PROCEEDINGS

Proceedings of the National Small Farm Conference

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Preface

There are 1.4 million small farms in the United States. This is 73 percent of the 1.9 million total farms or 1.4 million farms. Although "Small farms" gross less than $50,000 annually in agricultural sales, their viability and survival is an important rural issue in most states.

The goal of the USDA-Cooperative State Research, Education, and Extension Service (CSREES) Small Farm Program is to improve the income levels and the economic viability of small farm enterprises. These can be accomplished through partnership efforts with the land-grant system, and public and private sectors using strategies that address the needs of the total farm family. Continued support of small farm efforts nationwide, will assist these farmers in meeting their major needs in the areas of on-farm research, marketing, and farm management.

On September 10 - 13, 1996, nearly 300 participants from the land grant system, farms, public and private sectors convened in Nashville, Tennessee at the National Small Farm Conference. The purpose of the conference was to provide an opportunity for research and extension educators, scientists, farmers, and other agricultural professionals from the public and private sectors, with small and mid-size farm responsibilities, to identify program priorities. This was also an opportunity to share success stories and/or experiences in order to strengthen program delivery and services.

These proceedings capture nine major issue areas that were identified at the conference through presentations and discussions. These issues are: 1) Research and Extension Priorities, 2) Program Impacts and Accountability, 3) Technology Transfer, 4) Environmental Issues, 5) Program Delivery, 6) Marketing Strategies, 7) Economic Opportunities, 8) Social Issues and 9) Small Farm Policy. In an effort to build a strong Small Farm Program in CSREES and its partners, subcommittees consisting of the land grant system, public and private sectors including farmers and non-governmental organizations are being formed to address each issue area, and develop recommendations that would benefit the delivery of programs and services throughout the small farm community.

We hope you will find these proceedings helpful in the effort of linking research and extension, to meet small and mid-size farm needs.

Denis A. Ebodaghe, Ph.D.
National Program Leader
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Acknowledgements

The organization of a successful conference requires cooperation, collaboration and perseverance. This conference is no exception. The cooperation among the committees and the dedication by the committee chairs is greatly appreciated.

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KEYNOTE ADDRESS

The Role of Small and Mid-Size Family Farms in American Agriculture, and USDA's Commitment to Small Farmers

Jill Long Thompson
Under Secretary
USDA--Rural Development
Washington, DC

Thank you for providing me this opportunity to join so many professionals who dedicate themselves to improving the lives or rural Americans and prospects for America's small and mid-size family farms. Few individuals understand the myriad problems facing farm families and the potential benefits from Federal agriculture programs as well as the persons and public officials represented here.

I also appreciate having the chance at this forum to discuss with you the new vision that has taken root at the Department of Agriculture and its very positive impact on small farmers and ranchers and rural America in general. The Clinton Administration is committed to making a maximum effort to improving life in rural America. I see that every day in the three organizations that report directly to the Under Secretary for Rural Development: The Rural Housing Service (RHS), the Rural Business-Cooperative Service (RBS), and the Rural Utilities Service (RUS).

Obviously, the commitment goes way beyond the business, housing, utilities, and development programs administered within the Rural Development mission area.

The results speak for themselves. Total farm cash receipts for 1996 could reach a record $200 billion, $29 billion above 1992 and far beyond the $144 billion average for the 1980s. Much attention has been given to agriculture's $30 billion trade surplus. That is not unfair--it is one of the biggest success stories in the U.S. economy. By the end of the year, U.S. farm exports are projected to reach $60 billion, a 50 percent increase since President Clinton took office. These numbers translate into higher prices, higher incomes, and more jobs. In 1995, U.S. agricultural exports supported nearly 1 million jobs--one-third of them in rural areas.

Secretary Glickman also understands that for many small and mid-sized farm operations a local farmers' market can provide increased outlets and prices for production.

The Agricultural Marketing Service helps states and localities in research and funding for development and expansion of farmers' markets. Twenty years ago, there were fewer than 100 farmers' markets across the country. In 1994, the *National Farmers' Directory*, published by USDA, catalogued 1,700 farmers' markets. These increased markets mean money for small and mid-size farms.

A Cornell researcher has estimated that direct sales of fruits and vegetables through farmers' markets totaled more than $1 billion in 1993.

Secretary Glickman understands there is room in the system for farmers who choose to market their own products--their own way. Measured across all crops and livestock, farmers are now getting prices 20 percent higher than they got in 1992 and nearly 25 percent above the average for the 1980s. Farmer cooperatives are another success story. Co-ops reported a record net income of nearly $2.4 billion last year--up 20 percent from 1994.

The value of farm assets--including land--which dropped significantly in the 1980s continues to rise, and to rise much faster than farm debt levels. The overall equity position of U.S. farmers is increasing--up nearly 15 percent since 1992.

To ensure that farmers get a competitive price for their products, USDA created an advisory committee to investigate the effects of concentration in the meat packing industry on producer prices. The Department has already begun to respond to the committee's recommendations.

Secretary Glickman has stated his intention to stop any detrimental effects of buyer concentration on production agriculture.

Droughts and rain have hurt crops. However, a fast, practical, and effective response to disasters has been a priority from day one for USDA and the rest of the Administration. Responding to disasters is one of the most visible--but hardly the only--accomplishments that have occurred since the President called for a "leaner but not meaner" government that works better and costs less. USDA's plans for reorganizing local program delivery through field service centers has already saved taxpayers over $900 million and cut staff by 10,000 positions.

President Clinton's rural Empowerment Zones/Enterprise Communities' (EZ/EC) initiative is proving that some of the best ideas and initiatives that address community problems are those that are initiated at the local level. Communities that went through the EZ/EC application process--even those not selected--succeeded in getting a clearer idea of their own potential and learned that by working together they could realize that potential. The ideas, initiative, and efforts are driven at the local level--not by the Federal government. Instead of telling local governments what the problems were and how these problems needed to be solved, the EZ/EC process has asked local residents to identify and help solve their own problems.

Through our own staff and the work of others, the Administration has offered technical assistance, assisted communications as they build effective partnerships, and supported efforts to design

economic and community development plans. This effort is not all grand schemes. I will use as an example our new Notice of Funding Availability (NOFA) service. Before, officials in thousands of small rural communities would each have to search the *Federal Register* to find notices that are published by individual federal agencies. Now, our EZ/EC Task Force updates a NOFA database daily and puts the information up on the Internet. Any official in rural America can now sign on to the EZ/EC web site, click on the "What's New" page, and start to find items that could be of assistance to the community.

In Rural Development, we are also taking big steps to change the way we do business. In one of the most ambitious efforts in the entire Federal government to re-engineer, Rural Development is modernizing its single-family housing loan program, which has provided housing loans worth $46.8 billion to more than 2 million rural Americans.

The Dedicated Loan Origination/Servicing System (DLOS) is a modern, automated loan processing and servicing system which will be administered in a national service center similar to the type used by the private sector to improve customer service and reduce costs. DLOS will reduce the time-consuming and often duplicative work now being handled, often manually, in thousands of field offices across the Nation.

As part of our DLOS initiative, we have already combined the guidance provided in 16 different regulations totaling 290 pages into one consolidated rule which was published in the *Federal Register* on April 8. We estimate the final rule, after DLOS is fully implemented, will cover approximately 30 pages in the *Code of Federal Regulations*, which represents a 90 percent reduction in regulations from the 290 pages.

The new loan system is now being implemented and is scheduled to become fully operational in October 1997. On October 1, two pilot states, Virginia and Missouri, will begin processing new loans using DLOS and will convert all their existing loan portfolios to DLOS next year.

The high level of automation offered by DLOS will have a major impact on staffing levels needed to handle the Rural Development single family housing loan program. At present, 3,300 staff years are needed to operate the program.
The DLOS-driven system will require only 1,800 staff years, with about 1,200 staff years remaining in local offices handling loan origination and servicing, and 600 positions moving to the DLOS service center in St. Louis. It will save taxpayers $250 million over the next 5 years.

At this juncture, few subjects are as important to small and mid-sized family farms as the restructuring and refocusing of Federal Rural Development programs. The numbers make that case best.

Rural America contains 83 percent of the nation's land and is home to 21 percent of the population. The *Wall Street Journal* reported in June that the population is growing in most rural areas at the fastest rate in more than two decades.

The same article discussed a USDA report which showed employment expanding faster in nonmetro communities than in urban areas, which have been hit more directly by corporate layoffs.

Rural America supplies 18 percent of the Nation's jobs and generates 14 percent of the Nation's economic output. Agriculture remains a primary component in the rural economy, but it is not as large a component as many urban residents might think. Over the past 20 years, the percentage of the rural work force employed in farming has decreased from 14 percent to 8 percent; at least 80 percent of rural residents are supported by nonfarm income. The largest and a growing share of rural employment comes from the service sector, which employs about one-half of all rural workers.

Real earnings per job remain lower in rural areas than in urban areas, however, declining by more than 6 percent from 1979 to 1989. This affects farm families because, like most families, farm households receive income from a variety of sources. In 1993, only about 12 percent of a farm household's income came from the farm. For the majority of farm operator households, those with less than $50,000 in gross sales, off-farm income is critical. Off-farm incomes such as wages and salaries; income from an off-farm business; unearned income (e.g., interest and dividends); and royalties, annuities, and Social Security make the difference between a good year and a bad year.

Small and mid-sized farmers depend on a strong rural America, and a strong rural America requires an investment in people and communities for the future. It requires efforts toward self-sustainability and competitiveness in the global economy. It means investing to improve the physical infrastructure, quality of life, and job opportunities in rural America. It requires strategic planning for a coordinated effort to move toward self-sustainability and competitiveness in the global economy. It requires improved access to capital and technical assistance for small business, which is a vital ingredient for job creation in rural America.

Despite decades of investments in infrastructure and business development, rural America continues to face many significant challenges. Some of the challenges, like the persistence of poverty in major parts of the South and in Appalachia, have been with us for a long time. Others, such as the loss of jobs and businesses from rural economies, are due to changes in the structure of rural economic bases and the globalization of competition.

Increasingly, new problems--problems that center on the role rural communities will play in a future that relies less and less on raw materials as economic assets--dominate the rural policy agenda. Today, we are concerned about creating jobs in remote places and in developing new industrial uses for traditional commodities. We are concerned about building economic linkages between rural businesses and the urban and global marketplaces to which they must sell.

We are concerned about building economic bases on regional scales to achieve economics in production that will make rural competitiveness feasible.

We are also concerned about finding solutions that pool the assets of public and private organizations to achieve holistic and forward-looking approaches to economic development.

President Clinton clearly understands this, coming from a small, rural community. In his Fiscal Year 1997 Budget, he proposed a $2 billion increase for rural development programs. The total of $9.6 billion for loans and grants for rural housing, utilities, and business programs would make a dramatic impact in rural America.

Congress reduced the President's budget request to about $8.7 billion. We will do the best we can with the resources provided us.

In addition, the Administration believes we must push beyond traditional thinking and currently constructed Federal programs if we intend to make a better life for rural America. We need new ideas, and a new emphasis on what the Federal government can do well and what it cannot do. In his State of the Union Address, President Clinton said,

> We know big government does not have all the answers. We know there's not a program for every problem. We know and we have worked to give the American people a smaller, less bureaucratic government in Washington. And we have to give the American people one that lives within its means. The era of big government is over. But, we cannot go back to the time when our citizens were left to fend for themselves. Instead, we must go forward as one America, one nation, working together to meet the challenges we face together.

The key to our future efforts on behalf of rural America and the people that live there will be partnerships. A Federal partnership does not mean an exclusively Federal way of doing business.

The days when Federal resources could be thrust on local governments--with all the regulations and requirements and strings that come attached to Federal aid are gone. Uncle Sam does not have the financial resources or the staff. The Clinton Administration also understands that a grassroots/bottom-up approach to problem-solving works best. We are already working in partnership with state and local governments, foundations, nonprofits, and businesses and regional interests to build water and wastewater systems; finance decent, affordable housing; support electric power and rural businesses, including cooperatives; and support community development.

In the single family and multi-family housing loan programs, we have encouraged leveraging, which utilizes our direct loan funds in partnership with another lender's funds. We take the second lien on the property, with the private-sector lender or housing finance agency in first position. For example, the Federation of Appalachian Housing Enterprises (FAHE), a home-grown financing intermediary in Kentucky, is working with us and seven community-based nonprofits to provide leveraged loans so low- and very low-income rural residents can achieve the dream of home ownership. These leveraged loans will be funded through a creative blending of

funds from the HOME program, Appalachian Regional Commission funding, the FAHE Home Loan Fund, individual groups' home loan funds, local bank support, and, of course, Rural Development financing.

We expect that the partnership funds will provide approximately 30 percent of the needed financing, and Rural Development will provide the remainder, stretching our resources greatly in this high-need area.

In another partnership example in the Pacific Northwest, the Rural Development mission area has been a key player in addressing the economic ills of a regional economy impacted by changes in the timber industry. State governments in Oregon, Washington, and California, a dozen federal agencies, and numerous local governments were brought together through Community Economic Revitalization Teams to address the consequences of a regional economic dislocation. This partnership has helped build medical clinics and multi-family housing projects, provide clean drinking water for rural families, and create seed money to establish small businesses in timber-dependent areas.

Consider, for example, an employee-owned business located in Omak, Washington, part of the Pacific Northwest, that received a $4.9 million business and industry (B&E) guaranteed loan last year. This sawmill and plywood manufacturing company has an annual payroll of $30 million--almost 500 families depend on its operation directly. With the economic downturn in the timber industry, the business was headed for closure unless it restructured its debt.

The Bank of Washington participated by providing a $10 million line of credit for inventory and working capital. The employees sacrificed $28 million in stock to ensure the future success of the business. This means $38 million of other credit or debt of the company was leveraged against the $4.9 million B&I guaranteed loan. This B&I guarantee saved 476 jobs--approximately 20 percent of the community's work force.

Other jobs such as those of truck drivers, loggers, and raw material suppliers were also saved since there are no other sawmills for over 100 miles in that part of the state.

We like what we have seen working with partners. We are going to increase our use of partnerships, letting us leverage our limited resources, building private, nonprofit, and other public sector participation in local rural efforts, and increasing our likelihood of success. In many cases, we are going to structure our programs around partnerships.

That is more possible because the rural development provisions of the 1996 Farm Bill signed into law by President Clinton are going to fundamentally change the way Federal Rural Development programs are delivered by the Rural Economic and Community Development (RECD) mission area. In enacting the Rural Community Advancement Program (RCAP) in the Rural Development title of the Farm Bill, Congress accepted most of the elements of the concept first proposed by President Clinton in his Fiscal Year 1996 budget. They will promote genuine partnerships at the grassroots level by establishing a mechanism to identify the needs of rural

communities at the local level and foster flexible and innovative approaches to rural development.

The legislation also changed the funding mechanisms for USDA Rural Development programs to ensure that Rural Development state offices have flexibility to work with states and local communities. This new framework will require that projects be evaluated in a competitive system which considers community needs, priorities, and capacity--as well as project quality--rather than relying on a "first come, first served" approach to funding eligible projects.

State Rural Development offices will develop strategic plans that formulate community development objectives and establish links between local, state, and private-sector organizations and our staff to integrate assistance provided under this proposal with ongoing activities and priorities. It provides that states; local, private and public-sector organizations; state Rural Development Councils; and federally recognized Indian Tribes in the state are to be involved in the preparation of the state plan.

Plans will identify goals, methods, and benchmarks for measuring the success of carrying out the plan. Priority will go to communities with the smallest populations and lowest per capita income. Under the new law, USDA Rural Development will combine funding which had been provided separately for eligible purposes into three funding streams. Funding will be allocated to states by formula.

The mission area has begun our internal processes for implementing the Farm Bill. It is our intention to deliver our programs under RCAP in the coming fiscal year--consistent, of course, with any direction or limitation provided us under the Fiscal Year 1997 agriculture appropriations law. The appropriators have made several fundamental changes in the RCAP structure--we cannot transfer funds between the three streams or make grants to state governments. But we still have more flexibility in administering our programs than we have ever had. We start the state strategic planning process predisposed to leave to State Directors much of the decisionmaking regarding the plans.

We will be asking a wide range of interested parties to participate in the process at the national level as well as the state level.

