUMP" resulted in 57 pumping plants being adjusted. Their efficiency was raised an average of 14 percent. The average diesel unit that was adjusted saved the irrigator $434 a year. One irrigator estimated a savings of $1,200 per year in diesel fuel. Also, 66 consultants, well drillers, and engine and motor

The use of automatic gates is one of the many effective methods of conserving water in irrigation. Allen Dedrick, an agricultural engineer with the Agricultural Research Service, observes the operation of a jack gate that opens and closes by means of a piston-type air cylinder on command from centrally located timeclocks.



specialists were trained to test pumping plants as a result of the program.

Computer Scheduling

A new research project of the University of Nebraska—Lincoln Water Resources Center, funded by the Department of Interior, will concentrate on developing a computerized irrigation scheduling program for corn and soybeans.

This computerized program will pinpoint crop growth stages where water is critical to producing satisfactory crop yields. Current computerized scheduling programs consider only climatic and soil moisture conditions.

"They fail to consider the plant's point of view," says George Meyer, professor of agricultural engineering in the UN Institute of Agriculture and Natural Resources, who is developing the new program. "By adding in the crop growth factors," he says, "the new program will prevent unnecessary irrigation during growth states when the plants don't need much water."

Paul Fischbach, Extension irrigation specialist, will work with Meyer on the project to document potential water and energy savings the program can offer corn and soybean growers. Estimates have the new computerized irrigation scheduling technique ready for public use in 3 to 4 years.

Fischbach concedes that it takes money and effort to start irrigation scheduling. "It's a learning experience," Fischbach says, "and it takes about 3 years to make it work for you. Irrigation requires more energy than any other farm operation in the state. Improved efficiency reduces energy use, saves farmers dollars, and helps conserve a precious resource . . . water."

The improper use of a woodstove can cause a fire severe enough to destroy a house.

For the pioneer family, the wood-burning stove was a focal point in their struggle against the elements. The old pot-bellied stove warmed their hearts and hearths as they settled the prairie or hunted the forests of the Great Lakes.

The popularity of using wood-burning stoves has once again soared as modern Americans rediscover this method of saving fuel costs.

Used properly, a stove provides a home with cozy warmth and the soothing crackle of wood characteristic of the considerably less efficient fireplace. But many people install and use wood stoves without heeding the necessary safety precautions.

This move often ends in disaster.

In Michigan during 4 winter months last year, for example, the improper use of wood-burning stoves had tragic results. According to the state police fire marshall, there were 18 deaths, 235 injuries, and 2,478 fires, and $8 million in property losses.

In 1977, the Michigan State University Cooperative Extension Service (CES) began conducting safety programs for wood stove users. Two years later, they gave the programs statewide emphasis and published a series of bulletins, prepared visual aids, and display materials, and held many public meetings.

Last year, CES intensified its efforts even more in the Upper Peninsula (UP) in a program called "UP IN SMOKE" with the cooperation of the Upper Peninsula Loss Prevention Association and three fire insurance companies.

The sponsoring companies created the Upper Peninsula Loss Prevention Association to handle all campaign expenses and income. The Independent Insurance Agency Association contributed $1,000 and $10,500 came from the three cooperating insurance companies.

The results? One of the insurance companies reports a 50-percent reduction in fire loss due to wood stoves. They attribute much of that reduction to the CES "UP IN SMOKE" safety program.

The new UP program began as a cooperative effort when insurance company representatives met with CES staffers Keith Raisanen, Jim Krenek, and David Olson, project leaders. Jackie Braver and Jayne Marsh of the Michigan State University Information Services assisted in the project development. The group developed a tentative budget and a proposed media campaign.

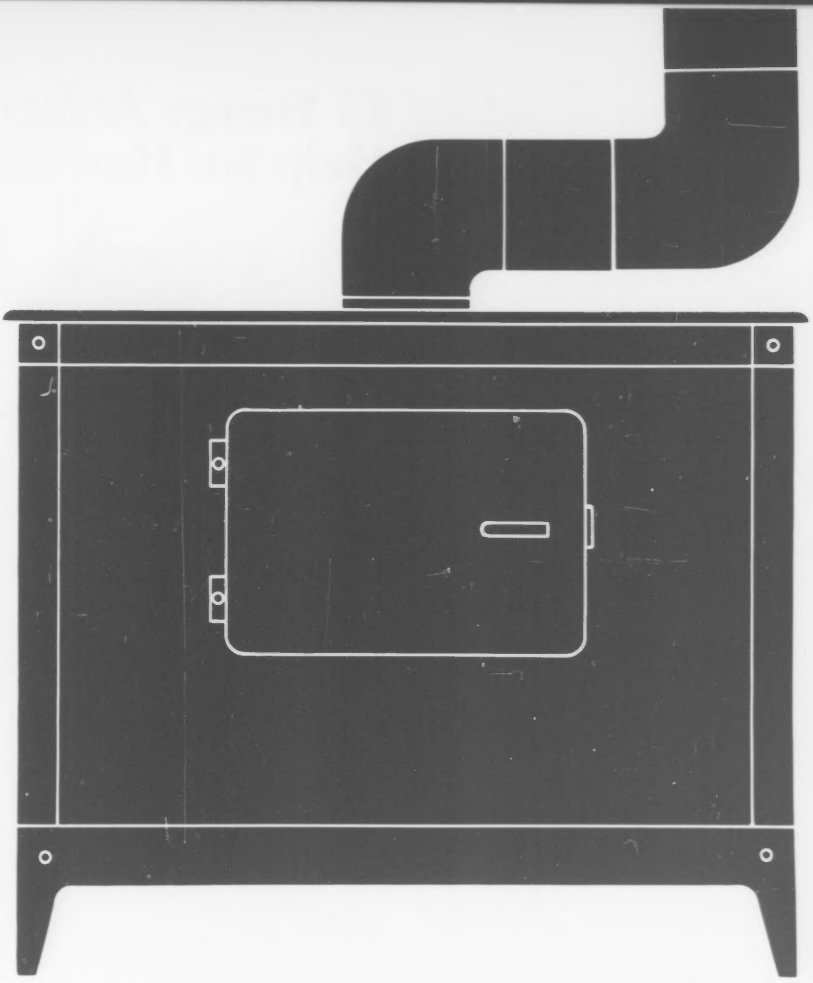
Campaign

A media campaign through a commercial advertising company was designed to reach young families in the Upper Peninsula where most of the fire loss occurred. With an approximate budget of $11,500, the company purchased media time during a 3-week period coinciding with National Fire Prevention Week, September 29 to October 17. During the following 3 weeks they used free public service announcements.