The 1996 Farm Bill also includes language authorizing $300 million over 3 years for Secretary Glickman's "Fund for Rural America," which will augment existing resources for agricultural research and rural development. One-third of the funding is to be dedicated to rural development, one-third is dedicated to research, and one-third can be allocated at the discretion of the Secretary. In the near future, Secretary Glickman will announce how he intends to direct that funding.

USDA Rural Development is now poised to make this holistic approach the foundation of our Rural Development program delivery structure and to work even more closely with rural electric co-ops; states; businesses; community organizations, including community action agencies; foundations; and the private sector in tackling the important issues of job creation, trade, and the preservation of the rural way of life.

Together, we will be working toward a vision of a vibrant and prosperous rural America with opportunities for all as our Nation enters the next century.

This is not a new task for the agencies of the Rural Development mission area. The Rural Business-Cooperative Service, the Rural Housing Service, and the Rural Utilities Service and their predecessor agencies have a very proud history of improving the lives of rural people.

The agencies take pride in our long history of providing credit to businesses, families, and communities that do not have effective access to credit because of the isolated nature or small scale of the rural market, and of providing subsidies to low-income families and communities that could not otherwise afford rent or debt service payments. In the last 3 years, USDA Rural Development has provided new home ownership opportunities to over 230,000 people and rental housing for another 30,000 families.

We have helped 500,000 students in 230 schools, and 112 medical facilities serving over 134,000 patients have improved access to educational and health care resources through the Distance Learning/Medical Link program. We have created or saved nearly 110,000 jobs through loans and grants to rural businesses. Just this summer, USDA gave $70 million in grants and loans to 54 communities in 35 states to build, improve, or expand public drinking water systems as part of the Water 2000 Initiative.

We stand ready and willing to do what we can to improve conditions in rural America. While significant progress has been made, more can always be done. Progress is not something that can be dictated by Washington or provided by grant or loan, or that follows automatically from the construction of any project. Progress happens only when hard work, personal dedication, and sacrifice meet opportunity.

For both individuals and communities, President Clinton feels everyone has an obligation to help themselves–not depend on government or look to others. Federal and state resources are to be expended to meet a need that cannot be satisfied by local governments, nonprofit organizations, or the private sector. In that context, the role of USDA will be as a partner to ensure that whether you choose to live in rural America or urban America, you have access to good quality health care and good quality education, and that there are economic opportunities so that families and communities can prosper.

The mission area, like many other agencies in the federal government, is changing the way we do business. We will not always have resources to match the need. We will be operating out of fewer offices, and we will have fewer people.

But we will not use any of these as excuses. Our commitment is to have better customer service and better, more efficient ways of doing business. A child who grows up in rural America ought to be able to compete with children growing up all around the world.

Thank you again for giving me this chance to be with you for this important conference and to represent the thousands of USDA employees who serve farmers, ranchers, and the rest of rural America every day with dedication, great skill, and enthusiasm.

Panel Discussion: Needs Assessment

Research and Extension Needs as Seen by a Small Fruit Grower

Kathy Bomar
Shelbyville, Tennessee

Some fruit and vegetable growers are located in remote areas that are isolated from other growers and/or have limited financial resources. They stand to benefit from the Agricultural Extension System. The following suggestions can help meet the needs of fruit and vegetable growers:

- Maintaining communication between Extension personnel across state lines.
- Create a database that contains a description of the agricultural publications from all the states plus information on how to order these publications.
- Develop and publish "cookbooks" for various production systems.
- "Brainstorm" across Extension and USDA agencies to help producers find inexpensive ways to do things.
- Extension personnel needs to "think-through" the entire production process as if they were a producer implementing a new production system.
- Field-test old tractors with various implements to determine their suitability.
- Register herbicides and pesticides for minor crops.
- Research alternatives to chemicals.
- New production systems such as no-till vegetables on hills, and starting vegetables in flat beds in January without the benefit of a greenhouse needs to be researched.
- Research to develop fresh market fruit and vegetable varieties.
- Research is needed to determine the consistency of varieties, i.e. why does the same variety of produce taste different when grown in different locations.
- Develop and maintain a current database describing equipment and horticultural supplies.

Research and Extension Needs as Seen by California Farmers

Richard Molinar
Fresno, California

California small farms are unique in the diversity of crops grown and their wide ethnic diversity. Over 250 different crops are grown and, in some counties, some are grown over a 365-day growing season. Many regions specialize in a particular commodity. Such regions as the Salinas Valley, which is known as the "lettuce capital of the world;" Reedley, the "fruit basket of the nation; " Selma, the "raisin capital of the nation;" and Castroville, the "artichoke capital of the world."

According to the 1992 Census of Agriculture, 77 percent of the 77,600 farms in California grossed less than $100,000 in sales. They are small farms and mini farms by one definition. The small farms tend to have limited acreage, limited physical resources (tractors and equipment), cultural and language barriers, and/or limited knowledge of basic crop production principles. Many of the small farms, growers raise specialty crops with higher cash values, to compensate for smaller acreage. Sixteen percent of all small and mini farms are owned by minorities, the two largest groups being Southeast Asians and Hispanics.

Fresno County has more large and small farms than any other county in California. Below are examples of some of the types of crops grown and the acres under cultivation in 1995;

745 acres of green beans (97growers)
42 acres of Chinese greens (32 growers)
640 acres of strawberries (82 growers)
30 acres of opo (32 growers)
230 acres of daikon (36 growers)
64 acres of bok choy (33 growers)
693 acres of parsley (4 growers)
11 acres of tomatillo (4 growers)
625 acres of eggplants (180 growers)
98 acres of bittermelon (83 growers)
546 acres of squash (93 growers)
59 acres of gallon (14 growers)

The above list demonstrates the immense diversity of crops grown in Fresno and the limited acreage a farmer may have of any particular crop. The Hmong farmers are an example. They came here from the mountain regions of Laos after the Vietnam War under the refugee status as allies of the United States during the war. They comprise about 62 percent of all Southeast Asian farmers in Fresno county. In a survey conducted in 1992, it was found that:

- most (98 percent) lease or rent the land they farm;
- 80 percent have been farming here 3 years or less;
- the average Hmong farmer plants 3.25 acres of crops;

- most Southeast Asians sell their produce to wholesale packing houses;

- and typically one person will negotiate to rent a 40 to 80 acre block of land, then divide it up between relatives who will then farm their portion independently.

They are very hard working people doing most of the field operations by hand. Children and relatives help with the planting, weeding, and harvesting. Their understanding of efficient farming practices is very limited.

Research and Extension Needs

The specific needs of small farmers in California vary with the clientele and their educational and cultural backgrounds.
A Southeast Asian farmer who is sprinkling a 15-15-15 granular fertilizer on top of the soil to be irrigated in by furrows certainly needs basic help in fertilizer practices.

A Hispanic farmer who does not know why his yellow crookneck squash stopped producing and began dying needs to understand virus infections and its vectors.

At a statewide Small Farm's Conference in the spring of 1996, a group of farmers expressed their needs. They agreed that "equipment" designed for the small farmer was needed and that putting this information on a home page would be a good way to disseminate the information.

Because both California and Federal EPA registration is required for chemicals in California, registration of pest control chemicals for minor crops are very limited. The need for research into pest control methods (chemical and alternative) is critical. Marketing channels practical for small farmers was another need discussed. Financial assistance from lending institutions, disaster assistance and recordkeeping were also discussed as high priority needs.

Research and Extension Needs As Seen by a Farmer

David Serfling
Preston, Minnesota

American agriculture needs more small family operations. Rural America has the infrastructure in place for more people to remain on the land. Roads, schools, churches, and even empty farmsteads are available to people who want to farm.

The number of family farmers has steadily declined throughout the last century. Regardless of high prices, low prices, good weather, bad weather, technological advances, and government subsidies, the trend has been relentless. To stop this trend and encourage more family farmers on the land, we may be able to use the Fund for Rural America to link retiring farmers with beginning farmers. Also, a change in attitude and a positive financial margin will promote small farming. This margin can either be on the cost or revenue side.

We have made great strides in technology. Many economies of size have been achieved. Now, we need technologies, systems, and methods that favor small producers.

We already have some technologies in place, such technologies include: organic production, direct marketing, value-added, intensive/rotational grazing, low-input pasture-based swine production, and alternative livestock.

Farmers of the 21st century are asking more questions of our researchers. We continue to want more profitability, productivity, and efficiency; but in addition we also want practices that enhance our environment, stimulate our rural communities, and improve our quality of life. Quality of life includes leisure time, spousal happiness, and a positive child-rearing situation. Perhaps interdisciplinary teams of researchers would be needed to address these additional questions.

Farmers still need unbiased, randomized, and replicated research.

Finally, my own wish list for research topics include a bloat-free alfalfa variety, nutritional supplementation information on grass-based systems for various animal species, and information on the "costs" of pesticide usage to yield and society.

Farmers want to work with researchers to reduce the costs of the research and to get their questions answered.

Implications of the 1996 Farm Bill to Small and Mid-Sized Farmers

John Riley
U.S. House of Representative
Washington, DC

The 1996 Farm Bill Process was difficult to get enacted, but this is nothing new.

- In 1981, there were many controversies, and the final version of the bill only passed by two votes.

- In 1985, there was considerable conflict between the Administration and Congress, and the final version was only enacted on December 23, 1985.

- In 1990, the Farm Bill process was made difficult by the fact that it coincided with deficit reduction efforts and a strong focus on conservation issues.

In the beginning of 1995, a normal process was scheduled and anticipated, with field hearings, District of Columbia hearings, subcommittee meetings, and full committee meetings. The process was interrupted however, for a couple of reasons. First, the general Congressional schedule (on unrelated matters) was jam-packed, and this made it difficult to schedule Farm Bill action.

Also, it was becoming apparent that the overall budget consideration was going to result in a very significant reduction in projected farm program spending. Cuts would be so deep that considering policy without addressing the budget at the same time was considered to be nonsensical. As a result of these developments, the normal process for considering a farm bill was not undertaken as planned. Instead, the Agriculture Committees proceeded to make a 7-year farm policy in the context of the larger budget debate.

Therefore,

- The subcommittees did not meet.

- The full Agriculture Committees held markups that were relatively limited in scope compared to past Farm Bills.

- There was a difference of opinion between the House and Senate on whether to do the usual comprehensive Farm Bill or to separate commodity- and closely related topics from the general conservation, research, trade, credit and miscellaneous sections which normally appear in a farm bill.

By the time both Houses passed their farm program bills, it was determined that there would not be enough time remaining for this Congress to do a separate bill, and so all issues were dealt with in conference–including those not addressed in the House bill. As a result–at least on the House side–consideration was not given in the normal way to matters related to research, credit, conservation, and other miscellaneous categories.

They put off this action because they were very concerned with doing all they could to make sure that the research apparatus is efficient and is serving the needs of the family farmer, who is being increasingly exposed to intense competition. In this process next year, your input will be sought about how to go about such an important undertaking.

Aside from research, what happens next is unclear. If nothing else, we know that something will have to be done in time for the 2003 crop. One section of the Farm Bill calls for the establishment of a Commission on the 21st Century Production Agriculture. It is supposed to submit its reports to Congress by June 1, 1998, and by January 1, 2001, including specific recommendations for legislation "to achieve the appropriate relations of the Federal Government with production agriculture." One of its tasks is to assess distinctly the economic risks to farming and ranching operations of various sizes.

Between now and the year 2002, many things can happen. One thing that we are used to doing is a technical corrections bill in the year following the Farm Bill year. It is not clear that such a bill will come up next year, but it is possible and perhaps not too unlikely.

A point of clarification, too: some editorial boards hailed this Farm Bill as being the one that ended farm programs. This, of course, is inaccurate. The Farm Bill's policy runs for 7 years, and at that time Congress will have to act again.

Again, I am very grateful for the opportunity to be with you and explore these matters and look forward to hearing from you or seeing you in Washington.

Farm Bill Challenge for the Land-Grant System

Fred Woods
USDA-Cooperative State Research, Education and Extension Service
Washington, DC

The 1996 Farm Bill substantially changed the economic environment for decisionmaking in agriculture–for all sizes of farms. Deficiency payments, which provided income support (more when prices were low, less when prices were high) are no more. In their place, we now have "transition" or production flexibility payments, contracted for in a generally known amount from now through 2002.

Price support loans now provide less of a price floor, since they are generally "capped" at the 1995 levels. There are a number of new or, substantially modified conservation programs, including the Environmental Quality Incentives Program (EQIP) which provides $200 million annually for educational, technical, and cost-sharing assistance for environmental quality improvement practices.

Any new Farm Bill offers two primary challenges for the land-grant system. The first is an immediate one of educating about the bill to help farmers and landowners understand program provisions and to assist them in choosing their most profitable level of participation. For the 1996 bill, the "commodity program" choice was clear, and our challenge was to help farmers learn about the production flexibility program so they could sign up during the one-time sign-up period. In addition to our "regular" educational programs, we participated in with the Farm Service Agency, and the Federation of Southern Cooperatives in a concerted effort to inform small farmers in the Southern states.

Our second, longer-run challenge is to conduct research and education programs to better prepare farmers to manage the increased risk of operating in a more volatile, market-oriented environment. We are well-positioned to meet this challenge. Risk management research and education for farmers is a major component of the national system initiative "Managing Change in Agriculture." This initiative seeks to incorporate comprehensive risk management into the broader context of how farm families establish personal and family goals and evaluate alternative means of striving to reach those goals.

Effective research and extension programs for small farmers must frequently be tailored to meet the particular needs and circumstances of this group of operators. Often, this involves more labor-intensive efforts, especially in the case of education delivery programs.

In these times of flat or declining resources, many in the land-grant system say we cannot afford these special efforts.

Yet, to fail to address the special needs of small and moderate-size farmers is to betray the very basis of the land-grant system, which was founded to serve people, not production. For Extension, 65 percent of all Federal funds and 100 percent of all 1890 Federal funds are distributed by a formula based on each state's share of the rural, as well as farm, population.

For research, 30 percent of all Federal (USDA) dollars and 100 percent of 1890 Federal (Evans-Allen) funds are distributed by a similar formula.

So actually, we have several challenges. I believe we are generally meeting those presented by the 1996 Farm Bill. But as far as meeting the specific needs of small farmers, we may need to re-examine our history, our mission, and our priorities.

Luncheon Address

Linking Research and Extension to Meet the Needs of Small and Mid-Size Family Farmers

Daniel E. Kugler
USDA-Cooperative State Research, Education, and Extension Service
Washington, DC

Farmers in the future will operate in a new world where the only certainty is continued uncertainty, risk and change all occurring at an accelerated pace.

The USDA Economic Research Service defines small farms as those which produce less than $50,000 in agricultural products per year. According to this definition, there are 1.4 million small farms in the United States. These small farms constitute 73 percent of all farms, less than 10 percent of the farm sales, and roughly 31 percent of farm acreage. On a per-farmer basis, this means that nearly three-fourths of the farm customer base for land-grant research and extension knowledge is small farms. This constituency is considerable, and their needs must be met.

The role of the land-grant institution in serving the small farm constituency is that of a unique system poised for creative and strategic responses to the challenges of change. The land-grant system helps build operations into successful and profitable businesses, which, in turn, contribute to the well-being of families and communities. The land-grant system can do this in several ways, mainly through education programs, both formal and nonformal. We need educational programs which focus on strategic thinking and decisionmaking processes to help with risk management and skills where information and choices abound.

We need educational programs in conservation for small farms. With small farms occupying nearly one-third of the agricultural land base, there is an important role in facilitating evaluation of alternative conservation technologies and management practices. This helps to balance conservation with other production and business objectives.

There are numerous educational program needs for helping small scale animal farmers, i.e., those engaged in dairy, cattle, hog, poultry, agriculture, and other operations. Animal agriculture needs assistance to improve operations, develop new products, open new markets, reduce loss to pests and

diseases, and meet sanitary and environmental requirements while remaining profitable.

The ultimate role of the Cooperative State Research, Education and Extension Service (CSREES) and the land-grant system is to help small farm operators understand where their farm operations are relative to the potential of their resource base. We can assist small farm operators understand, evaluate, and select options as they face choices and change.

There are other things which CSREES and the land grant system can do. We know that knowledge is not size-neutral. The acquisition cost of knowledge is relatively constant regardless of farm size. However, the value of knowledge can be scale sensitive and may require a certain size of operation for successful and profitable adoption. This may be one of the reasons small-scale operators are less likely to adopt certain practices, such as computerized bookkeeping, on-line marketing, and integrated pest management, than large farms. To be size-neutral, we need to offer programs targeted to meet the needs of small farms as well as those of larger farms.

We need to do a better job of consulting with small and mid-scale farm operators about their needs. This could be done through representation on research and extension advisory committees. We may go beyond this to "reinvent" a long-time extension tool, namely informal consulting, where time is spent listening to the needs of small farm operators in their barns, coffee shops, and fields.

The CSREES and land-grant system function as a partnership and that partnership extends to other agencies and organizations. As Under Secretary Jill Long Thompson said this morning, we must work with local and state agencies, private interests, universities, and others. We need to use extension's strengths to bring people together to build sustaining programs in support of their industries and communities.

Although the breadth of the CSREES and land-grant system and its partnerships is pervasive, it takes active small farm programs at all our institutions to reach 1.4 million small farmers. This calls the 1862, the 1890 and the newest 1994 (Native American) land-grant colleges and universities into a proactive role for small farm programs linking research and extension to meet the needs of a particular audience.

Finally, in a reflection from CSREES Administrator Bob Robinson, maybe we ought to do more on-farm research. This is also a long-time extension tool that encourages innovation, problem-solving, and decisionmaking. More importantly, it puts the results directly before other farmers. In closing, let it simply be said that the CSREES and the land-grant system is poised to serve the 1.4 million small farms in this country. It is your actions and your influence that will drive that system to be responsive to research and extension needs of those small farms.

Alternative Agriculture

Notes on Luncheon Presentation

Harold R. Benson
Director of Land-Grant Programs
Kentucky State University
Frankfort, Kentucky

As we look at small farming today, we need to develop an alternative way of thinking about agriculture. Agriculture is a way of life, and it is our livelihood. We have two choices: we can work with "mother nature," or we can force the land to maximize short term yields which may have negative long term implications. We have only begun to see and feel the impacts of high rates of pesticides, herbicides and fertilizers on our farms and in our water supplies.

Early in our history, Midwestern settlers tilled the soils and had excellent grain yields without fertilizers, without pesticides, without herbicides, and without genetically improved seeds. As they depleted the soils, they required fertilizers. We have become dependent on fertilizers, herbicides, pesticides, and chemicals to grow our food. The time has come to reevaluate our way of thinking and to reevaluate methods of farming.

Why choose organic agriculture? The first reason is human health -- the health of the farmer, the health of the farm family, and the health of the consumer. The second is environmental health -- the need to maintain water quality, air quality, and the diversity of plant, wildlife, and insects that exist on our planet and on our farms. The third is consumer demand. Consumers want to know what they are consuming, how we produced their food, and that their food is safe. The fourth consideration is the mental health of the farmer. Farming is more enjoyable and the quality of life improves when farmers use their eyes, ears, and senses to work with "mother nature."

Organic agriculture is a way of thinking, seeing, and feeling -- not just a restricted list of inputs that can be used in agricultural production. Through production practices such as cover crops, manure management, timely tillage, companion planting, and low stress livestock feeding programs, fertilizers can be supplied naturally and chemicals can be reduced. Plants and animals feed the microbes in the soil, which, in turn, feed the plants and so the cycle continues. Life on the farm is not just the crop that you see. The crop results from the life in the soil.

Farmers can reap economic benefits from organic agriculture. Organic agriculture reduces out-of-pocket input costs and, often, reduces labor and equipment costs. However, it requires more forward thinking and long range planning than conventional agriculture. Organically grown products often receive higher per unit prices and returns than conventionally grown products. The resurgence of farmers' markets, community supported agriculture, and

direct markets show the consumer's preference for fresh produce and organically grown produce. Wholesalers, processors, grocers, and restaurant buyers have increased their demand and expanded their markets for organically grown products.

Markets for organic products are expected to continue to expand in response to the increased consumption and increasing demand for organic produce.

In closing, it is our challenge as researchers, extension workers, USDA, and farmers to deliver safe, healthy food and fiber to the nation and to the world while protecting our environment. We must be aware of the long range implications of our actions and produce food and fiber in harmony with nature.

Small Farms in North Carolina
Notes on Luncheon Presentation

Daniel Godfrey
Dean, College of Agriculture
North Carolina A&T State University
Greensboro, North Carolina

A pleasant good afternoon to each of you.

I am pleased to have this opportunity to share with you brief comments about small farms and some of the things we are doing in North Carolina to help individuals engaged in small scale agriculture.

I am deeply concemed about the plight of the small, part-time and limited resource farmers who toil the land in this great country. Infact, I am convinced that this country is a great country because of the abundant food supply that is made possible by the small scale agriculturists and others who devote time, energy and efforts to production agriculture. These persons make sure that there is enough food for them, members of their families and their fellow citizens.

In North Carolina, we take small scale agriculture seriously. Our efforts to assist the small scale agriculturists date back to the late 60s and early 70s when we established Agricultural and Natural Resources and Forestry para-professional positions in several counties. These positions were a part of our Farm Opportunities Programs. The purpose of the Farm Opportunities Program was to provide one-on-one on the farm assistance to small farmers of our state.

This program has made it possible for hundreds of small farmers to improve the quality of their lives by adopting and utilizing practices that possess the potential to increase their farm income.

Several years ago, the Farm Opportunities Program was supplemented for a two year period by the innovative Ways to Grow Project that was funded by the Kellogg Foundation. This project assisted fifty small scale farmers improve their small farms by giving them grants so they could try alternative farming enterprises and practices. Alternative enterprises undertaken by some of the farmers included intensive gardening, the production of woody omamental, ginseng, goldenseal, and trout production.

Finally, we do all we can to make sure that the small farmers know that they are appreciated and believe that they are needed. One of the best events that helps us to do this has been our annual Small Farms Week. Each year, one of our state's small farmer is recognized for the outstanding accomplishment he/she has made towards improving farming operation.

This individual receives a beautiful plaque and a monetary contribution. Their picture is also placed on our Small Farmer of the Year Calendar.

Thank you for allowing me this opportunity to share these remarks with you. I am impressed with the dedication you have for the small scale agriculture producer. Please continue to help small farmers to improve the quality of their lives, by providing them with the best research and education possible.

Panel Discussion

Key Components of a National Policy for Small Farms

Moderator: **Adell Brown Jr.,**
Southern University and A&M College
Baton Rouge, Louisiana

PANELISTS: Lou Ann Kling, Errol Mattox, Susan Jenkins, and Fred Woods

Key Components of a National Policy for Small Farms

Lou Ann Kling
USDA-Farm Service Agency
Washington, DC

Notes from Discussion

I **Introduction**

A. Great conference; actively seeking farmers' input in working together
B. Greetings from Farm Service Agency
C. Director of Outreach Staff
   1. New staff
   2. Developing programs to reach out to farmers
   3. Marketing programs

II. **Explore and Define Issues and Problems of Small and Family-Sized Farmers**

A. Credit area
   1. Lack of cash flow
   2. Funds
   3. Markets
   4. Beginning and existing farmers
   5. Conservation
   6. Loss of land -- urban sprawl

III. National Policy

A. Define family farm
B. Returning farmers to land
C. Rural communities benefit

IV. Open Doors to Government Programs

A. Public, private information source
B. Cut paperwork needs
C. Learn different cultures;
D. Friendly offices

V. New/Established Programs

A. Use community-based groups
B. Colleges, universities, technical schools
C. Partnership with state governments
D. Farm group media
E. Community Based Organizations

VI. Service Centers

A. Set agenda with all USDA Agencies
1. We can take customers from 4-H programs to training, loans, production and conservation
B. Information/Assistance on producer- owned co-ops
C. Partnership with state governments
D. Alternative crops
E. Equipment needs and uses
F. Office work -- computer centers

VII. County Committee Elections

A. Who are the County Committee members?
B Election rules
C. Election dates
D. Importance of County Committee
E. Recruit people to nominate

Summary

We need to work together as well as continue to seek farmers' input to make certain these concepts will work for them. We need universities, Extension Services, NRCS, farmers, bankers -- ***everyone*** -- to become motivated and utilize their:

- Energy
- Imaginations
- Creativity
- New ideas
- Spirit to move ahead
- Awareness of the viability of the land and people
- Awareness of rural community needs
- Spirit of cooperation
- Collaborative abilities
- Networking skills

Together we ***can*** do it - so **let's get started!**

Key Components of a National Policy for Small Farms

Susan Jenkins
Food Systems, and Rural Development
W. K. Kellogg Foundation
Battle Creek, Michigan

It is a pleasure to be here today, and I would like to congratulate the planning committee for an excellent Small Farm conference and a very well attended one. In my brief comments, I will set the context for the serious discussion of the components of a Small Farm Policy, the challenges institutions face, and ways we can learn from each other as we move toward this important policy discussion. Additionally, I want to mention the lessons learned from the W. K. Kellogg Foundation's work in Food Systems and Rural Development.

Context of Small Farm Policy

The focus of small scale agriculture usually stands in contrast to large production agriculture. Most often we hear about small farms versus large farms, and the context immediately progresses to a "we versus they" scenario. I suggest we review agriculture, and especially small family farm agriculture, from another angle and ask the question "Where does small scale agriculture fit into the overall picture in America, especially rural America?" One way might be to contrast rural America at-large with farming dependent counties within the United States. Such a contrast is very revealing. The farming dependent counties are few, and most are situated in the Midwest.

However, rural America comprises more than 80% of the nation's land mass. The data indicates that small-scale agriculture plays an important role in rural America, even though it is part of a larger whole. Farm families engaged in small-scale agriculture contribute significantly to the viability, sustainability, and to the quality of life in rural America. I believe these contributions toward rural communities are far greater than the ones made to overall agriculture production. Small farming is akin to small business development.

As you know, the leading economic indicators show that real growth in employment opportunities come from the development of small business and not large corporate business; although, larger business gets the media coverage. Additionally, the Economic Research Service of the USDA reports that only 10% of rural income comes from farm related jobs.

Those of you who do farm know the majority of income to farm families comes from off-farm sources, such as spouses who hold jobs off the farm.

Small scale farming provides rural communities with diversified economic development opportunities that I am not sure either the community or farm families have taken advantage of. Examples of how small-scale farming can help the local economy include: (a) lessening the dependence on vulnerable, global food systems, (b) diversifying economic development for rural areas,
(c) maintaining the environment and social structure of rural areas, (d) keeping people from migrating out of rural communities, (e) producing specialized crops which can be grown locally in a socially just and ecologically sound manner not possible in large scale agriculture, and (f) by understanding the local ecosystem and practicing ethics of land stewardship, use small scale agriculture to make rural communities the centers of education and culture.

Institutional Response

While small-scale farming is essential to rural America, there are some challenges that must be faced. One challenge is how can small-scale farmers blend their needs with those of more traditional economic development organizations? Another is urging institutions, which were created to serve rural communities, to help not only farm families, but the communities become more involved in enhancing the local economy. A third challenge is helping local economic development organizations work to expand markets for local small farming. Extension and research can be key players in addressing these challenges; however, small farm production must also become a top priority to land grant institutions.

Access to capital and other resources must be made available to make small production a viable option. As I mentioned, marketing is important to both big and small farming. However, the approach small farmers take is very different from that of large farmers. Extension and Research can help by providing broader support services to all small farmers; not just those with a unique but limited niche of specialty fruits and vegetables for the high-end market. This may require institutions to:
(a) create cooperative ventures, (b) organize planning efforts, and (c) develop locally controlled value-added enterprises.

Creating a Small Farm Policy

As you begin developing a small farm policy, it is important that agriculture leaders set the tone and create an inclusive process that encourages listening and learning from all parties involved. The following are a few suggestions: (a) Create a process that engages the small scale farmers. . . both women, men, and youth. It is youth who will be the future of small scale farms,
(b) Set aside dollars for small farming,
(c) Create ways that institutions can respond to the needs of small scale farming through land-grant universities,
(d) Utilize regional rural development centers, (e) Hold conferences and meetings like this one, (f) Adapt food and nutrition programs to work with small farmers and farmers' markets,

(g) Connect small farmers with urban people, (h) Increase understanding of the direct and indirect costs/benefits of the different kinds of agriculture systems (i.e., spills from manure holding tanks from hog confinement operations, nitrate contamination of groundwater due to over abundant use of fertilizers), and (i) Remember that 20% of farms produce 80% of the food. It is important to include the other 80% of farmers into the mix when discussing the future of agriculture.

I want to conclude my remarks by reviewing some of the lessons the W. K. Kellogg Foundation has learned by funding the 28 Rural America projects funded in the early 90s.

Lessons Learned

(a) Cooperation is necessary, but sometimes it is hard when our world is based on competition, (b) Collaboration takes a long time, but so much more can be accomplished when collaboration occurs, (c) Individuals and groups must connect with others; and struggling with the same issues, they find they can create their own solutions, (d) Leadership is a key component to systems change, and (e) There is an interdependency between rural and urban areas.

The W. K. Kellogg Foundation encourages and supports the important discussion about small and family farms and the policy implications they represent for both agriculture and rural America. Ultimately, the goal of a small farm policy must be to enhance the viability and sustainability of the family farm.

Key Components of a National Policy for Small Farms

Erroll Mattox
Farmer; Hebron, Maryland

Notes from Discussion

The least successful area small farmers function in is marketing. Too often fresh fruits and vegetables are marketed as "commodities" and the seller becomes a price taker and not a price setter. The solution, in my opinion is co-ops. Under the conditions of a co-op, the farmer sets the prices and leverages his selling position because of the increased quantities offered through co-operative selling.

I market high quality beef, lamb, pork, and turkeys direct. Every animal is sold before it is purchased. That is done through print advertising and word of mouth. This allows me the opportunity to gain a deposit and be guaranteed a sale as well as set the price. Producing a prime product is the key to word of mouth sales. Development of niche markets is critical. America is becoming diverse ethnic mix and the mass marketers/producers can not meet the needs of these groups.

The major difficulty in tapping these markets is developing contacts. It takes time and will power to learn. It can be done.

Key Components of a National Policy for Small Farms

Fred Woods
USDA-Cooperative State Research, Education, and Extension Service
Washington, DC

I am not sure that a national small farm policy is possible or even desirable. To the extent that we have a current policy, it (and the programs deriving from it) aims at making large farms out of small ones. Such a policy may not be very realistic, given the diversity of small farm operators.

Who are small farmers? The most obvious answer is that they are most of U. S. farmers. According to the 1992 Census of Agriculture, 47% of U. S. farms sell less than $10,000 worth of produce annually. Nearly 10 years ago I made some estimates about "noncommercial" farm operators, then defined as those with less than $20, 000 (now $50, 000) of sales annually. Using the current definition, these are a little over 70% of all farms.

I estimated that 15-20 percent were low-income, limited resource farmers (from non-farm income alternative, limited by education, age, etc.) Roughly 25 percent were residential or hobby farmers; and 40-50 percent were "working" small farmers who depended on the farm income as a part of total family income.

I believe that an effective and comprehensive rural policy, including incentives for rural economic and social development, combined with a concerted effort to see that other, more "traditional" agricultural policies (especially research and extension policies), do not discriminate on the basis of farm size, may best serve the interests of the operators of small farms.

Session A: Technology Transfer

Chair: Daniel M. Lyons, Assistant Administrator for Regional Programs
North Carolina A&T State University, Greensboro

Moderator: Ralph Otto, USDA-Deputy Administrator
Cooperative State Research, Education and Extension Service

Adoption of Conservation Practices to Enhance Farm Programs

James Ford
USDA-Natural Resources
Conservation Service, Atlanta, Georgia

Some exciting things are happening today in the Natural Resources Conservation Service (NRCS). In 1995, the NRCS went through a reorganization process. One key component was decentralization of some of the national functions to the regional level. Regional offices were created whose primary function is to provide administrative support, strategic planning, and oversight and evaluation. State offices will continue to provide technical assistance to the field offices. There are, however, centers, institutes and regional centers that support technology development.