Designed to place 418,477 advertising impressions, the campaign targeted the 18- to 49-year age bracket an average of six times each. The media campaign included 31 30-second prime-time television spots, 400 prime-time radio spots, and 17 newspaper ads.

The insurance companies purchased 35,000 copies of four CES bulletins on wood stove safety which the 14 Extension offices distributed to independent insurance agents on the Upper Peninsula.

David D. Olson
Cooperative Extension Service
Michigan State University



MSU Information Services staff developed the campaign logo UP IN SMOKE and wrote 16 suggested educational announcements. Robert Neumann prepared special features. Olson and Raisanen developed the radio and television announcements using basic scripts developed by Information Services, and the county Extension staff wrote many news releases on UP IN SMOKE, emphasizing wood stove safety for a 7-week period.

Public Meetings

Public UP IN SMOKE meetings were held in 30 locations for 1,200 people. Materials were used by three exhibitors at the UP Energy Exposition which, attracted more than 8,000 visitors.

Six radio public service announcements were written, taped, and distributed to 30 radio stations for use from October 18 to November 7. The television paid announcements were retaped as public service announcements and were still being used in April 1981.

The Upper Peninsula Fire Chiefs Association helped publicize the campaign in their newsletter. They originally wanted to offer home safety inspections, but some fire departments were concerned about liability after inspections and felt poorly trained to conduct inspections.

A number of fire departments conducted in-service training for their employees using CES film and slides. Three fire departments cosponsored public meetings.

Extension staff conducted about 25 public meetings. Others included one by fire department personnel and two by the Northern Michigan University Free University program.

One constant problem was the short timespan between initial idea time and program time. The staff suggest at least 3 months advance time for any similar programs.

Evaluation

Extension staff say the ultimate success of UP IN SMOKE will relate directly to the combined effort of using purchased media, public service announcements, bulletins, displays, new articles, news columns, and public and agency meetings. The involvement of the 14 county Extension staffs was also very important.

A number of the public meetings involved local building code and fire department personnel as resource people. That helped to make a better meeting for the public and provided an in-service training opportunity for them.

An evaluation form was developed and distributed to insurance agencies and county Extension offices. The general comments received from county Extension offices, insurance agencies, fire departments, building code inspectors, and the general public have been favorable. Although the evaluation form returns have been slow in coming back, it appears that Upper Peninsula residents are now more aware of wood burning appliance safety.

CES staffers say that the final evaluation of UP IN SMOKE will not be complete until the 1981-82 heating season is past. When the fire statistics are available, they hope to be able to report even better results.

ES Energy Assistants—Help for Homeowners

Skyrocketing fuel costs and anticipated future increases have forced many families to spend a larger percentage of their income for space heating, water heating, and home improvements.

In desperation, some people are turning to any source of help available—whether reliable or not. In Indiana, Cooperative Extension has made the search for reliable information somewhat easier for people in the southeastern part of the State through a new Rural Energy Conservation Program (RECP).

For example, a young couple who rent a small rural home recently called the Extension office asking for help. "We spend over $800 a year on gas and we're still cold," they said. A recently hired Energy Extension Assistant (EEA) visited the young couple and found a pre-World War I house with no insulation, poor storm windows, and a leaky roof that had been repaired with a plastic sheet. Also, the couple vented their gas-fired clothes dryer to the inside so that they could feel warmer. They tried to help themselves by installing plastic on the inside of their windows.

The couple needed information to help them convince their landlord to do something to make the house more energy efficient. The EEA spent time interviewing the couple. He examined the general condition of the house—including structure, insulation levels, water and home heating systems, and other energy consumption practices of the family.

Before the EEA left the house he warned the couple of the danger of venting their gas dryer to the inside and showed them how to correct the problem. He later returned with the energy analysis of the house, including a set of recommendations to fit their housing and financial situation.

Self-Help

The EEA's are part of the Rural Energy Conservation Program (RECP), a pilot program in five counties in a somewhat economically depressed section of southern Indiana. RECP stresses improved energy efficiency and encourages a self-help atmosphere among rural and smalltown residents. The EEA's work with families on a one-to-one basis and in small groups. They are supervised in each county by their home economics Extension agent and are part of the ongoing Extension program for that county. The RECP staff works in cooperation with the Indiana Department of Commerce Energy Policy Division, and it is supported by a grant from the U.S. Department of Energy.

The RECP is coordinated by a program director and an administrative assistant. Purdue University Extension specialists in Housing, Agricultural Engineering, Forestry, and Agricultural Economics provide backup support and technical training for the EEA's and the supervising home economists. The program began August 1, 1981 with the EEA training, and by the end of November that year the EEA's had counseled with over 120 families.

The four EEA's have varied backgrounds that contribute to the energy education program. Two have previously been Extension agents with the Indiana Cooperative Extension Service. All four EEA's have an outstanding ability to work with all types of people, to teach, to exhibit sensitivity, and to listen.

Twelve days of initial training for the EEA's over 3 weeks provided information on heat loss analysis for houses and mobile homes and appliance use costing as well as insulating and construction techniques. The EEA's also learned to operate the Fast Agricultural Computer Terminal System (FACTS) in each county office and to run the Home Insulation Analysis Program. Continued monthly review and revision supports the EEA's in their new roles.

The Home Insulation Analysis Program, along with additional heat transfer principles and calculations, is used by the EEA's to derive specific recommendations for families. One EEA, Ray Brooks of Lawrence County, saved a couple in their mid-eighties living on a fixed income between $400 and $500 a month. The couple had already decided to add more insulation to the walls and ceiling of their pre-World War I home that had had some insulation added in 1973. The EEA explained that this was not cost effective and persuaded them to stop air leaks by caulking and weatherstripping, and to have the heating system serviced.

Payback Table

In another example, the EEA was able to show a couple in their late seventies that their decision to redo the siding on their pre-World War I house would not accomplish what they wanted—"A warmer place to live." The wall insulation would have been increased by new siding with an R-value of 2.6, which would cost $1,600 to $1,800. This cost would be considerably more than the $400 needed to blow insulation into the side walls and add batts to the ceiling. The couple will be able to have a higher R-value for less coal cost and thus feel warmer in their house. The EEA also used a payback table to show them how much they

Jean W. Bauer
Carole Savitsky
William H. Friday
Bruce A. McKenzie
Agricultural Engineering Department
Purdue University

could afford and how long it would take for a return on their investment in the insulation.

Wood stove safety is a major component of the program for Ray Peyton, an EEA in Scott county. More than 90 percent of the families interviewed heat entirely with wood or use wood predominantly with a backup system of LP gas, electricity, or oil. Peyton stresses the safety features of installing and using a wood stove. Many of the residents who have been using wood stoves for years take precautions to ensure safe use. Occasionally situations occur that indicate some people are not aware of the safety precautions needed.