Working through local conservation districts, NRCS provides technical assistance utilizing 2,500 offices located in 50 states by 12,000 employees. The agency has renewed its commitment to partnerships. We are looking beyond our traditional partners and linking with new partners who share common goals and objectives. We have discovered that we can multiply our resources to work toward common objectives.

Another significant factor that caused some changes was the passage of the Conservation Provisions of the 1995 Federal Agriculture Improvement and Reform Act. The NRCS is responsible for some cost share programs that traditionally were the responsibility of the Farm Service Agency (FSA). FSA and NRCS will administer these programs cooperatively. The Secretary of Agriculture will designate watersheds, multi-state areas, or regions of special environmental sensitivity as conservation priority areas that are eligible for

enhanced conservation assistance under the Conservation Reserve Program (CRP), the Wetland Reserve Program (WRP) and the Environmental Quality Incentives Program (EQIP). Technical and financial assistance provided in conservation priority areas will help agricultural producers comply with nonpoint source pollution requirements of the Clean Water Act and other federal and state environmental laws, and will help meet other conservation needs. Assistance may be based on the significance of soil, water, wildlife habitat and related natural resource problems in a watershed area or region, with practices that best address these problems and maximize environmental benefits per dollar expended.

EQIP, a locally led program, replaces several formerly existing programs: the Agricultural Conservation Program (ACP), the Great Plains Conservation Program (GPCP), the Colorado River Salinity Control Program (CRSCP), and the Water Quality Incentive Program (WQIP). While national guidance and direction will be provided, most of the decisions will be made at the local level. Local work groups will be convened by the conservation district with membership including conservation districts, NRCS, FSA, the FSA County Committee, Extension Service and other governmental agencies. This group will provide advice on selecting watersheds, regions, or other areas of special environmental sensitivity or with significant soil, water, or related natural resource concerns. Conservation districts will lead the local work group in the conservation needs assessment of natural resource conditions. It will work with NRCS to identify program priorities and available resources, such as local and state programs. This information will be provided to the state and national levels so that decisions can be made on the selection of priority areas, the development of ranking criteria, and in making funding decisions.

Farmers and ranchers will be able to obtain and submit applications for the program at the NRCS, FSA and conservation district offices. The application process will be open throughout the year, but selection will be made at specific times. Selection of the applications will be made on the basis of the environmental benefits the producer can achieve by using the program. Priority will be given to producer applications and proposals that maximize environmental benefits per dollar expended. Contracts will cover a five to ten year period and will be based on an approved conservation plan. The plan must address protection of the priority natural resource concerns for a priority area. and meet the program's criteria priority areas. Practices used can be structural and vegetative such as grassed waterways, or land management practices. NRCS will make every effort to ensure that environmental problems are addressed on all lands that need treatment.

Groups that have not participated in programs in the past will be the subject of special outreach activities. NRCS will provide information through non-traditional methods and seek the most expedient ways of providing information. For additional information on NRCS programs and services, contact the NRCS office nearest you under U.S government in your local phone book.

Putting Research Technology to Work in the Agricultural Community

Mike Brown
USDA--Small Farm Research Center
Booneville, Arkansas
&
Bill Tallent
USDA--Agricultural Research Service
Beltsville, Maryland

The Agricultural Research Service (ARS) has approximately 8,500 employees, 2,800 of whom are research scientists. The current ARS annual budget is a little more than $700 million. The 104 ARS research locations around the nation range in size from the Beltsville Agricultural Research Center (BARC), the largest agricultural research center in the world, to small research stations with a minimum critical mass of scientists and support staff. BARC has more than 1,000 employees, including about 300 research scientists. Next in size are a dozen research centers, each with employees numbering in the hundreds, then a score of slightly smaller research laboratories.

We have a presence on nearly every 1862 land grant university campus and on five 1890 land grant universities. The latter is a result of the efforts of the USDA-1890 Land Grant Universities' Task Force. An ARS research station of particular relevance to this Conference is the South Central Family Farms Research Unit at Booneville, Arkansas. The South Central Agricultural Research Laboratory in Lane, Oklahoma, also emphasizes research for small farms.

A computer search using "Small Farms" as key words found 81 projects at 47 ARS locations. A few examples show the range of these projects. Research at BARC concerns new varieties of fruits and vegetables suitable for direct marketing and use of hairy vetch as an organic mulch for tomato production. Performance evaluations of forage crop varieties are conducted at Starkville, Mississippi, as are economic comparisons of large round hay bale storage methods at East Lansing, Michigan. At Poplarville, Mississippi, an inexpensive farm-built forced air cooler to remove field heat from blueberries for the fresh fruit market is under development. Other examples were studies of biological weed control at Pullman, Washington, and a comparison of soil erosion models based on different technologies at Durant, Oklahoma.

Of course, there are many other ARS research projects relevant to small farms that were not picked up in this search. For example, ARS research in the broad category of sustainable agriculture includes studies of minimum tillage, green manure crops, crop rotation and intercropping, as well as the above mentioned

work on organic mulches. There are projects to evaluate alternative industrial crops for niche markets such as crambe, kenaf, guayule and others. Systems engineers are developing decision support systems such as Exnut (for peanuts - Dawson, Georgia), Gossym-Comax (for cotton - Starkville, Mississippi) and Glycym (for soybeans - Beltsville, Maryland).[1]

Interaction with ARS scientists on projects of interest can be found through formal Cooperative Research and Development Agreements (CRADAs), or less formal linkups with ARS scientists or laboratories. CRADAs have the advantage of giving the cooperator preferential licensing rights to patents on inventions made in the course of the cooperative research. Such consortia would fit in two categories of preferences in the ARS technology transfer programs: small businesses in rural locations.

An analysis made in April, 1995, showed that of 207 CRADAs implemented after 1990, 73 were with rural firms or organizations and 77 Small Farms consortia or cooperatives could be formed around some common interest and an ARS laboratory could provide technical support through a CRADA. Examples might be direct marketing of fresh produce or converting soybean oil into diesel fuel involved sustainable agriculture technologies. Of the 118 ARS patent licenses granted during this period, 25 were with rural licensees and 41 covered sustainable agriculture inventions. Approximately, 55 percent of ARS patent licenses are with small, minority-owned or female-owned, or rural area businesses. Anyone interested in developing a CRADA or other cooperative agreement with an ARS laboratory or scientist should contact the laboratory or scientist, or the Office of Technology Transfer at (301) 504-5345

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[1]Interested parties can find these projects the same way 81 searches for "Small Farms" were made by using the TEKTRAN computerized information system. This can be accessed at http://ott:arsusda.gov/home.html, which is the ARS Office of Technology Transfer home page.

Assisted Technology on the Small Farm

Eileen Griffin
Easter Seal Society
Jackson, Tennessee
&
John Schweitzer
Purdue University
West Lafayette, Indiana

The AgrAbility Project is a USDA funded program that provides education, technical assistance, and information dissemination to people with disabilities who are involved in agriculture. It is estimated that approximately 500,000 people working in agriculture have physical disabilities that interfere with their ability to perform essential tasks on the farm or ranch.

The majority of people with disabilities who work or live in agricultural settings want to continue an agricultural way of life. In many instances they are frustrated in their attempt to do so. Rural isolation, limited personal resources, gaps in rural service delivery systems, and inadequate access to agriculture-oriented assistance are among the obstacles these individuals face.

AgrAbility staff in nineteen states facilitate the technology transfer to farmers and ranchers with disabilities in a variety of ways. Some of the services provided by AgrAbility include: assessment of agricultural worksites and suggestion of modifications, exploring ways of modifying agricultural equipment, assessing agricultural tasks and making recommendations on restructuring these tasks, and stressing agricultural safety and prevention of secondary injury. People with any type of disability are served through the AgrAbility Project. Some examples of the most common disabilities which affect persons in agriculture include: spinal cord injuries, amputation, arthritis, back pain, respiratory impairment, stroke, and multiple sclerosis among others.

Examples of technology for people with disabilities (assistive technology) most often inquired about includes man lifts for tractors and combines, hand controls for agricultural equipment, adapted hand tools, devices such as automatic gate openers which make farmsteads more accessible, and labor saving equipment and techniques. Information on mobility devices and building modifications is also commonly requested.

The nineteen state project presently involves: Colorado, Illinois, Indiana, Iowa, Kentucky, Minnesota, Missouri, Montana and Idaho (joint project), Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, South Dakota, Tennessee, and Wisconsin.

Each project is a cooperation between a land grant university in the state and a non-profit disability organization such as the Easter Seal Society.

In addition to the state project grants, one national grant provides additional support for a National AgrAbility Project involving the Breaking New Ground Resource Center at Purdue University and the National Easter Seal Society.

These national partners combined to provide technical assistance and professional training for the state projects and to produce resource materials. Breaking New Ground also has a toll free number (800-825-4264) which provides free access to callers nationally and world-wide.

The AgrAbility Project's website is **http://aben.www.ecn.purdue.edu/ABEN/Extension/BNG/agrabilityproject.html**

Selecting the Right Tools and Equipment for Small Farms

Ron Macher
Small Farm Today
Clark, Missouri

Many small farmers are part-time, so the tools they select must be durable and dependable, since they must get the job done after work or on weekends.

A great amount of the people entering agriculture today do not come from the farm. They have good business skills and computer skills, but they do not have the basic knowledge of farm tools and how to use them. In our magazine, Small Farm Today, 41% of our readership have farmed for five years or less. Even mainstream farmers entering into organic markets from "spray to death" programs don't remember or never learned how to set a cultivator or adjust a plow. Where will these people get this basic information?

Innovation and the old principles of Make It Yourself, Wear It Out, Use It Up, and Make It Do certainly apply to the small farmer who cannot afford the fixed costs of equipment used infrequently on the farm. The small farmer's biggest limiting factors for success are time and capital.

Capital can be saved with careful shopping. A new small round baler, for instance, can be purchased for $6,500. An old AC-roto baler (which does the same thing) can be purchased for $150. Which should the farmer buy? Small farmers must keep machinery costs to a minimum, and should always "shop around."

Innovation also saves capital. An old one-row horse drill can be converted to a three-point tractor hitch and is good for planting cover crops on the tops of raised beds. On my farm, the cost of purchasing a drill at a sale and converting it was about $70.

A one-row cole planter equipped with a large single coulter wheel enables a small farm to plant in heavy plowed-down cover crops. Two disks mounted on a cultivator frame can be used to till one row of corn or potatoes or widened out to establish a raised bed.

Pallets/packing crates are available in many areas for free. With just a little imagination, shipping crates can be effectively turned into housing, feeders, fencing and other projects at little or no cost to the farmer.

How a farmer markets his or her crop can also affect the equipment he needs. The four problems a farmer faces are weather, pestilence, price, and government.

If 20 % of a farmers' income is based on the crop, and 80% is based on income from direct marketing and value-added products (such as selling whole hog sausage instead of the hog), then the risk from these problems is reduced. Direct marketing requires no machinery and value adding usually requires minimal machine investments.

There are a few other things I have learned in 30 years of farming. On a small farm, each tool should do more than one job and be used frequently over the largest area possible to be cost effective.

Just because equipment or technology is new does not make it better, and just because it is old does not make it obsolete. Picking the right tool for the right job is the small farmer's greatest challenge. I believe the greatest technological tool a small farmer can use is his or her own brain. A farm cap logo should not be doing the farmer's thinking. Those who work with small farmers need to encourage them to use the tools they have.

Session B: Environmental Issues

Chair: Dyremple Marsh, Lincoln University, Jefferson City, Missouri

Moderator: Daniel Kugler, USDA-CSREES, Washington, DC

Environmental Concerns Create New Opportunities for Small Farms

John E. Ikerd
University of Missouri
Columbia, Missouri

Overview

The same technical and economic developments which allowed U.S. farms to specialize and grow larger are now the source of growing concerns for the environment and natural resource base. These concerns include: water quality, food safety, energy conservation, work safety, and soil quality. In one way or another, all of these concerns are related to mechanical and chemical technologies which allowed farmers to capture the economic efficiencies of specialized, mechanized, large-scale – industrialized farming methods.

As farmers now begin to factor in the environmental costs of industrial farming methods – both voluntarily and through regulation – smaller, more diversified farming systems will become more economically competitive. The trend will not be "back" to farming systems of the past, but instead will be "forward" to an era of knowledge and information based farming, which by its very nature will tend to be smaller and more diverse.

The Industrialization of U.S. Agriculture

- Industrialization of U.S. agriculture was a natural consequence of strategies pursued over the past century to increase production efficiency.

- Industrialization succeeded in reducing labor – the number of farmers – required to feed and clothe the nation and in reducing costs of food and fiber to consumers.

- But industrialization required increased reliance of fossil fuels and commercial fertilizers and pesticides which are now the source of environmental concerns.

- Industrialization – specialization, mechanization, simplification, routinization – created economic advantages for large, specialized farming operations.

- The result – falling food costs, rising environmental costs, and fewer, larger farms.

The Era of Environmental Concern

- Environmental concerns became major social and political issues in early 1970s.

- 'Point-source' pollution was addressed first – smoke stacks and sewer pipes.

- Emphasis shifted to 'non-point-source' – agriculture – in late 1980s.

- Loss of soil productivity and sedimentation were major natural resource issues.

- Use of commercial fertilizers and pesticides were major environmental issues.

- Initial emphasis was on reducing environmental impacts – reduced tillage, safer pesticides, integrated pest management, nutrient management, precision farming.

- But the inherent economic, social, and environmental sustainability of industrial farming methods has become a question of growing public concern.

Post-Industrial Era (Toffler, Drucker, Naisbitt, Peters, Reich, and others).

- Post-industrial era will be a knowledge/Information based era.

  Natural resources, capital, and means of production will be less important and therefore less limiting.

- Mass production and marketing will be replaced with "targeted, customized, niche," production and marketing. Mass customization is only a half step.

- Constant innovation and continual change will mark post-business society.

- Separate, sequential acts will be replaced with integrated, simultaneous systems.

- Industrial work: mechanical model – Bigger is better.

- Knowledge work: biological model – No one best size. Size follows function.

- Work of future is knowledge work – substitution of "intensive" management and "thinking" workers for "extensive" management and industrial technology.

Opportunities for Small Farms:

- "intensive" management – more managers and more thinking people per dollar of capital per acre of land is just another way of saying "smaller" farms.

- Post-industrial era creates opportunities, but farmers will have to shift their thinking from industrial to a post-industrial model or paradigm for farming.

- Sustainability Paradigm: Goal is not just profit and growth – but a balance of economic, ecologic, and social objectives to achieve a desirable quality of life.

Strategies for Small Farms in the Post-Industrial Era

- Be different. Don't go head-to-head with corporate agriculture. Do 'good' things they can't do. Don't do the 'bad' things they can't avoid.

- Market the "environment" rather than low cost. Produce in environmentally sound ways and develop markets with consumers who care about the environment. ("Green" markets are only a "half-step" toward "personal credibility.")

- Market quality rather than cost. Most consumers can afford to pay for fresh, high quality food. (On average, consumers spend only a dime of each dollar for food.)

- Expand vertically rather than horizontally. Nine cents of the dime spent for food goes for inputs and marketing services. Replace inputs with management. Reduce marketing functions and enhance value – market more directly to local consumers.

- Market in the "niches." The smaller the "niche" the better. Smaller farms make up 85% of total farmers but produce only 15% of total production. Need to find niches for only 15% of production to provide markets for 85% of all farmers.

Conservation Provisions of the 1996 Farm Bill and Their Impacts on Small Farms

Gary W. Jackson
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Agriculture, whether practiced on small or large farms, is increasingly recognizing that systems management approaches are needed to facilitate decisionmaking that maintains profitability while minimizing negative impacts on the environment. Small farmers, in particular, need to have access to assistance which will aid them in identifying environmental risk on their property and the voluntary actions they can take to reduce those risks. Time constraints and lack of financial flexibility often limit the ability of small farmers to use state-of-the-art technology. Lower-cost options are usually available and it appears that the conservation provisions in the 1996 Farm Bill will provide local flexibility to meet the needs of small farmers.