Personalized

The EEA's spend about an hour with each family during the initial interview. Then they return to the Extension office to run the home insulation analysis computer program. The output includes information on the source of heat loss, insulating (R) values, typical component heat loss, and estimated heating costs for the house. The program also includes possible improvements and potential savings per year for each improvement.

Each family received a computer-generated, personalized set of recommendations. These recommendations include no cost, low, and moderate/high cost energy conservation measures, as well as a section on preventive maintenance and safety precautions. The EEA's select the desired recommendations based on the interview and observations made during the initial interview.

During a second visit with the family, the EEA's explain the output from the home insulation analysis program and outline the personalized recommendations. They answer questions and try to determine whether the family has the knowledge and skill to execute the recommendations. The families are encouraged to attend several self-help workshops provided by the EEA's and Extension home economists. Each family is responsible for any cost, both material and labor, involved in making energy conservation improvements or changes in their home environment. The project provides no financial support to the families.

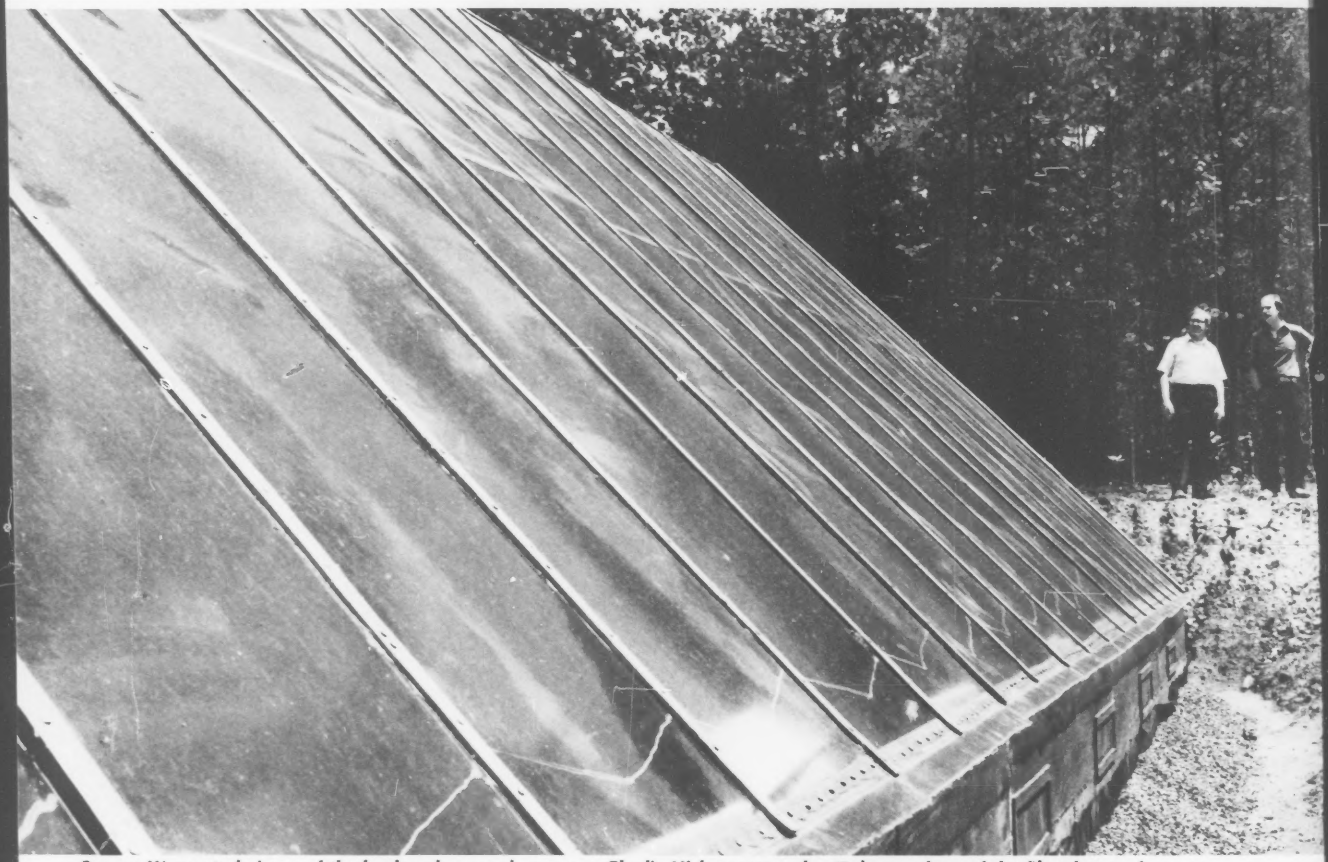
High Participation

Norman Comer, EEA in Decatur County and Bev Martin, EEA in Jennings County, report that 75 to 80 percent of all the families are making some energy conservation improvements between the initial interview and the return of the set of recommendations. One improvement is the use of foam insulators in wall electrical outlets and light switch cover plates. Others include reducing hot water temperature, caulking and weatherstripping. Most homes do not have dishwashers, yet water temperature is 130 ° F or more. The EEA's measure the water temperature and show families how to adjust it. Most families are not aware of the potential savings from reducing the hot water temperature. When the EEA's return, they check to see if the family has been able to manage with the new water temperature setting.

The initial interview, preparation of recommendations, and the followup informational session have averaged about 4 hours per family. An evaluation of this intensive one-on-one program delivery model in the pilot counties will be conducted and compared to other less intensive statewide energy management programs.

Solar Kiln Drying

Sherrie R. Whaley
Extension Service
Virginia Polytechnic Institute
and State University



Eugene Wengert, designer of the lumber dryer, and co-owner Charlie Hickox survey the 45-degree slope of the fiberglass roof.

The unspoiled central Virginia countryside near Afton Mountain might be an unlikely place to find the largest solar lumber dryer on the east coast. But nestled in a small clearing on a 490-acre tract of land known as Shannon Farm is a large-scale model of a wood dryer designed by Virginia Polytechnic Institute (VPI) and built by 10 Nelson County woodworkers.

The dryer was originally designed, constructed and tested at VPI by Eugene M. Wengert, Extension specialist in wood technology, and represents a major breakthrough in the field of lumber drying.

"An all-electric 2,000 board foot kiln, with a small electric boiler, would cost over $30,000," Wengert says. "My design requires only a small investment and no energy, other than solar, except for a few household window fans used to circulate the heat."

Businesses that use small amounts of lumber usually buy their wood already kiln dried instead of buying cheaper green lumber because a dry kiln is a major capital expense and today's rising energy costs have made small-scale drying impractical.