The 1996 Farm Bill has redefined conservation. That redefinition recognizes the need for total resource management to minimize negative environmental impacts while maintaining profitability. My presentation will identify ways in which this redefinition of conservation may impact small farms. In doing so, I will define small and mid-size farms; show information and educational needs of small farmers; identify how these needs relate to conservation provisions in the 1996 Farm Bill; discuss the opportunity for linking these needs to research and education programs; and comment on the opportunity to influence research and educational support to small farms through input into the reauthorization of the research, education, and extension title of the 1996 Farm Bill.

Defining Small Farms and Determining Their Needs Related to Conservation Practices

The August 30, 1996 *Doane's Focus* Report defined small farms as having an income of less than $10,000 and midsize farms as having an income between $10,000 and $100,000. For purposes of this presentation, we will use those definitions, although numerous definitions exist for farm size. The *Doane's* newsletter also characterized the nature of small farms. In general, small farms represent retired farmers, semi-retired farmers or part-timers who have a full-time off-the-farm job. In some situations, these small farms can be viewed as lifestyle farms that are not economically dependent on farming. In nearly all cases, the needs of small farmers are different from those of large farmers. Understanding those needs is the first step in designing effective programs to incorporate conservation considerations into small farmers' farm management decision processes.

Determining Needs

The primary need related to small farms is survival. This overall need relates to four areas that must be addressed. These areas include: efficient production, marketing skills, emotional and physical safety, and environmental acceptability. Needs which influence personal and/or economic safety are usually addressed first. As a result, environmental concerns are often overlooked until the other areas of needs are adequately addressed. A way of reducing environmental concerns being overlooked is to integrate them into a total system decision framework for the farm. The Farm Assessment System (Farm*A*Syst) has provided a framework to integrate environmental impacts into the whole farm decision making framework. The conservation provisions of the Farm Bill has redefined conservation to include all activities that may affect environmental quality. The terminology related to this farm planning program has not yet been determined. It may be called a Whole Farm Conservation Plan, One Plan, or a Total Farm Resource Management Plan. But the basic principle remains the same: to assist producers in establishing their farm management goals, both economic and environmental and to design a voluntary framework that will help those goals be obtained.

The Farm Bill recognizes that the Natural Resources Conservation Service (NRCS) is to provide leadership within USDA for resource management. They are responsible for the overall coordination of

the Environmental Quality Incentive Program (EQIP) which has combined several conservation programs into a coordinated effort. A total of $200 million has been appropriated for this program. $100 million is for practices that assist livestock producers in addressing environmental concerns and $100 million for other conservation needs. The administrative framework for the EQIP program is still evolving. The availability of technical assistance will be determined by the level of funding provided to NRCS. Mechanisms for providing educational support have not been clearly identified. What is known is that the conservation plan is to be designed around the producer's goals and needs.

State technical committees are being organized to identify conservation priorities and practices needed to address priorities, eligibility criteria for cost sharing, and mechanisms for making the planning process responsive to producer needs. Guidelines for these state technical committees indicate the intent is to develop a flexible program that can be modified to meet the targeted local needs. Membership on these state technical committees will include a wide array of farm organizations, agribusinesses and environmental interest groups. At the county level, farmer committees are also being organized to assist in identifying and prioritizing resource management needs. They will also be responsible for identifying unique practices needed to meet local conditions. This combination of local and state committees will provide significant opportunity for representatives of small farms to become involved in the process of determining the types of support needed to aid them in incorporating conservation factors into their management decision process.

In general, we can conclude that all farmers will be under continued pressure to meet environmental expectations. The new conservation title of the Farm Bill has broadened the conservation planning and management approach to be a total resource management, watershed-based approach. EPA approaches have also broadened to focus on ecosystems within watersheds. They also encourage community-based environmental programming that is based on active input by local communities to establish environmental priorities. In the end, however, for these approaches to work, they must get down to identifying pollution risk on specific properties. This requires working with landowners to increase their recognition and understanding of how their practices present pollution risks and what they can do through voluntary-actions to reduce pollution risk and prevent problems.

The development of farm resource management plans is the mechanism that is intended to increase awareness and understanding of site specific risks. Well designed, local, applied research and demonstration projects will increase local understanding of why some practices cause problems and how other practices can prevent problems. We need to be objective and educate our farmer clientele on the environmental and economic benefits and drawbacks of practices recommended to address environmental issues. In this process, we can develop and maintain their trust and develop effective partnerships with the private sector. Where real needs exist, involvement of the private sector will increase the availability of the products and services that are necessary for increased voluntary adoption of recommended conservation practices.

Conservation Provisions of the Farm Bill Are Not Complete

Although the technical and cost-sharing, framework of the conservation provisions of the Farm Bill have been laid out and administrative rules are in the process of being developed, the package that is needed to increase effectiveness in dealing with farm audiences is not complete. The research, education and extension elements are missing. The opportunity to identify these needs and seek the support necessary to carry them forward is here now! The questions are: (1) Can research, education and extension needs be clearly stated? (2) Can research, demonstration and extension activities be designed to complement and support resource management objectives of other agencies? (3) Can existing programs such as the Integrated Pest Management Program, Pesticide Impact Assessment Program, Pesticide Applicator Training Program, Water Quality Initiative, Midwest Systems Evaluation Research Program, and Sustainable Agriculture Programs be reorganized into a coordinated network that effectively supports a systems approach to environmental management? (4) Can and should the Cooperative State Research, Education and Extension Service (CSREES) make a national commitment to support research, education, and demonstration needs related to conservation programs? (5) Can experiment station research projects convert research methodologies into applied research, demonstration procedures that assist in developing local demonstrations for purposes of conducting local education programs to address environmental management and

pollution prevention needs? (6) Can and should the private sector be more involved so that local delivery capacity can be increased? (7) Will research that documents the limits of existing technology for purposes of both clarifying future research needs and limiting society's expectation as to what can be accomplished by today's technology? (8) Is the role of CSREES in conducting research and extension activities clear? (9) How can existing funds be used more effectively to increase voluntary use of conservation practices?

The development of a framework to identify and address these questions should influence future support that will be authorized in the research education and extension title of the Farm Bill.

This support, in combination with the reorganization of NRCS as the lead USDA agency for resource management, can facilitate a sound interagency team effort which can listen closely to farmer needs and be responsive to those needs through cooperative efforts. This approach will allow a broad national framework to receive input from the local level. It can produce guidelines that will allow recommended conservation practices to be tailored to meet local needs thus increasing the overall effectiveness of program delivery. The opportunity to influence future support for research education and extension is here now. The framework within which conservation needs are being defined is already underway. The challenge is linking them together.

Delivering Effective Educational Information To Improve Water Quality

Fisseha Tegegne
Cooperative Agricultural Research Program,
Tennessee State University
Nashville, Tennessee

There is growing concern about public health and other environmental effects arising from non-point source pollution to which agricultural activities contribute through use and transport of pesticides, fertilizers, and animal waste run-off that affect ground, surface and drinking water supplies.

Farm operators differ in terms of enterprises they manage, fertilizer and pesticide use practices as well as other characteristics. Given such differences, their contribution to water quality problem would not be the same. Despite this, experience shows that they have in general been treated as a uniform group rather than as diverse entities in designing information delivery programs. Such an approach would not be effective and should be replaced by a focused one that differentiates between operators based on their relative contribution to the problem.

The major objectives of using a focused approach in delivering educational information on water quality are: (1) to ensure that farm operators with the greatest contribution to the problem are reached first, (2) such operators acquire the necessary knowledge which they can put to use in managing their operations and help reduce the problem of water quality, and (3) to allocate limited resources on priority tasks.

Use of the above approach would require availability of systematic research results on a number of key issues pertaining to water quality in specific localities to determine the relative contribution of various operators to the problem and capability to design what is to be delivered.

A recent joint study by Tennessee State University and university of Tennessee shows that small farm operators covered by the study do not use fertilizers and pesticides optimally. This indicates that small farm operators contribute to problems of water quality and should be provided appropriate educational information.

Developing educational program requires both careful determination of what the key components of such a program should be and availability of resources needed to implement the program along with an appraisal of expected benefits. Water quality costs and benefits involve not only economics, but also environmental and social issues also. Mutually beneficial partnership arrangements could be

explored and utilized among farmers, government agencies and private sector groups to deal with the commonly raised question of who bears the costs and who reaps the benefits.

The above approach to educational information design and delivery has among other things the following implications:

- Educational information program should be based on careful assessment of local conditions, attitudes and perceptions of recipients and factors pertaining to them

- It is important that the education provided be proactive

- Active participation of the recipients of the information should be secured both for assessing specific conditions in a locality and during implementation of an educational program

- Specific information delivery method(s) and forms of presentations preferred by the users should be used rather than a general one that may not be effective

- There is need to build in a system of monitoring and evaluation in the educational program from the very beginning to get feedback and make changes as appropriate

In conclusion, the key issue in dealing with diverse farm operators involving delivery of educational information is not do they get information, but rather whether the information they get is relevant and effective in addressing the specific problem(s) they are facing.

Session C: Program Delivery

Chair: Marion Simon, Kentucky State University, Frankfort, Kentucky

Moderator: Marc Teffeau, University of Maryland- Eastern Shore

Farm Clubs and the Agriculture Options Network

Larry J. Smith
University of Idaho
Cooperative Extension Program

An environmental group, Palouse Clearwater Environmental Institute (PCEI), is interested in agricultural and environmental issues and has been actively participating in the agricultural agenda in north-central Idaho for the last decade. The group's interest is sustainable agriculture and its benefit to the citizens and crop producers of north central Idaho.

To foster a better working relationship with growers by addressing sustainable agriculture issues, PCEI formed an agriculture options network funded by grants from the W.W. Kellogg foundation. With the agriculture option's network, PCEI has provided a project called "Farm Improvement Clubs" that has brought growers from northern Idaho together to address sustainable farming practices. An advantage of the program is the ability to bring a nonfarm consumer component into the project. This is important because many consumers lack the knowledge of commercial agriculture and are interested in the production of wholesome food, environmental issues, agriculture sustainability, and solutions which they can support.

The University of Idaho Cooperative Extension System in north-central Idaho, working with a grant provided by the "STEEP" program (Solutions to Environmental and Economic Problems, a federally funded program) and in conjunction with PCEI, has been working with a very successful committee of 15-20 crop producers to address on-farm testing projects. The committee is coordinated and facilitated by the University of Idaho Extension System. The committee is farmer driven, with an elected president, and all activities are approved in a democratic manner. A team approach was utilized by the University of Idaho Extension educators and specialists to train committee members on the importance and use of scientific, randomized, replicated on-farm trials. Statistical analysis has been very successful in helping the committee to reach scientific, measurable objectives.

The on-farm test information has been unbiased and of value to the committee members and others.

Due to their mutual interests, PCEI invited the committee to seek a Farm Improvement Club grant to help with carrying out the on-farm test program. As a result, the On-Farm Test Committee was faced with the dilemma of whether or not to work with an environmental group that was considered by many to be nonsupportive of commercial farm operators in north-central Idaho and eastern Washington. After a lengthy and heated debate among the members, the committee decided to apply for the Farm Improvement Club grant and has received the grant for the past 2 years.

The University of Idaho Cooperative Extension System facilitation and coordination becomes very interesting, exciting, and challenging. Cooperative Extension faculty had to possess and exhibit tenacity along with good organizational and subject matter skills. The most beneficial asset for the UI/Cooperative Extension System to be successful was their knowledge of both groups--this groups' mutual goals, differences, and how both groups could benefit from cooperation.

After several committee meetings, the growers democratically agreed to cooperate with the environmental group. Most of the on-farm tests had interest that paralleled those of the environmental community. For example, many of the on-farm tests were designed to reduce inputs while increasing profit margins and demonstrated environmental enhancing factors that reduce pesticide use.

Examples of on-farm tests conducted and demonstrated were:

- Production of spring barley without the use of herbicides for weed control
- Using citric acid to reduce spray tank water pH and herbicide rates.
- Night tillage for weed control, no herbicide used.
- Tillage practices that retain surface crop residue for soil erosion prevention.
- Demonstrating disease resistant cereal and pulse crop varieties that thrive without fungicide sprays.
- Using systemic seed treatments to limit later-season foliar pesticide application.

Another beneficial outcome from the Farm Improvement Club grant:

Funding was used to help with a bus tour of on-farm tests. Participants, including members of the environmental community, city residents, growers, and legislators, could readily view the growers' on-farm tests. As a result, attempts to successfully implement sustainable farming practices, including reduced pesticide use and soil-saving tillage practices, were demonstrated to a wide variety of groups. Growers and University of Idaho Cooperative Extension System faculty presented on-farm test results that supported reduced pesticide use and reflected the positive possibilities of better profits, environmental stewardship, and the sustainability of the family farm.

Working with the environmental group gave area farmers a new and useful marketing opportunity. This unique opportunity provided an avenue for crop producers to demonstrate innovative, sustainable farming practices that were both cost-effective and environmentally friendly. This work proved to be challenging to the University of Idaho Cooperative Extension System--however, it was worthwhile, satisfying, and an excellent educational forum for all who were involved.

Summary

In recent years researchers have asserted that the U.S. research system has tended to produce technologies which have the effect of moving economic activity off farms, thereby causing or reinforcing the trend toward large farm size. It is argued that farmers have adopted technologies which were available and profitable, and that the aggregate result is a structure of agriculture consisting of fewer, but larger farms. Furthermore, issues relating to structure of agriculture, the environment and sustainable development have emerged as important contemporary areas of debate within and outside of the agricultural professions. These issues are likely to receive increasing attention by agriculture and natural resource related professions, well into the 21st century.

Reaching the Agricultural Community by Electronics

Dave Varner
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Acreage and Small Farm owners constitute a rapidly growing population nationwide. This is a working, mobile, nontraditional Extension audience. They are demanding convenient access to information, 7 days a week, 24 hours a day that will improve their quality of life. This trend demands changes in the way Extension's information and educational programs are presented to this audience. University of Nebraska Cooperative Extension has recently unveiled three technology oriented program delivery methods including the (1) NUFACTS Information Center, (2) "Part-time Farming" video tape series and (3) Acreage and Small Farm Insights Home Page on the Internet World Wide Web (WWW).

NUFACTS Information Center

The NUFACTS Information Center debuted July 1, 1996, as a part of Cooperative Extension's continued commitment to meet Nebraskan's information needs in a timely and efficient manner. It was also designed to handle routine caller inquiries to allow Extension staff more time for focused, program development and delivery. NUFACTS uses telephone technology to make educational information available to Extension clientele via prerecorded voice messages or fax-back documents 24 hours a day, 7 days a week.

Information available via the NUFACTS Information Center was developed by an Extension team comprised of over 50 Extension Educators and Specialists. Lincoln's KFOR Radio on-air personalities were contracted to record NUFACTS voice messages. Primary funding sources included grants from the City of Lincoln, water quality and integrated pest management project grants, and Federal part-time farming funds.

The NUFACTS Information Center houses 450 voice messages approximately two minutes in length and approximately 425 Extension publications that are available via fax-on-demand. All voice messages were professionally recorded through a partnership with a local radio station for about $3,000. Additional investment included faculty and staff time, which involved identifying script title, writing scripts, reviews, marketing, etc.

Ongoing expenses include marketing, which includes an annual update of the catalog of titles and promotional brochure as well as postage, and the staff time required to maintain the fax-back portion of the NUFACTS system. Currently,

publications are added and deleted from the system as they are published and become out-of-date respectively. Fax-back documents are scanned into the system using internal resources.

NUFACTS is only in its infant stage. However, the following numbers indicate to some degree the impact the system has had during July through September 1996.

- NUFACTS handled 5,326 calls during its first 3 months.

- Over 7,800 NUFACTS messages have been accessed as of September 30, 1996.

- This leveraged Extension personnel time by more than 1,312 hours or over 164 days during this 3 month period. Essentially, NUFACTS leveraged Extension's outreach efforts by 2.75 full-time positions over this time frame.

- Over 460 NUFACTS fax-back documents were requested and delivered.

- Considering printing costs, postage, and staff time to retrieve, package, and mail these items, this constitutes a savings of approximately 10 days of support staff time and $924 in direct printing and mailing expenses.

- Forty-eight percent of NUFACTS inquiries occur outside of normal Extension office business hours--evenings and weekends. The NUFACTS Information Center, in fact, receives calls 24 hours a day, 7 days a week.