Fast Drying Time

Based on 18 years of research and development, Wengert's solar lumber dryer has made it possible for the small wood user to purchase green lumber and dry it in approximately 30 days to 7-percent moisture at very little cost. The kiln research was supported by funds from the USDA Forest Service and the Northeast Forest Experiment Station.

The dryer uses a passive solar collector, similar to a greenhouse, four insulated walls, and an insulated floor. The roof is fiberglass or clear

Top: Wood shavings rain down on a member of the Shannon Farm community as he operates a mobile dimensional sawmill brought from Pennsylvania.

Above: Wengert and Hickox discuss the moisture content of lumber processed in the solar dryer.

plastic sloped at a 45 degree angle to the south. (The optimum angle depends on the latitude where the dryer is located.)

Solar energy enters the dryer through the clear roof and falls on one of the black-painted interior surfaces. The energy is converted to heat and is then circulated through the lumber pile where it is used to evaporate water. To conserve energy, the fans are controlled by a thermostat to run only when the dryer has been heated above 65° Fahrenheit in winter and 75° Fahrenheit in summer.

Unique Design

Owners of Heartwood Design, a Nelson County woodworking business, became interested in solar kilns several years ago and they contacted Wengert. Using his design, they constructed a solar kiln capable of drying 25,000 to 30,000 board feet of lumber per year.

Company spokesperson, Charlie Hickox, says that the business will use about 5,000 board feet a year in their cabinetmaking and woodworking. The remaining wood will be sold to school systems for shop classes, cabinetmakers and woodworkers within a 50-mile radius. "Unlike a big lumber yard, we will sell any amount of wood," Hickox says. "We set no limits on quantity."

The most common woods dried in the Heartwood solar kiln are red oak, white oak and poplar, either cut from Shannon Farm or bought locally. Woods not grown locally must be purchased from larger distributors.

When drying lumber, it is wise to monitor its moisture content to avoid drying too rapidly. Too rapid drying can cause the wood to split. Moisture is measured by weighing the sample boards and the daily rate of moisture loss is compared with a "safe rate" chart developed by Wengert for various species of wood. To avoid drying too fast, it may be necessary to block off part of the collector, or turn the fans off and open vents during the hottest part of the day.

Heartwood Design is the first Virginia business to try Wengert's design on such a grand scale. By having their own dryer, the central Virginia firm has eliminated the costly middleman and can realize even further profits by selling excess lumber to area schools and businesses.

The VPI dryer successfully controls expenses through its functional, reliable design and its use of a free source of energy. It permits small firms to dry their own lumber—something they could not afford to do before.

Energy Exposition In the Sunshine State

M. F. Smith
J. Townsend
J. Hebert
J. Masteryanni
*Florida Cooperative Extension Service**

The cost of energy continues to skyrocket. From 1973 to 1978 the increase was 96.2 percent and in 1979, alone, 37.4 percent, according to the U.S. Office of Consumer Affairs. In comparison, other basic necessities rose by the following amounts in 1979: housing, 17.4 percent; food, 10.2 percent; and health care, 10.1 percent.

In Florida, the Cooperative Extension Service is helping homeowners decrease energy costs by providing a variety of informal public educational programs. In 1979 and 1980, Extension staff held energy expositions in several Florida counties. They provided information about energy conservation, principally "productive conservation." Productive conservation differs from "curtailment" and "overhaul," both of which require major changes in the ways citizens live and work. Productive conservation asks citizens to make adjustments in their daily behaviors that promote energy savings in a manner that is economically and socially nondisruptive.

The goal of the Florida program is to reduce the amount of energy used to perform tasks rather than to eliminate the tasks. Examples of such adjustments include insulation (walls, water heaters), window treatments (films, draperies, double panes), efficient appliances, effective landscape plantings, wood stoves/heaters, water-saver shower heads, efficient light bulbs, efficient cars, and alternative sources of energy.

Energy education enables individuals to make proper choices on how to effectively use conservation treatments. The Florida CES conducted a study to determine the effectiveness of three informal expositions in helping individuals to make the choices and to follow through on the actions for energy-conserving changes. The following is a summary of the findings from the three programs. Write to M. F. Smith for the complete report. Her address is 311 Rolfs Hall, University of Florida, Gainesville, Florida 32611.

Results

In November 1979, the Brevard County Extension office held an exposition in a large, popular shopping mall where 56 sponsors and organizations exhibited techniques and communicated messages about energy conservation. Approximately 80,000 persons visited the mall during the 2-day event.

Four months later, the Orange County Extension Office sponsored a 4-hour, hands-on energy workshop at the Agricultural Center. More than 1,000 persons attended activities set up for small groups: lectures, how-to demonstrations, exhibits, and a solar water heater built at the workshop.

In May 1980, 50 exhibits were set up at the Charlotte County exposition held at a new shopping mall in Punta Gorda, Florida.

The Brevard and Charlotte Expos required little or no active participation from onlookers; the Orange Workshop goal was active involvement of the attendees and was geared to personally assist individuals with their concerns about energy conservation.

All three events received onsite evaluations and 6-month impact assessments. The onsite evaluation of the Brevard Expo was more comprehensive than the other two, but all were similar in that individuals were randomly selected for interviews as they were leaving the events. Volunteers interviewed 593 people (312 in Brevard, 130 in Orange, and 151 in Charlotte).

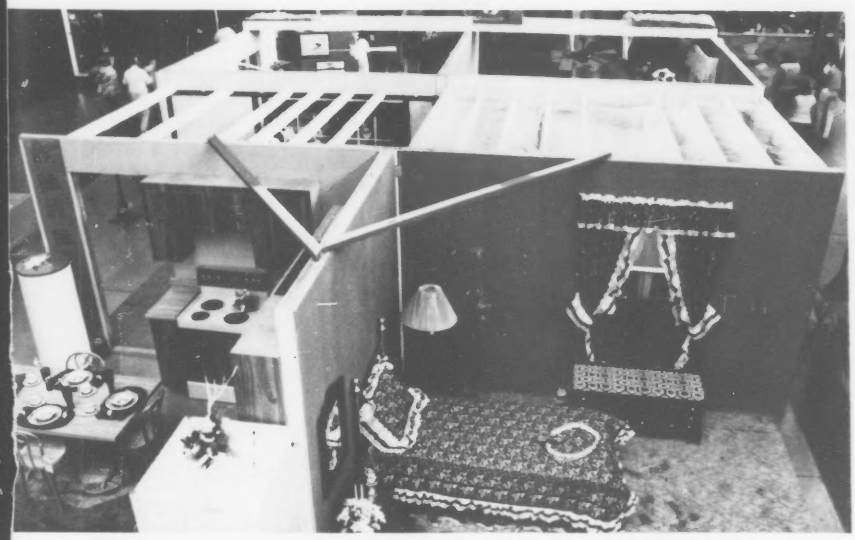
The majority of interviewees at Brevard (61 percent) and Charlotte (56 percent) said they were influenced by the Expos to go to the shopping centers and the Expo was the only reason persons went to the Ag center in Orange. At all three events, interviewees rated the Expos as very worthwhile and said they had gained practical suggestions that would help them conserve energy.

Six months after each of the events, staffers sent questionnaires to the interviewees who granted permission for the followup and to an equal-sized stratified random sample of persons selected from the geographic areas resided in by the interviewees. The Brevard control group was also occupationally matched to interviewees.

In Brevard, 150 interviewees provided information for the followup; 91 percent of these responded to the mail questionnaire and 74 percent of the random group answered. In Orange County, 102 interviewees agreed to the followup; 90 percent of these responded and 61 percent of the random group concurred. In Charlotte, 103 persons granted permission for the followup; 84 percent of them and 70 percent of the control sample returned the questionnaires.

Attempts were made to contact by telephone approximately 20 percent of the individuals who had not responded to two followup letters to the initial questionnaire. Half of these had disconnected phones or did not answer after three tries. The others gave responses that indicated little if any energy conservation interest or activity.

Individuals in the random sample who had attended the energy expositions were eliminated from the comparisons since the intent was to



Built for the Brevard County Energy Exposition, this exhibit demonstrated how a six-room home can be made more energy efficient.

compare changes Expo attendees made with similar changes made by a random group who had not attended the Expo.

The questionnaire contained three items in addition to demographic data questions. One asked how much of a problem (none, small, medium, large) the energy situation was for (a) the individual and family, (b) the local community, (c) the state, and (d) the Nation. A second item listed several steps to reduce energy use and asked how much effort (big, medium, small, none) was being made on each. The third asked what energy-saving changes had been made in and around the home since the date of the energy programs. The results follow.

Results

More of the persons who attended the Expos made energy-saving changes than did those who did not attend. However, there are limitations to saying the differences were the direct cause of the expositions or that the changes reported represent all that occurred. For example:

- The persons interviewed on the site may not have been representative of all those attending the programs. The ones who provided their names and addresses for followup may not have been representative of those who do incorporate changes as a result of having attended the programs.
- Attendance at the programs may have been a contributing factor for some individuals to make changes but it may not have been the only or the primary factor.
- Individuals say and do different things; the changes as reported on the followup questionnaires may not have occurred.
- Some individuals may have been stimulated at the expositions but not have made changes until after the followups—which mean the Expos would have more positive effect than was measured.

Conclusions

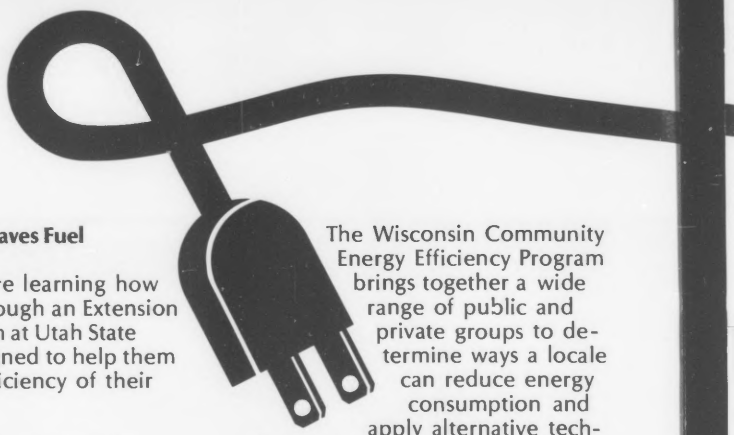
In spite of these limitations, though, some conclusions do seem appropriate:

- People will make a special effort to learn about energy conservation.
- The expositions reported in this study were considered effective learning experiences by the attendees. Most of the interviewees said the Expos gave them a better understanding of the energy situation as well as practical ideas or suggestions that would help them conserve energy in their own situations.
- The expositions apparently were contributing factors in individuals' decisions to make energy-conserving changes. Within 6 months following the programs, more of the attendees took action to reduce energy use than did the nonattendees.

The expositions provided evidence for attendees that an energy problem does exist and suggested alternative ways of dealing with the problem. The focus of the information was on helping individuals to make adjustments in their daily behaviors to reduce the amount of energy used in activities. Such information may not in and of itself cause people to make changes to conserve energy—people do not make changes in their practices just because they know that they should nor because they know how to make whatever changes are required. However, knowing they should and knowing how to make changes are *important first steps* toward decisions about change.

**All authors are employed in the Florida Cooperative Extension Service. Smith is Assistant Professor and Program Evaluation Specialist, Program Evaluation and Organizational Development, University of Florida; Townsend is Energy Agent, Duval County Cooperative Extension; Hebert is County Director, Orange County Cooperative Extension; and Masteryanni is County Director, Charlotte County Cooperative Extension.*

Energy Odds and Ends



Peanut Oil Fuels Georgia

Farmers in Georgia produced 800,000 tons of peanuts last year, using an average of 472,000 BTUs to dry each ton, with conventional methods. Based on 90,000 BTUs per gallon of propane, that means it takes 4,615 gallons to cure the crop. Extension engineers have begun educational programs and demonstrations, supported by funds from the State Energy Office, that show how farmers can cure peanuts using less fuel than they do now. The engineers are distributing circulars describing these methods and they estimate farmers can save 5 percent of their energy costs.

Georgia Extension Service engineers are also providing facts to farmers on how to use biomass to dry grain and how to use peanut oils to extend or replace diesel fuel. Three specialists, Cecil Hammond, Bobby Tyson, and Lawton Samples, along with researchers such as John Goodrum, are evaluating peanut, soybean, and sunflower oils for use as fuels.

A small diesel engine using peanut oil has been a hit at field days and on exhibit throughout the state. A residue burner that burns big bales or stacks of cotton, corn and soybean stalks is also being demonstrated. The Georgia Agricultural Commodity Commission for Peanuts supplied a grant for machine purchase.

Goodrun, with the agricultural engineering division, is working on how to process oil for use as a fuel in tractors. Peanut oil is one of the better vegetable oils for this use because it is the highest yielding per acre of the common vegetable oils and also has the highest heat content of these oils. □

Tractor Testing Saves Fuel

Utah farmers are learning how to save fuel through an Extension Service program at Utah State University designed to help them increase the efficiency of their tractors.