- NUFACTS callers during the month of August represented 118 Nebraska communities and 10 other states. The NUFACTS Information Center Committee plans to implement a Hispanic version of the NUFACTS Information Center in the spring of 1997. You can try the NUFACTS Information Center by calling 1-800-832-5441.

"Part-time Farming" Video Series

A five-part video series entitled "Part-time Farming" was designed to focus on the basics of production agriculture in the following: (1) Field Crops; (2) Forages; (3) Farm Management; (4) Livestock, Poultry and Horses; and (5) Specialty Enterprises. This video was developed to address common questions asked by the part-time and small farmer. This video series will be placed in video rental stores, Extension offices, on the Internet and also be a "for-sale" item. The cost is $15.95 (payable to Lancaster County Cooperative Extension) and can be obtained by writing "Part-time Farming," 444 Cherrycreek Road, Lincoln, Nebraska 68528-1507.

Acreage and Small Farm Insights on the World Wide Web

An "Acreage and Small Farm Insights" Internet World Wide Web (WWW) Page was developed to offer small farm and acreage owners yet another way to access University of Nebraska Cooperative Extension resources. In fact, this WWW page is a clearinghouse of information and educational resources from across the Nation. It offers users the opportunity to access a multitude of Land-Grant University publications, interact with faculty via e-mail and link to other sites of interest. In the near future, audio, video and home-study course materials will be added to this WWW site http://ianrwww.unl.edu/ianr/lanco/ag/acreage/index.htm. for further information call: **Dave Varner at 402-441-7148**

An Alternative Educational Delivery Opportunity

John G. Richardson
North Carolina State University
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The Cooperative Extension Service has traditionally used a variety of methods for the delivery of educational programs. For example, the demonstration was shown by Seam Knapp to be an effective delivery method at the beginning of the 20th century (Rasmussen, 1989), and this method continues to be a key method of program delivery (Bruening, 1991; Gor, 1988; Richardson, 1989). Yet, even though demonstrations, newsletters, meetings, and personal consultations may continue to be seen as key means of program delivery by Extension, some audiences may not find such methods practical for their use (Clement, 1994).

In today's society, with pressing social, economic, time, and other personal demands, audiences must be targeted in order to provide information effectively, Ritter and Welch (1988), made this point when they indicated that their market research make it obvious that many traditional means of delivery were not suitable for some audiences. For example, Obahayujie and Hillson (1988), found that part-time farmers in Virginia hold a much greater preference for personal visits than do full-time farmers, but considerably less preference for using the telephone to obtain information than the full-time farmers. In a Missouri study, Okai (1986) found that small farmers also held preferences for personal visits, and were positive regarding Extension publications as a means for receiving needed information.

Program delivery preferences of targeted audiences in North Carolina who identified themselves as part-time farmers were compatible with the previous studies cited, with personal visits most preferred newsletters and demonstrations second and third respectively. The self-directed learning methods found most popular were bulletins, pamphlets and video cassettes (Richardson, 1983).

Reaching Small and Part-Time Farmers

While full-time farmers can generally be expected to desire and seek information from multiple sources, small or part-time farmers often find their options for receiving information more limited due to time, physical energy, lack of clout with input and supply dealers/representatives, or feeling a sense of being unimportant to information providers. Anecdotal information from Extension agents underscores the difficulty of providing information to these audiences via popular delivery modes such as meetings, tours, demonstrations, telephone calls, and office visits. Also, while studies have shown

that one-on one consultation has been effective for the individuals involved, Extension agents are finding this means of delivery increasingly difficult due to overall public demands for information, fewer personnel, and difficulty in contacting these individuals at convenient times.

A Better Way?

Even though difficulties have been encountered by Extension in effectively reaching small and part-time farmers, this audience is regarded as an extremely important, valuable contributor to individual and community social and economic well being as well as stewards of the environment.

Therefore, creative ways to reach these audiences effectively have become a challenge. Both creative and efficient means of delivery were thought to be potential answers to difficulties in reaching this audience. Thus, a special program delivery project was developed which sought to fit appropriate subject matter to the needs of the target audiences, and to develop innovative delivery means for reaching those audiences.

Project Objectives

This project sought to determine responsiveness of small and/or part-time farmers to selected program delivery methods, and to determine if selected non person-to-person program delivery methods are effective for providing needed information to small and part-time farmers.

Focus of Project

The project was designed to develop self-directed instructional guides and learning modules written specifically for self-directed use by small part-time farmers. The modules were designed to include basic information relating to a specific subject, and to contain multiple program delivery methods which would allow the farmers to gain a greater perspective than through written information only.

Project Implementation

The project was implemented in six North Carolina counties representing all regions of the state. Subject matter was insect scouting (two counties), strawberry production (two counties), beef production (one county), and peanut disease control (one county).

Part-time and small farmers were randomly selected in each of the participating counties. Six individuals in each county received the information via the learning modules which contained non person-to-person delivery methods. The modules also contained various forms of "low-tech" methods. The delivery methods included audio cassettes, fact sheets, miniature booklets, photographs, notebooks, posters, and video cassettes. One of the modules included fact sheets, large color photographs contained in a notebook with an introduction and instructions, plus a mini-audio cassette for actually guiding insect scouting. Another included a notebook which contained a table of contents and individual sections.

Fact sheets and color photographs showed each item that was described in the written materials. Audio cassettes for each section were included in which the Extension agent verbally explained the content. Another contained a notebook with limited number of fact sheets and one audio cassette for explaining the materials. A color poster was included which the farmer was encouraged to post in a conspicuous location at the home or farm. Finally, the other module contained an exclusive notebook that had fact sheets, photographs, pamphlets, and a video cassette which provided the information in an instructional format. A novelty item was also used in this module, which contained basic information on a refrigerator magnet.

Results

The thirty two farmers who participated in the project were positive in their reception of the non person-to-person delivery methods. For those methods, the notebooks, audio and video cassettes, miniature booklets, and fact sheets were especially well received by the farmers as excellent means for receiving Extension information.

Of the 32 program participants, 30 demonstrated an increase in knowledge at the conclusion of the educational programs as compared to their knowledge at the beginning. On locally developed tests which contained from 11 to 15 questions, average knowledge gains of participants ranged from 15% to 60% for the counties involved.

Conclusion

Evaluation of the program included pre and post tests that were developed for each subject area. These were administered to the participants at the beginning and end of the program. With the data obtained, plus observation by agents and anecdotal information received from the farmer participants, it was concluded that appropriate development of educational materials of a non person-to-person nature will be a valid means for Extension educational program delivery for this audience. Altogether, one of the greatest indicators of the acceptance of the modular educational format for program delivery was that more than one-half of the farmers indicated a willingness to pay for these types of materials in the future.

Appropriate packaging of information into learning modules and making them available to this audience for their self-study appears to be a highly desirable mode of program delivery for both the farmers and Extension. This means of program delivery was found to be much more efficient and successful in educating these audiences than expending considerable time and other resources through person-to-person methods in which specific technology is transferred, but few long-term educational results anticipated.

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Para-Professionals: Teaching in a One-on-One Setting

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The Small Farm Program at Kentucky State University began in 1976. Program objectives are to help participating families increase their farm incomes by introducing new farming techniques, improving their management abilities and improving their marketing skills. The program targets small and part-time, limited resource farmers in counties where paraprofessionals (small farm assistants) are located. Targeted clientele are those farmers who traditionally do not use the Cooperative Extension Service.

I will begin by describing the process I use in educating and recruiting Small Farm Program participants. The small farm assistant is responsible for recruiting participating families and educating them in a one-on-one setting. I have used several sources for recruiting families. Several of my cooperators came to the county extension office with a question -- the agent then referred them to me when he decided they needed systematic, whole farm planning. Many potential participants are referred to me by local farmers, current and graduated farmer participants, other extension agents, USDA agencies including FSA, NRCS, and RECD, and local farm supply dealers. Once identified, I visit the farm and the farm family is recruited and enrolled in the program. During this time, I try to determine the farmer's interests and evaluate the farm's resources. Then, I help the farmer develop realistic short range and long range goals for the farm. Specific production levels are stated for each enterprise (i.e. bushels of corn, tons of hay, or pounds of beef per acre). "DO THE BEST YOU CAN" is not an acceptable goal. Later, I help the farmer work toward attaining the goals which include helping him/her develop a record-keeping system which not only includes income and expenses, but also includes enterprise analysis. Throughout the five-year program, I visit each participant at least once a month. I visit the active and agressive farmers at least twice a month. Each visit is a learning experience for both the participant and me (the small farm assistant). When funds are available, I conduct on-farm demonstrations which have been tremendously successful. I encourage participating farmers to attend training meetings, field days, and to become active in their local commodity organizations.

As I compare the county agent's job, the county agent serves as an advisor, resource person, and supervisor of the small farm assistant. The two major differences between us involve the type

of clientele and the amount of contact that we have with the clientele. In most cases, the county agent works with the larger, full-time farmers in the county. He/she works to solve a particular problem or to provide specific subject matter information. Farmers initiate the contacts with the county agents by visiting the office or by telephone calls. The agent visits the farm at the request of the farmer, but does not make regularly scheduled visits and normally does not make follow-up visits. The agent is usually not involved in the entire farming operation. On the other hand, the small farm assistant works with a selected group of small, part-time, or limited resource farmers. He/she helps to develop the entire farming operation, not just problem solving.

The small farm assistant initiates most of the contacts with the farmer and makes regularly scheduled visits to the farm. He/she helps with the managment decisions for farm enterprises, follow-up on farm projects, and provides advice, guidance and encouragement to the participants.

I have noted several limiting resources to small farmers. For some farmers, money to buy equipment, livestock, and to make repairs and improvements is their most limiting resource. I advise these farmers to start small, to develop one or two enterprises at a time, to use custom work, and to develop the farm gradually over a number of years.

For other farmers, particularly those in Metcalfe County, KY, land is the limiting resource. Both limited acreages and the type of land on which to grow profitable crops can be limiting. I help these participants to develop profitable farm enterprises that fit their land resources. For many, the most limiting resource is knowledge -- both formal education and a limited knowledge of improved production practices. This is where small farm assistants are the most beneficial because they have a wealth of information available to them from the Extension agents, research farms, Extension specialists, other farmers, and their own experiences.

National Agricultural Library Databases: A Sampler

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A database is simply a body or collection of factual information used as a basis for discussion, reasoning and/ or calculation. It is often about one topic and is organized for easy search and retrieval. Databases come in all sizes, subjects and formats. From phone books to restaurant menus, research bibliographies to census surveys, generating and using databases have become everyday activities.

Databases are proliferating because information continues to be created at a staggering rate. Much of this information is required for optimum performance, perhaps survival, in our jobs, and at home. The availability of good information is essential. "Good" information, in this day and age, must be judged not only by its content, but also by its accessibility. Information is useless if no one can find it when it is needed. Without the landmarks and maps that good database organization requires, the proverbial information highway will get us nowhere.

The National Agricultural Library is a good place to sample some of the many different databases now available in the field of agriculture and to experience the different searching and retrieval systems their creators have made available. These databases vary in content as well as in format. They range from the Library's card catalog (one of the oldest kinds of databases still in use) to germplasm information databases, accessible and searchable through the Internet.

One of the most specific databases is the **Sustainable Agriculture Directory of Expertise**, published by the Sustainable Agriculture Network. This database of experts in sustainable agriculture is a good example of valuable information that can be accessed and searched in several different formats. It is printed in book form, with subject and geographical indexes. The **Directory** has also been put into electronic format, onto computer diskettes and onto the Internet. The same index that appears in the book has been transformed into a keyword machine searchable index for the disks, and for the gopher and the World Wide Web formats.

The **Directory** has been developed with a specific audience in mind: farmers and field researchers who are interested in obtaining hands-on sustainable agricultural information, and who possess a wide range of technological equipment and skills.

At the other end of the spectrum is the Library's database of databases, called the Agricultural Network Information Center (AgNIC). AgNIC is an electronic source of agricultural databases and information systems available over an international network of networks. Each database or system is described separately in a document called a metadata record that functions much as a card in the card catalog. Clickable links are provided for databases that are Internet accessible.

The list of metadata records may be viewed alphabetically, or may be searched by keyword. For instance, a search on the term "farms" will present you with a list of databases whose description includes the word "farms" somewhere in the text.

The databases will range from a Farm Market directory of active farmers' markets by state, produced at Purdue University and available on the Internet, to the 1988 Farm and Ranch Irrigation Survey, a US Census database available on diskette.

A few other databases related to small farm research and activities:

- AGRICOLA, the index of journal articles, reports, etc., created at NAL
- Current Research Information System (CRIS) which records and indexes all currently funded USDA and Agriculture Canada research projects
- U.S. and worldwide directories of associations available on-line and on Compact Disk - Read Only Memory (CD ROM).

Sustainable Agriculture Research and Education (SARE) project reports on computer diskette and on the Internet.
Various agribusiness resources, catalogs, directories, in different formats.
As the information age continues to unfold, it will become increasingly important to create user-friendly databases, and for the user to be conversant in accessing and using databases. "***Knowledge is of two kinds: we know a subject ourselves, or we know where we can find information upon it***" (Samuel Johnson, 1709-1784).

General Session I
Research and Extension Priorities

Chair: Thomas Omara-Alwala, Lincoln University, Jefferson City
Moderators: Colette DePhelps, Washington State University, Pullman
Mickie Swisher, University of Florida, Gainesville

Notes on Forum Discussion:
Linking Research and Extension to Meet the Needs of Small and Mid-Sized Farms

Small and Mid-Sized Farm Priorities as Identified by Researchers

Priority Areas:

- Marketing
- Funding (capital sources)
- Viable production practices that are both economically and environmentally sound

Research Agenda (Priority goals)

1. Research that will clarify the ties between small and mid-sized farms and communities in specific areas (i.e., economics, environment, etc.).
2. Research to investigate the link of small and mid-sized farms to Research and Extension, i.e., how Research and Extension can meet the needs of small and mid-sized farms.
3. Research to help show the linkage between agriculture and the urban sector beyond the typical stereotypes.
4. Develop generalized, replicable research that covers many farm situations.
5. Research on niche markets, alternative crops and enterprises (both agricultural and non-agricultural) that fit the specific needs of small and mid-sized farmers.

Application (Delineated Needs) Research Agenda

1. There is a need for an oriented delivery of research through effective, producer friendly media.

2. Research is needed to develop technologies that reduce costs and manage risks.

3. Systems research is needed to facilitate resource management.

4. There is a need to develop cost effective equipment.

5. Research is needed into the marketing of alternative crops and enterprises.

6. Research is needed which focuses on the genetic control of pests and diseases.

Small and Mid-Sized Farm Priorities as Identified by Extension

Priority Areas

- Marketing
- Financing and credit
- Transition from conventional to organic production
- Enterprise budgeting, record-keeping, and basic business skills
- Specialty crops and enterprises
- Farm demonstrations and on-farm research efforts
- Farming practices/systems and scale appropriate technologies for smaller enterprises/acreage
- Farmer cooperatives
- Diversification
- Value-added
- Management of resources

Extension Agenda (Priority goals)

1. Funding for the development and delivery of programs.

2. Flexibility in outreach programs and methods including information on demand 24 hours per day.

3. Promote attitudinal change particularly among research, Extension, and the community--develop a commitment to small and mid-sized farms.

4. Create linkages/mentoring programs.

5. Marketing issues: market availability, market feasibility, alternative systems and forms of marketing products including niche, direct, and cooperative marketing, enhancing basic marketing skills, information and communication.

6. Develop/adapt/identify scale appropriate technologies for small acreage enterprises or specialty crops.

7. Sustainable agriculture and environmental issues.

8. Develop farmer cooperatives.

9. Develop strategies to minimize regulatory obstacles that affect small scale operations.

10. Farm management, record-keeping, needs assessment for small and mid-sized operations.

11. Availability of labor.

12. Organic farming and the transition from conventional production.

13. Increased on-farm demonstrations and research efforts.

Application (Delineated needs) Extension Agenda

1. Create linkages/mentoring programs.

2. Adapt farm practices for smaller enterprises/small acreages.

3. Develop and adapt scale appropriate technologies.

4. Promote market availability and information including farm cooperatives, niche markets, direct marketing, value-added, and alternative forms and methods of marketing products.