As part of the Tractor Testing Program, Extension has conducted more than 100 clinics since 1976 and tested and adjusted more than 1,000 tractors to improve their horsepower. The increase in horsepower to these tractors is equivalent to placing an additional 155 tractors of 100 horsepower on the farms of Utah. The value of the increase is estimated to be $3,377,000 with a calculated fuel savings of approximately 301,000 gallons.

The program consists of a series of two-part clinics. The first part is an evening meeting in which farmers learn tractor maintenance principles. The second part is held the following day and tractors are tested at a central location using a dynamometer. Von Jarrett, Extension agricultural engineer, conducts the clinic involving tractor dealers and their mechanics whenever possible.

With the aid of the dynamometer, Von Jarrett determines which adjustments or repairs are needed to bring the tractor to an efficient operating level. If this can be done through adjustments, they are made during the clinic. Major repairs are part of recommended maintenance programs. □

Working Together

The community that saves energy together stays warm together. That's the idea behind a plan developed by Extension at the University of Wisconsin.

The Wisconsin Community Energy Efficiency Program brings together a wide range of public and private groups to determine ways a locale can reduce energy consumption and apply alternative technologies. Aimed at the residential, transportation and governmental sectors, the program includes a university faculty group which acts as advisors in the following areas: agricultural economics, home economics, architecture and urban planning, landscape architecture, transportation, adult education, and engineering. Educational materials are being developed to present to community groups. Extension will select a number of locales this spring to participate in the program. □

A Cold Rocky Mountain High

Winter in the Rocky Mountains of Utah gets cold, colder, coldest. Winter in Sevier County starts in November and stays cold through March. Of immediate concern to everyone in and around Richfield, including Extension home agent Margaret Older, is how to stay warm while turning down the thermostat to save money. Even the public buildings were colder inside last year in efforts to cut heating costs. In the high school, teachers noticed subtle problems in learning due to colder classrooms. It is recommended that county residents turn down their thermostats 4°F, and Older taught them how to maintain that 4°F in body surface temperature and stay comfortable.

After researching the data on weather and costs (degree days, electric rates, etc.), she developed an educational program and conducted it in various areas of the county, attended by 194 teens and adults. First, were discussion on the impor-

tance of wearing clean clothes which trap more air near the body surface that do dirty clothes. That led naturally into talking about conserving energy while doing the laundry.

The second part of the program was on how to dress for warmth. A display of various types of clothing was a part of the exhibit. A long-sleeved cardigan sweater was tagged "+3.7°F"—indicating it would add that much warmth to the wearer and he or she could turn the thermostat down that far and still be just as comfortable. Long pants would add 1.5° while a skirt would make you feel 1.5° cooler. Various wardrobe combinations and their temperature effects were discussed. Lowering the thermostat and dressing warmly could mean a 12-percent savings. Thus, by using recommendations outlined in the program, each of the 194 households in the audiences could realize significant savings, especially during the 5 heavy heating months in Rocky Mountain high and cold country. □

Landscaping for Energy

Houses designed for low-energy landscaping cost about 20 percent less each year for "comfort conditioning" than houses designed without this feature in mind, says Dennis E. Buffington, associate professor of agricultural engineering at the University of Florida.

In an article, "Proper Landscaping for Energy in Buildings," in *California Landscape Management* magazine, Extension specialist Buffington points out landscaping features to be considered when conserving energy to cool and heat residential buildings. They include: wall and roof shading; wall and roof exterior colors; and building orientation. □

Making Fertilizer from Thin Air

The University of Nevada's Gund Research and Demonstration Ranch is working on a unique nitrogen-making machine. The project is a cooperative effort between the university's College of Agriculture, the Kettering Research Laboratory of Yellow Springs, Ohio, and others. The machine converts nitrogen from the air into calcium nitrate fertilizer on a scale suitable for small farmers in developing nations. The unit does not use fossil fuel.

The prototype in Nevada uses a hydro-turbine generator powered by water piped more than a mile from a canyon, building up water pressure. The turbine provides an electrical arc which produces nitric oxide from the air. It is then combined with water and limestone to produce fertilizer. Byproducts of the process are electricity for home use and heated water for warming a greenhouse.

Because of the bad drought of 1981, a lack of runoff water to power the turbine caused the cancellation of field day plans and some testing. However, the machine does work and the theory is sound. Hopes are high that 1982 will be the first real full-season test year. In the future, larger models of the prototype could have important applications to American agriculture. □

Energy Superstars Teach Ohio Youngsters

In Ohio—with cold winters and hot summers—many people have grown tired of hearing how they must save energy. In Allen County (Lima), Nancy Layman, county agent for home economics, felt if people learned about energy conservation when they were young, their habits would continue into their adult years. Children, too, by the things they do influence their parents' behavior. So, in 1980 she developed "Energy Superstars, A Learning Packet for Children." It is now used sucessfully by teachers and other Extension agents.

The packet is produced for use with preschool and kindergarten youngsters so that teachers and parents become involved, too. Fourteen activities are included in the packet, with patterns for visual aids. Each activity has an evaluation sheet. Activities include: puppets; bulletin boards; glad and sad lightbulbs; picture search; a theme song; a story; a checklist; and a certificate. Different methods were used to advertise the packet beyond the pilot test area of Nancy's county. Because of letters sent to teachers, and mentions of "Superstars" in other Ohio agents' newsletters and newspaper articles, the packet has been very well received.

Evaluation sheets indicate the activities and materials are suitable for the chosen young age group. Many homemakers say they plan to use the packet. Working with small children, parents, and teachers may well be the way to change the attitude of the American public toward conserving engergy. □

"CHEC"-Mating High Energy Costs

Both community energy groups and church groups in Steuben County, New York, are carrying out low-cost energy-saving projects because of the educational efforts of Steuben County Cooperative Extension.

The program—called CHEC (Community Home Energy Conservation)—mobilizes area residents to take steps themselves to lower energy costs. Five communities in the county are initiating

community energy projects as a result of CHEC's efforts. CHEC presents free clinics for area residents to demonstrate low-cost and no-cost energy-saving strategies.

Representatives of eight different area churches attended a recent CHEC program, and as a result, one of them has already developed an energy conservation improvement plan. Because of the success of CHEC and other county energy programs, a County Energy Task Force is being set up to make recommendations for policy at the county level. □

Out of Hot Water

Extension helped some Tennesseans out of hot water last year! The use of flow restrictors on showerheads was only one of the many conservation tips offered to the homemakers of Lauderdale County in a successful program called,"There's More To It Than Meets The Eye."