5. Integrate environmental and sustainable agriculture concerns.

6. Minimize regulatory obstacles to small scale operations.

7. Address the availability of labor.

8. Develop enterprise budgets, management records, record-keeping, and basic business skills.

9. Develop educational programs about credit and financing.

10. Provide education on diversification, organic farming techniques, farm production, and farm enterprises to small and mid-sized farmers.

Small and Mid-Sized Farm Priorities as Identified by Farmers

Priority Areas

- Marketing
- Practical information transfer
- Easy access to networks
- Alternative enterprises
- Contract farming
- Training on sustainable agriculture practices
- Establishment of canneries at regional locations for produce

Farmer Agenda (Priority goals)

1. Training on sustainable agriculture practices.

2. More farmer community involvement through out the process.

3. Establish methods of practical information transfer including regional information sources.

4. Establish an easy access to information network other than computers.

5. Establish a marketing information database that is accessible to small and mid-sized farmers.

6. Develop regional and national marketing networks.

Application (Delineated needs) Farmer Agenda

1. Conduct on-farm demonstrations, variety trials and research tests.

2. Use a holistic approach to plot research.

3. More information is needed on the nutritional needs of livestock on pasture (beef, swine, and chickens).

4. Establishment of canneries at regional locations for produce and contracts.

5. Develop a marketing information database that is accessible to all farmers.

6. More farmer/community involvement is needed throughout the entire process.

7. Explore alternatives including organic, value-added opportunities, and new products.

Summary: Major Research and Extension Priorities for Small and Mid-Sized Farms

1. Marketing

2. Scale appropriate technologies

3. Sustainable agricultural production

4. Organic agricultural production

5. Alternative enterprises (both agricultural and non-agricultural)

6. Farm management, budgeting, record-keeping and financing

7. Information transfer

On-Farm Research and Extension Priorities for Small Farms

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Carrot fly *(Psila rosae)*, a devastating pest of carrots, causes the greatest impact on a diversified organic small farm in southwest Washington. On the twelve acre farm, 45 different crops are grown and marketed through a 100-member Community Supported Agriculture group, the local farmers' market, and a self-serve farm stand. This farm typifies small organic farms in southwest Washington that rely on diversification of both crops and marketing strategies. Historically, carrots were one of the farm's major crops. However in recent years, carrot rust fly damage has resulted in 50-60 percent annual loss of marketable carrots. The carrot rust fly deposits its eggs at the base of the carrot plant. When the larvae hatch, they migrate down the soil profile along the carrot root and penetrate into the root. Larval feeding results in bore holes and a rust-colored grass. Row covers have been the only effective alternative for control, however the covers interfere significantly with crop maintenance.

On-farm research involves growers in all stages of a research issue. Growers identify a problem, decide on a strategy to be tested, work with the researcher to implement the experiment, participate in data collection, and evaluate results. If the technique being tested is effective, adoption can be very rapid because, through participation in the experiment, the grower already has first-hand experience in managing and adapting the new technique to current farm practices. Additionally, neighboring farmers are exposed to the experiment, making adoption more rapidly widespread. Significance to this project, the organic growers in southwest Washington had never worked with Cooperative Extension before and never viewed Extension as a resource for alternative pest management strategies.

With all these factors in mind, it was necessary to find an appropriate technique that would accommodate the practices of organic farming that offered a high level of carrot rust fly control. Access to the university library, located 400 miles away, would have proven a huge barrier if it were not for the internet. Working through the internet, it was possible to connect not only with the university library, but also with national agricultural data bases. The utilization of the internet has proven an invaluable tool for agricultural extension agents because it vastly enhances information availability and dispersal. A literature search via the internet quickly provided several management strategies for carrot rust fly control. One technique, the intercropping

of harbinger strand medic *(Medicago litoralis)* with carrots, had been tested in Sweden and seemed the most feasible for the situation in southwest Washington.

In collaboration, the grower and the agent designed a randomized complete block experiment with two treatments, four replications and four planting dates. Soil type was a Chehalis silt loam, Cumulic Ultic Haploxeroll. Treatments were the control (no intercrop) and the medic intercrop; plots measured two beds wide by 9.1 meters long. In Sweden, medic replaced the center row of carrots in the three-row bed. This greatly reduced total carrot yields, first by reducing carrot acreage by one third, and second due to strong competition between the carrots and the medic. To reduce yield impact, medic was sown in Southwest Washington between the carrot beds, at the rate of 10 lbs/A, approximately three days after each carrot planting.

In 1995, carrots were seeded on May 26, June 5, June 16, and June 29. In 1996, carrots were seeded on May 26, June 5, June 15, and June 30. The control plots were mechanically cultivated six and ten weeks after planting. At the same time, the intercropped plots were hand weeded. In 1996, the first medic seeding was inadvertently mechanically cultivated six weeks after planting, therefore medic was reseeded in these plots June 22. In 1995, carrots were harvested on September 27, October 4, and October 21, respectively. The fourth carrot planting was not harvested due to saturated soil conditions. Carrots were harvested from a 1.5m length of bed in the center of each plot, a total row length of 4.5 meters. At each of the three harvests in 1995, carrots were sorted into three categories: undamaged; marketable damaged; and unmarketable damaged. No data is available for 1996 as carrots have not yet been harvested.

In 1995, the medic intercrop reduced unmarketable carrot yield (kg/plot) by 50%, 45%, and 20% at the three harvest dates, respectively. However, this difference was significant only for the first harvest. Damaged marketable yield was significantly greater in the intercrop for the third harvest. In all three plantings, total marketable yield (marketable yield + damaged marketable yield) was 20% greater when the intercrop was present, however this difference was significant only for the third harvest.

In the medic intercrop, yield (kg/plot) of marketable carrots was generally not increased even though yield of unmarketable carrots tended to be lower. This lack of significant increase in marketable yield may be due to reduced carrot size in the intercrop. In 1995, the medic intercrop was vigorous and it may have competed with the carrots. In 1996, in addition to weighing, carrots in each of the three categories will also be counted to determine if the medic is reducing carrot yield by competition.

Current research in Sweden indicates medic interferes with the host-plant finding and oviposition behavior of the carrot rust fly. To maximize the effectiveness of intercropping for carrot rust fly control, it is necessary that the intercrop covers the area between carrot beds as quickly as possible. To minimize the effect of intercropping on carrot yields, it is necessary to limit the competition between the intercrop and the carrots. Placing the intercrop

between the beds of carrots appears to be sufficient to reduce carrot rust fly damage. However, it may be necessary to mow the intercrop during the growing season to reduce the competition between the intercrop and carrots.

In 1996, the experiment is being repeated at the request of the grower and with funding from a USDA -Sustainable Agriculture Research and Education grower grant. On July 23, 1996, a field day was held at the on-farm experiment site. The president of the company which supplied the medic seed traveled from Australia to view the experiment and to participate in the field day. Fifteen growers and agency personnel from the area attended the field day which generated more interest and test sites.

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The Role of the Land Grant System in Meeting the Needs of Limited Resource Farmers

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The land-grant system can be described as a three component system, an equilateral triangle, a three-legged stool each side or leg represents one of the three components, (1) education, (2) research, and (3) extension. The extension mission is supported by the other two components of the system.

The mission of the System of Extension Organizations at the 1890 Land-Grant Institutions and Tuskegee University is to help diverse audiences, with emphasis on those with limited resources, improve their quality of life through the application of educational and research based information focused on critical issues and needs.

The core of the land-grant system are 1890 and 1862 Land Grant Institutions; 59 agricultural experiment stations and 57 cooperative extension services. Key to the role of the land-grant system as it relates to ourtreach/extension education are the cooperative extension programs offered by 1890 & 1862 institutions and Tuskegee University.

The primary focus of our mission is to improve economic, environmental, and social conditions in rural america. These conditions include improved agricultural and other economic enterprises; safer, cleaner water, food, and air, enhanced stewardship and management of natural resources; healthier, more responsible and more productive individuals, families and communities; and a stable, diverse and affordable national food supply.

How do we achieve this? Through a problem identification process in my opinion should be proactive rather than reactive. Our mission is issue driven. The course of action that is eventually taken to deal with a situation can be defined as public policy education. Public policy education is an Extension program that applies the knowledge of the university to public issues or problems and educate citizens to enable them to make better-informed policy choices. The root of public policy issues is disagreement about what the role of government or the Land-Grant Institution should be. Given this definition, many agents be they agricultural home economists, livestock or crop specialists may find themselves confronted with a public policy issue. Too many of us turn away or run from socio-economic issues, which makes us part of the problem. The agent responsible for a particular program area whether it be agriculture, family living, youth, community development or the environment will inevitably become involved in an issue involving the public either as a change agent or as a citizen impacted by the problem.

It is my perception that the Cooperative Extension Service and especially its 1890 component are not paying enough attention to sustainable agriculture, economic, social and environmental issues. This is a gross mistake and a tragedy, especially when it is impossible to separate economic, social, civil rights and other concerns from our mission statement. To ignore public issues is to ignore our extension mission..... "to improve the quality of life of people with limited resources."

The least educated are often the least informed. Therefore, we have the challenging responsibility of transferring unbiased research based information to limited resource communities for the sake of informed decision making, empowerment, economics and agricultural sustainability.

There are those that believe that we as agents should not and do not go looking for public problems. I for one do not believe that the process of extension education should be initiated only when a problem comes to an office. We as county agents have a moral, professional and judiciary responsibility to the customers we have targeted as limited resource individuals who are limited in education, financial resources and political influences. There are times when extension education should be pro active rather than reactive, aggressive rather than passive, assertive rather than acquiescent. The role of the Land-Grant System and especially the 1890 component should take a more aggressive leadership role in problem identification and problem solving.

Priorities of Farmer-Initiated Research and Education: A Mid-Western Perspective

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In the evolution of the land grant system of agricultural education, then research, then extension, there was little concern for farmer priorities. The professors and researchers themselves had farm backgrounds and assumed, often quite accurately, that they knew what farmers needed. While the decentralized form of experiment stations was to ensure responsiveness to local needs, the research agenda at the experiment stations was to transform the craft of farming into a science. That science would then be used to transform the agricultural enterprise to make it more nearly fit an industrial model, to move agriculture from technical backwardness. Agriculture's technical backwardness, according to the Country Life Commission and others writing in the early 20th century, was detrimental to urban America because it resulted in higher food prices and to rural America because of low standards of living resulting from low incomes, associated with low productivity.

The Extension Service, established in 1914, was to show farmers what science offered agriculture. The key mechanism for inserting science into agriculture was through technology transfer, best done through demonstrations and the practice of early adopters, who would in turn show their laggard neighbors how farming was scientifically done. The focus was on a limited number of commodities, which had the science behind them to increase productivity. The focus on commodities was reinforced by the New Deal farm programs, in place from 1933 until 1996, and even with the FAIR Act, still a partial determinant of agricultural production decisions (particularly for sugar, rice, and tobacco producers) into the next century.

A chain of intermediaries bought and sold these commodities. Emphasis on commodities encouraged specialization and capital-intensive production strategies. Independence and competition was valued, with farmers relating more to their commodity organizations than to their community organizations. The comparative advantage was in knowing the technology first, as the early adopter made the most profit from any innovation.

The Old Economy

A few key phrases describe the situation of the old economy: (a) emphasis on commodities, (b) many intermediaries between the producer and the end user, (c) increasing specialization, (d) a premium on independence,
(e) competition among producers in an inelastic commodity market, and (f) the need to know particular technologies

gave rise to the research goals which predominated the land grant system through the 20th century.

Traditional Research Priorities

A key research goal under the traditional system was to solve production problems. Given farm programs that guaranteed a basic price through deficiency payments, income was increased by growing more–doing what was already done (i.e., grow corn), only more of it. Thus technologies were developed which increased production of specific crops, focusing on nitrogen responsiveness and response to irrigation, and thus monoculture. Pests were dealt with through the twin tools of pest-resistant breeding and the use of pesticides. Other alternatives, such as rotations, would have negative consequences on base acres, which insured qualifying for farm programs. Thus the use of rotations, although they might reduce risk from nature, would increase risk of market failure. The use of purchased inputs and constant breeding programs could address the risks of production due to nature. With nature and the market at least partially under control, the emphasis could be on increasing profitability.

The role of science was to provide "the answer" to the production question in order to deal with the eccentricities of nature. Extension policy education was in place to give farmers "the answer" of how to farm the farm programs. Since both of these were constantly changing, as new pests selected themselves to resist the previous solutions and the set aside acres and other regulations surrounding the commodity programs were constantly tinkered with to impose an indirect control on supply and thus decrease the net cost to the U.S. treasury of farm programs, the expert with the answer was in high demand. With relatively limited parameters, it was not necessary to go to the farmer to discern "the problem."
A quick visit to the field would reveal the deficiency that the expert could overcome. Farmers would learn what to do, because technology came from the researchers through the extension agent.

The hierarchy was clear: (1) The researcher/scientist, who determined the problem and the solution, (2) the extension agent, who linked the problem and the solution and passed the technology on to the farmer, and (3) the farmer, who had the problem and needed to make the necessary changes to increase productivity. The objectives of the traditional research goals were to:
(1) Solve production problems,
(2) increase profitability, (3) do what you always have, only better, and (4) provide "the answer." These objectives gave rise to the traditional researcher.

The Traditional Researcher

As a result of the goals of applied research, the traditional researcher was an identifiable type. Because science was the constant, the researcher did not change. Change was up to the farmer, who had to learn to be more efficient. The applied researcher at the land grant institution was the teacher who provided the solution. The researcher was the beginning of the technology transfer process. A disciplinary approach assured tenure, which reduced the personal risk involved. The traditional

researcher can be characterized as: (1) unchanging, (2) the expert, giving answers, (3) solving production problems, (4) taking no personal risk, (5) viewing self as the beginning of the technology transfer process, (6) using a teaching model, and (7) assuming the farmer is the one who changes. This view was extremely efficient under the old economic conditions. Productivity increased dramatically. Capital moved into agriculture as it became more capital intensive. The number of farmers declined, but those that remained were much more prosperous than ever before in history. Even with the farm crisis of the 1980s, the incomes and economic situation of farm households were better off than those of non-farm households, a major change from the decades of the 1920s through the 1960s. Further, this model allowed for the intersection of policy and productivity. Concern for soil erosion and water quality led to the development of Best Management Practices, designed by experts for farmers to implement on their lands to improve environmental quality. The role of expert knowledge was clear, but the holders of that expert knowledge were legitimized only through science.

Challenge to the Traditional Research Paradigm

There are major changes taking place that challenge the traditional research model and the traditional researcher. The current context of economic restructuring, restructuring of government programs and service, devolution of more responsibility to the local level, and fiscal austerity, with less money available for localities to fulfill their responsibilities, provides a very different set of conditions.

A new economic model is in place that focuses on products, not commodities. Low value, high bulk commodities give the farmer a smaller and smaller proportion of the food dollar. Instead, products make money, from identity-preserved grains and soybeans to specially raised animals and specialty vegetables. Products, in turn, require integrated supply chains. Multiple intermediaries, from grain elevators with pooled commodities to sales barns to general produce markets are giving way to direct contracts with clear product quality guidelines that accompany an agreed upon price and a specified market.

The more direct links to end-users of the product, in turn, means the need to increase flexibility on the part of the producer. Products constantly change, which means constant adjustment on the part of the producers. Moving from a commodity to a product does not mean just changing from one comfortable set of nuts in terms of what you produce and how you produce it into another. It means constant adjustment and constant change.

While independence was rewarded in the old system, so one did not give away one's comparative advantage, networks become crucial in the new economy. Flexible networks facilitate both product identification and establish marketing channels. Whereas in the old model, competition was valued, in the new economy teamwork and cooperation increase competitive advantage. Finally, success depends on continuously learning and assessing alternatives, not just in knowing the answers.

New Research Priorities

New research priorities emerge in the context of the new economy (1) products, not commodities, (2) integrated supply chains, not many intermediaries,
(3) flexibility, rather than specialization, (4) networks, rather than independent producers, (5) teamwork, rather than direct competition, and (6) a learning model, rather than a knowing model. The traditional model of research is simply not agile enough or responsive enough to respond to farmer-identified priorities, particularly the priorities of small and limited resource farmers who cannot compete in the traditional commodity model of the old economy, where the only way to make money was to get bigger and bigger and more and more specialized.