"Hot water accounts for a large share of a household's energy bills," says Jane Connell, Extension home economist, "but homemakers at the program showed they were ready to do something about it. Sixty-six of the 189 homemakers attending the program reported a total savings of $370 monthly through the use of conservation tips." These ideas included lowering of thermostats on water heaters, complete shutdown of water heaters when homemakers left their houses during extended periods, as well as installation of shower flow restrictors. The program's audience reported sharing the good word about energy conservation with 163 of their neighbors. □

Portable On-Farm Ethanol Pilot Plant

Extension agricultural engineer Darrell Roberts—and others in the Agricultural Engineering Department at Clemson University—designed, constructed and did initial operation of a farm-sized still for ethanol production. In the last decade the idea of energy independence has been foremost in the minds of many people. The concept of each farmer being energy independent has been a never-achieved goal—but producing ethanol (ethyl alcohol) on individual farms had gotten attention as one way to reach such a goal.

The science of ethanol production is well documented for large-scale, commercial operations. Producing it in small, farm-sized plans has not met with much success (except for illegal moonshine operations). Most available designs for farm-sized stills are scaled-down versions of large industrial plants—and their relative success is controversial. The Clemson design is much different in scale and approach. For one thing, since the raw products to be tested are various South Carolina farm products, the entire still was built in a 44- by 8-foot drop-deck trailer. Thus the still can be operated at different Experiment Stations in different cropping regions of the state. The "breakdown" time needed to get the still ready to transport is about 2 hours, and an equal amount of time is needed to set it up at a new location.

Other flexibility was a part of the general design criteria: Heat from either fossil fuels or a renewable fuel such as wood; alternate uses of heat; reasonably simple operational requirements; materials and construction requirements compatible with and available to the capabilities of most farmers. The finished, yet not perfected, portable still was used for three 1-day demonstrations last September—at three locations. Besides operation of the still through the whole sequence, major problems were discussed. Those involved in the project say that small-scale ethanol production isn't a science . . . yet . . . but they are working on it.

More on Stills

"People should check out performance specs of their farm stills and count on making less alcohol of lower proof, unless they're expert," says James W. Garthe, Extension agricultural engineer at Pennsylvania State University. Garthe advises on the dangers of alcohol production for fuel as he travels around the state answering questions.

Garthe doesn't intend to be discouraging, but he wants to let farmers know that alcohol production is not easy. He points out that farmers must modify a gasoline engine three ways if they expect it to run on straight alcohol. First, they must drill out the carburetor jets to furnish more fuel, since alcohol contains less energy than gas. Second, people must keep a dual-fuel system with a dual-carb manifold to start on gas or add a manifold preheater. And third, the manifold must be shielded to assure vaporization while the car is moving.

Cooperative ventures appear more economically favorable than farm stills for alcohol production, he says, because the co-op would spread out investment risk and few farmers have the time or expertise to tend a still. □

Clowning Around to Save Energy

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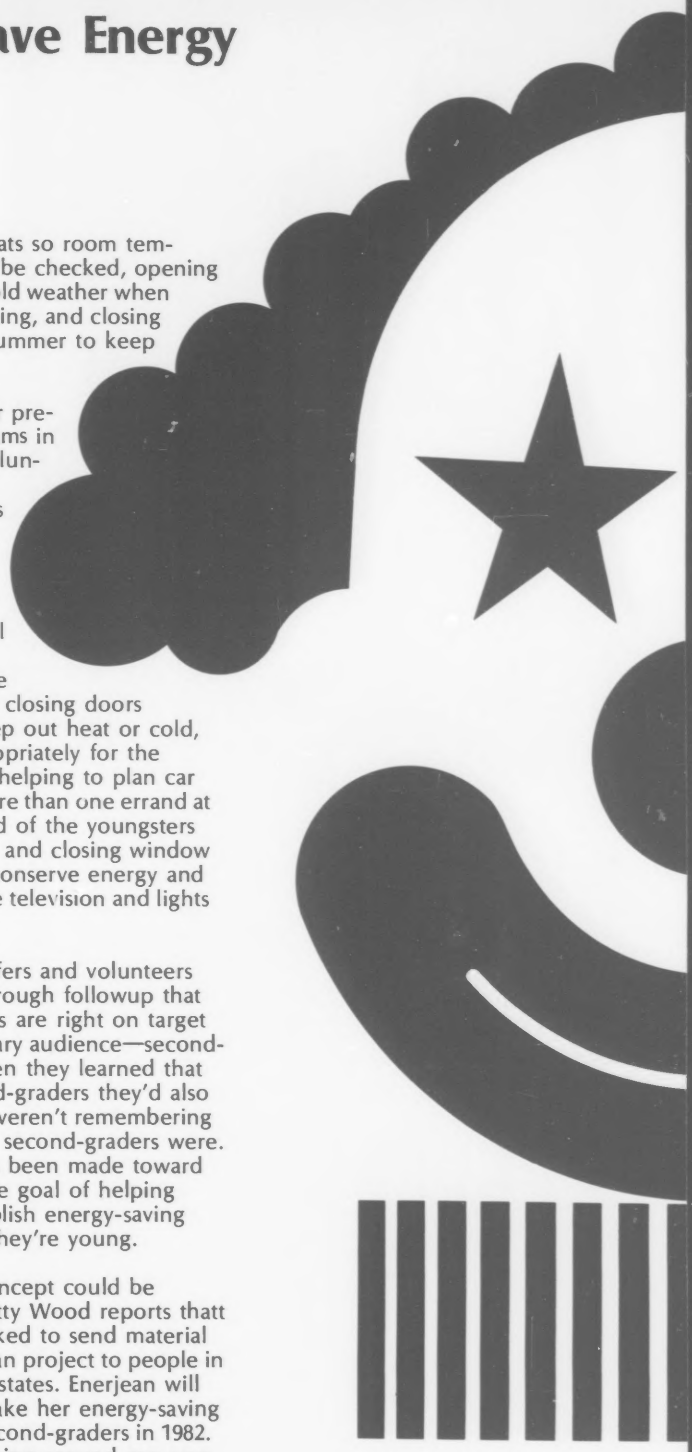

Home economists in the Louisiana Extension Service are trading on youngsters' love of clowns to take an energy conservation program to the state's second graders. Five hundred voluteers, identified as Enerjean the Clown, were recruited and trained by the Extension home economists. The volunteers sewed their own costumes from a design by the Extension staffers.

During 1980, when the Enerjean program began, the clowns entertained 82 percent of the State's 86,000 second graders. Volunteer Annette Hagg chaired the program, Margaret Brewer headed the Louisiana Extension Homemakers' Council in 1980, and Betty Wood, associate specialist, Homemaker Council coordinator, is Extension adviser for the project. Other Extension staffers closely involved include Carolyn Carter, associate specialist, family resource management; Margaret Moore, associate specialist (energy); and Ruth Thompson, specialist, communications.

To help the children retain the concepts, the clowns convey simple messages about energy: keep doors closed, wear more clothing when it's chilly, turn off TV sets that aren't being watched, and walk or bike whenever possible.

Enerjean has become so popular that the clown has appeared on radio and television talk shows and also in ads to announce when the Enerjean program will be coming to the next Louisiana parish. The 1980 program continued into 1981, under volunteer leadership of Earlena Crammer, and volunteers reach 73 percent of the students. For additional reinforcement of their energy concepts, volunteers carry coloring books to distribute to the youngsters. They also added new concepts for the third graders they had visited the year before: how to read thermostats so room temperatures can be checked, opening draperies in cold weather when the sun is shining, and closing draperies in summer to keep out the heat.

Six weeks after presenting programs in the schools,volunteers and Extension staffers followed up on some of the students to see how much they still remembered. About half the children were closing doors quickly to keep out heat or cold, dressing appropriately for the weather, and helping to plan car trips to do more than one errand at a time. A third of the youngsters were opening and closing window coverings to conserve energy and turning off the television and lights in rooms.

Extension staffers and volunteers also found through followup that their programs are right on target for their primary audience—second-graders— when they learned that first- and third-graders they'd also worked with weren't remembering as well as the second-graders were. So, a start has been made toward the long-range goal of helping children establish energy-saving habits while they're young.

The clown concept could be spreading. Betty Wood reports thatt she's been asked to send material on the Enerjean project to people in several other states. Enerjean will continue to take her energy-saving message to second-graders in 1982. Clearly, clowning around can save energy!

Grassroots Governments Plan Energy Conservation

The cost of energy is a twofold problem for local communities. First, local governments face problems of obtaining and financing energy supplies for their own service and operations. Second, local governments, as the level of government most involved with people in their daily lives, must share in the responsibility of dealing effectively with their citizens' own energy problems.

With active grassroots citizen participation, local governments can effectively develop and implement their own energy policy and programs. In Maryland, the Cooperative Extension Service is helping communities educate their citizenry in this critical issue.

Maryland has a relatively small number of local government units: 23 counties and 152 incorporated municipalities. These jurisdictions encompass a variety of organizational arrangements, but all of them retain local responsibility for implementation of functions and services under the broad policy and legislative guidelines of the state. Although local governments vary in the particular power each possesses, they can control or influence a variety of decisions affecting energy use. These energy-related areas include land use and development patterns, energy use in buildings, community outreach, local energy production, transportation, and local government internal operations.

In 1977, officials from Prince Georges County asked Bruce Sorter and Jack Lancaster of the Cooperative Extension Service Community Resource Development faculty to assist them in developing a county energy program. The County Energy Conservation Council, chaired by the county energy coordinator, was actively involved in the process. The final plan contained five major areas to be addressed by energy conservation planning: residential, commercial, industrial, transportation and the public sectors. According to Prince Georges County records, the plan saved approximately $1.3 million in energy costs over a 2-year period. Equally important is the continued involvement and enthusiasm of local citizens in the program.

Cooperation

Between 1979 and 1981, the state energy office paid the University of Maryland $430,000 to provide technical assistance to local governments. Under Extension faculty leadership, the Energy Technical Assistance Program (ETAP) became a cooperative effort of the University's College of Engineering, the Maryland Technical Advisory Service, and the Cooperative Extension Service. Over the 2-year period, ETAP assisted businesses, local governments, community groups, and the Energy Extension Service. Types of assistance to local governments included workshops for local officials, compilation of a handbook, and direct technical assistance to 28 municipalities. During the 2 years, it became evident that local governments were not able to handle their energy problems alone.

ETAP and the Prince Georges County's success started many people on the Extension CRD faculty thinking: "What is the role of

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Cooperative Extension Service in local community planning?" Surely, the staff could not expect every jurisdiction to save a million dollars in 2 years—many don't spend that much on energy to begin with! But CES can and does play a valuable role in educating both citizens and governments in the local issues. Through a decisionmaking process, CES can assist governmental agencies in developing local solutions to their energy problems. In the past few years, the Extension CRD staff has found that this assistance takes on a variety of forms but is always educational in nature and cooperative in spirit.

Energy Futures Conference

After several years of conducting successful energy projects such as fairs and workshops, the Frederick County Maryland Extension committee wanted to tackle the larger issue—a comprehensive community energy program. Under the leadership of CRD agent Mike Sowell, the committee investigated various approaches to the problem, and decided an energy futures conference was the best way to start the ball rolling. A 2-day conference highlighted the problem and secured the commitment of key individuals to work on a countywide program.

The first night of the January 1982 conference was open to the general public, and keynote speakers addressed the energy problem. The second day of the conference was given over entirely to work sessions. Eight invited groups, with the aid of facilitators, identified priority energy issues in transportation, land use, economic development, recycling and waste utilization, farm and food production, institutional energy users, emergency preparedness, and housing. By the end of the day, each group outlined their plans to tackle these issues. When participants left the conference, their work had just begun.

Energy Forum

Coordination and communication were the problems in Wicomico County. George Monroe, Wicomico Extension agent, met with the Regional Coordinator of the Maryland Energy Office and the Wicomico Energy Coordinator to discuss the situation. They decided to form a loosely organized group called the Wicomico Energy Forum to keep current on energy issues, know what alternatives are available, and coordinate programs.

The Forum is now seeking to identify the large energy users in the county, as well as citizen and organization leaders interested in the energy issue. The group mailed a short questionnaire to 200 potential members. The Forum will offer a series of activities designed to highlight ongoing education programs and eliminate duplication and competition. As the need dictates, study groups will be organized to address complex energy questions. CRD faculty will assist these groups in their decisionmaking process.

Citizen Committee

In rural Allegany County, the energy situation seemed to be unmanageable. Short of resources and staff time, the county could barely keep up with the regular workload. Energy was a problem, but it was going to have to wait. Then in June 1981, Trish Driscoll took on the assignment of local CRD agent with responsibility for the energy program. As part of her needs assessment, Driscoll contacted all related agencies and groups. To assist with coordination, she compiled an Energy Reference/Referral Notebook which was placed in all libraries and community centers.

In the fall of 1981, a county official asked for her help in energy conservation programming.

Driscoll is now in the process of members for a recruiting committee to spearhead this effort. The initial job will be to educate the general public, as well as local government officials, to the problem. The long-term goal is to implement a comprehensive county program.

The energy problem in Maryland is far from being solved, but the effort proceeds—sometimes smoothly, sometimes not—toward the establishment of local, educated citizens groups working with the support and mandate of the local government to solve of community energy problems.

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