In working with farmers involved in moving sustainably into the 21st century, the research goals are very different. First, these farmers want research that transforms agriculture. Unhappy with an industrial model of agriculture that is economically and environmentally incompatible with the quality of life they have defined as minimal for themselves and their families, women and men have come together to constantly design alternatives. They seek alternatives that are economically profitable, environmentally sound and contribute to community, both community of place and of interest. They want alternatives that give identity and meaning to the agriculture enterprise for those households who remain petty commodity producers; those households which provide land, capital, labor and management for the agricultural enterprise. These farmers are
innovators and one of their goals is to understand why their systems, different from conventional industrial agriculture works. They honor expert knowledge in understanding pieces of the whole, but see the pieces as less important than the whole. They seek to improve their system to better meet their vision. For example, in the midwest, a farm household may move from row crops to much more integrated crop and animal systems, which gives them more family time and will reduce market risk as the commodity programs end. These farmers see research as a continuous process, through which they will constantly improve. They also see themselves as partners in the research process, not just the sites for demonstrations of "the answer" to a very specific production problem. For them, the goal of research is to constantly design alternatives and monitoring the multiple impacts of these alternatives is critical.

The New Researcher

Given the new research priorities generated by the goals of small family farmers, the new researcher must have different characteristics, such as
(1) transform agriculture, (2) understand why their system works, (3) improve the system to better meet their vision,
(4) always improve, and (5) constantly design and monitor alternatives.

Since our traditional researchers were prepared by a system that met the needs of the old economic and political conditions, the new researcher, according to the farmers, is created through (Participation in farmer-researcher teams). Indeed, several of my farmer-researcher colleagues are convinced that the best way to begin to create the new researcher is to take them to their farms and go with them on a field walk, where

all their senses can be engaged in considering alternatives and their implications.

The new researcher has expertise, but participates in applied research as a co-learner. The new researcher takes risks. The research will not be disciplinary, but holistic in approach. The researcher is transformed by the process of research. The risk is not just professional, but the risk of a changing self through linkages to new communities.

The new researcher takes a systems approach, which rejects reductionist research and attempts to fit particular issues, such as an infestation of potato bugs into the system which produces them so that the countermeasures designed can be adequately assessed and implemented. Finally, the new researcher does not have "the answer". The new researcher asks questions.
The new researcher uses a variety of sources of knowledge to respond to questions, from basic science to the special knowledge a farmer has of a particular field or stream.

Communities: The Key to Implementing New Priorities.

The new researcher: (1) is a co-learner, (2) is a risk taker, (3) undergoes personal transformation, (4) uses a systems approach, (5) asks questions.

Community is even more important in this context. The small agriculturist in the new economy needs to be connected to new communities of interest that link to new markets, new ways of production, new sources of capital, and new partners in production and marketing. Such communities are both locality and interest based. And the new researcher needs a new community of scholars that can evaluate the new research in light of the new research priorities. Research suggests that organizations of small farmers that include researchers (but are dominated by the small farmers) result in implementation of the new research priorities. And researchers who respond to the new research priorities need to both link themselves to those organizations and form networks with other researchers with the same agenda.

General Session II
Program Impacts and Accountability

Chair: Desmond Jolly, University of California- Davis
Moderator: Susan Smalley, Michigan State University, East Lansing

Challenges in Documenting Program Impacts in Measurable Terms

Desmond A. Jolly
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Davis, California

Evaluation should not be simply a requirement imposed by funding agencies whether public or private. Evaluation is a management tool. It is an essential component of intelligent management, a coordinated, coherent system of decisions designed to maximize the effectiveness of programmatic efforts, given a set of internal and external constraints.

We face a number of challenges in making evaluation an integral, essential and useful component of program efforts. Evaluations require resources and in the context of resource scarcity it is sometimes perceived as a diversion from the main purpose of a project, service delivery to clientele. The ultimate outcomes of interventions in terms of their measurable impacts on clientele performance often manifest themselves after a considerable lag. This is particularly true when our interventions are targeted to clientele that are enmeshed in a constellation of economic, institutional and cultural constraints. This is not true only for low income clients, but for highly capitalized, profit maximizing firms as well. Think of the rate of adoption of practices loosely identified as "sustainable" designed to improve the long-run productivity of agricultural systems through better management of soils, water and pests.

A fundamental challenge to the adoption of evaluation as an integral part of our programs is the fact that agricultural and environmental education involves the strong presumption that knowledge of plants, animals, soils, insects, viruses, nematodes and the like are necessary and sufficient to promote agricultural development and environmental protection. Only grudgingly and belatedly

have we come to include people and their cultural and social systems in our frameworks of study and attention. Hence, most agriculturalists feel very inadequate to intelligently design programs in the context of cultural and social systems. How can we deal with and effectively overcome these challenges? I suggest we begin at the beginning.

Program Design

If behavioral change is our ultimate objective, and it almost always is, we are typically attempting to *decrease* or *increase* the occurrence of certain practices. We do this by increasing *knowledge* of their potential costs and benefits.

However, we often perceive the delivery of the knowledge as the outputs of our programs rather than the inputs into a change process. Few of us wish to fail or even to be perceived as doing an average job. Hence, there is a psychological bias against evaluating how users perceive the benefits of a given intervention such as a workshop, field day, research paper or demonstration project. If we perceive evaluation, however, as part of the process of product development, of continually improving the product to meet market demand, we might change our attitude towards evaluation as an integral component of program or project development. If we see it as separate and add-on, it will continue to receive short shrift in terms of our time and attention. It needs to become an integral part of program design, coequal with problem specification and intervention methodologies.

In-Service Training

The use of evaluation requires not only skills and knowledge of methodologies, but also orientation. Both of these can be dealt with through in-service workshops. The objective will not necessarily be to transform every researcher or extension agent into an expert evaluator, but to make them conversant with the approaches and techniques of evaluation and, as importantly, to the *value* of evaluation. These workshops should engage participants in as much "nitty-gritty" as possible through a hands-on approach. It may take more than a one-shot effort to create the level of interest that will change the organizational culture regarding evaluation. It is of little use to insist on evaluations if the organizational culture mitigates against it. Simply mandating it will go only so far and without broad acceptance is likely to engender a response of minimalism, a proforma evaluation to satisfy administrators or funding agencies. Participation in workshops on evaluation have to be positioned not as administrative mandates but as key inputs into professional development. Merits, promotions and other indicators of professional development may benefit significantly from improved evaluation skills.

Multidisciplinary Approaches

Most projects, other than a narrowly conceived laboratory or field research project, can benefit from an interdisciplinary or multidisciplinary approach. Even basic research, to the extent that it could influence applied research and ultimately impact the set of choices that users face, can benefit from an understanding of the environment within which it may find application, the

potential private and social costs of the innovation, and the potential opportunities and constraints that may face decision-makers. This is, of course, an ideal paradigm for *a priori*, research design.

For intervention approaches that more directly aim to influence clients in the direction of changed practices, a knowledge of who the target population is, their relevant attitudes, and the constraints and opportunities they face is the key to designing appropriate methodologies and products that can achieve mutually beneficial objectives. Professionals trained in one discipline are unlikely to be able to encompass all the relevant dimensions of a situational analysis. Likewise, their choices of methodologies and products may be constrained by their training and experience. The inclusion of a wider span of knowledge and experience reduces the constraints of knowledge and experience, and increases the windows of opportunity for realistic interventions with increased chances of positive outcomes.

Specificity

The level of specificity with which we can articulate the problem, the methodologies designed to address the problems, and the expected outcomes will affect our abilities to carry out ongoing, as well as periodic evaluations. A good situation analysis may require extensive research to establish the scope and content of the problem. This research would reveal the particulars related to who the target clients are, their economic situations, their technological knowledge, their attitudes, beliefs and practices, the constraints they face in regard to their practices, and the systems they employ in their households, farms or business operations. Even this exploratory research, when it involves surveys of clients, must be informed by some knowledge of the cultural context in which it is applied.

Once the situation has been carefully described and analyzed, expected outcomes need to be specified in measurable terms, keeping in mind the constraints and limitations alluded to earlier. Outcomes should be projected with as much realism as possible based on the constraints and opportunities facing the project. What is the realistic level of resources that can be allocated to the project and what are their opportunity costs? What are the constraints and opportunities facing the clientele? Given the set of constraints and opportunities they and you face, how many can be reached with the new knowledge and, of those, what proportion can you realistically expect to adopt the new knowledge and practice within given time intervals. The choice of methodologies need to be appropriate to the cultural, economic and logistical circumstances of the clientele group.

Information Systems

At this point in the project design process, an information system must be developed to provide ongoing data on performance, to identify problem areas in order to solve them in a timely fashion, and to develop the database for the periodic evaluations, whether mid-term or terminal.

A schematic of the components of a management system to guide project performance might include the following:

- Specify project objectives as a foundation for developing a detailed implementation strategy.

- Develop a list of activities and delivery systems and determine required inputs and outputs.

- Prepare realistic plans of work in light of resource availability, including staffing.

- Allocate responsibilities appropriately among collaborators and staffs.

- Develop recording systems to monitor physical and financial performance.

- Establish measurable performance indicators based on feasibility, costs, and capacities.

- Establish a system to supervise and monitor the performance of individuals and units involved in the project.

- Monitor the project environment to keep track of evolving developments that may enhance or inhibit performance.

- Provide periodic reports to interested agencies and institutions.

The World Bank, in its guidelines on project evaluation, categorizes the project sequence as comprised of *inputs, outputs, effects*, and *impacts*. Inputs would include infrastructure and extension services, as well as obvious inputs as such as improved seeds, fertilizers and chemicals. Outputs would be the physical changes in productivity that result from the employment of these inputs. Effects are the agronomic benefits that derived from these changes. Impacts are the changes in living standards and the quality of life of beneficiaries. We need to include social impacts such as improvements in resource management that enhance their sustainability.

Measuring Beneficiary Outcomes

The experience of beneficiaries with respect to project services is one measure of project impacts. Appropriate indicators for measuring beneficiary impacts may include:

- Proportion of the target population that is aware of the project's services or inputs.

- Proportion of the target population that has access to particular project services or inputs.

- Proportion of the target population that received the project's message, service or input.

- Proportion of the target population that received the message service or input that understood its purpose.

- Proportion of this group that perceived the message service or input as potentially helpful.

- Proportion of the exposed popula-tion that adopted at least some elements of the projects' recommendations for the first time.

- Proportion of the adopting popula-tion that practiced the new recommendations in subsequent periods.

- Proportion of the adopting population that continue the practices after the special efforts of the program terminates.

- Scaled index of levels of satisfaction with the project.

Reasons for nonusers and nonadopters not adopting recommendations.

Put another way, both the ongoing monitoring and the information system that documents ongoing project performance, and the periodic evaluations should seek to ascertain:

- The extent to which the target clientele understand the available services;

- The extent to which those services are seen as meeting the needs of those who understand them;

- The extent to which those services are tried by those who understands and perceive them as relevant;

- The degree to which those who tried the services continue using them.

Ultimately, we want to find out who has access to the project services and inputs, how they react to these inputs, and how these inputs affect their behavior and performance.

Summary and Conclusion

Evaluation and impact assessments are not yet a comfortable part of our institutional cultures. Attitudes and skills mitigate against their incorporation into our programs and projects. But even apart from the requirements of funding agencies, evaluations and impact assessments can be invaluable tools to help move us to higher levels of performance and excellence.

I have suggested more emphasis on in-service training, the use of multi-disciplinary teams in research and outreach, and some basic guidelines for focusing on the usefulness of programs to intended beneficiaries. Change can be expected to be incremental and cumulative. But clearly, for those of our programs involved in public intervention, impact assessment is a methodology whose time has come.

Congressional and Executive Expectations of Program Impacts and Accountability

Mitch Geasler
USDA-Office of the Secretary
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Notes from Presentation

Government Performance Results Act, GPRA, passed by Congress in 1993, is designed to improve the efficiency and effectiveness of all federal programs by establishing a system of accountability. Every federal agency is going through this process and must be in full compliance by 1999 (?). GPRA has bi-partisan support in both the House and the Senate. The purposes of GPRA:

- Improve public confidence in government
- Initiate program performance reform
- Promote results-oriented planning
- Improve service delivery
- Enhance management effectiveness

The GPRA brings us to a new and different level of accountability. It will impact every Extension employee and be a focus point for all new programming. It will change the way we plan and EVALUATION is going to become more and more critical.

Those that plan and execute successful programs (e.g., programs with measurable impact) will continue to get funding.

Timeline. By 09/30/97 each agency of USDA must have a 5 year strategic plan which will include:

a mission statement for the agency

general goals, objectives for all major functions summary of resources, systems, and processes critical to achieving the goals description of how goals & objectives will be achieved

Impacts for performance goals are going to have to be given in 1 year time periods which will be a challenge for many research areas.

REE Program Functions = Basic research; Applied research; Developmental research

The established outcomes for REE are:

An agricultural system that is highly competitive. A safe and secure food/fiber system. A healthy, well-nourished population. Greater harmony between agriculture and the environment. Enhanced economic opportunity and quality of life for Americans

A pilot performance plan is currently being written for the "safe and secure food/fiber system" outcome. Individuals involved in this outcome will be asked, "Where do you input into this system to realize the output of a safe and secure food/fiber system? In the long term, this system will be more efficient but during the transition period there may well be some overlap and duplication. Eventually this system will erase the need for senseless data-gathering and head-counting.

The development teams for all of these performance teams will be internal (e.g., Extension employees) and will be comprised of both federal and state partners. The performance plans will be reviewed by the newly formed USDA/CSREES Advisory Council.

Making Evaluation Work for You

Robin Shepard
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Evaluation is a tool available to us for making our education programs more effective and efficient, as well as a way to show others the value and role of education as a part of broader water quality protection programs. To evaluate a program, one systematically collects information about how the program operates and the effects it may be having on the actions of target audiences. There are a broad array of methods, procedures and models to choose from to accomplish the task of evaluation, Although evaluation holds great promise for strengthening programs, it can also be a very frustrating process which wastes time and scarce resources.

Why Evaluate?

Building water education programs is a daunting task. Almost any water issue involves a mix of ecological, physical and chemical variables, as well as diverse social, economic and ethical issues. Most water education programs need to be very purposeful and targeted because they are part of broader programs aimed at serving specific public policy goals.

Evaluation involves gathering evidence about a program and judging this information against measures of success or performance established for the program. Evaluation is like looking at a road map--you often know where you want or need to be, so you set your goals on getting there. Along the way you are watching for signs, physical changes along the roadside, and you may even set a time for when certain things should occur. Evaluation is the process you use to interpret the information about where you are and how far you are from your destination or goal. Evaluating educational programs is not much different. You set your program goals and objectives and use evaluation to determine if you have reached them and if not, why not.

To accomplish the task of evaluating educational programs begin with a four question check list.

✓ **Do you have a good understanding of the program that you want to evaluate?**

It helps to start out with a basic review of a program's overall purpose, its objectives, the topics or issues addressed by the program and the program's target audience. This will help in making some basic decisions about the focus of the evaluation. For example, if a program has the goal of raising citizen awareness of a specific problem, the evaluator's task is to evaluate changes in problem awareness. To do this requires asking the target audience both before and after

an educational program to define local water quality problems. If the program's goal is for people to take action, the focus needs to be on how people have changed their behavior as a result of the program. If an educational program is conducted aimed at improving manure management, the focus of evaluation efforts should assess the extent to which specific management practices such as manure crediting and spreader calibration are being used by farmers before and after the programming efforts.

✓ **What is the purpose of the evaluation?**

An evaluation effort can have one or more specific purposes. It is important that the evaluation strategy used flows directly from those purposes. Is information needed to help refine program elements to meet specific audience needs? Or is evidence needed that people change their behavior? Or is the purpose to show accountability of the program? These are all different and valid reasons for conducting an evaluation. Evaluation looking for the behavior change might define several potential behavioral changes and then assess the degree to which each occurred. An evaluation focused on accountability might follow a cost-benefit approach.

✓Who has a stake in the evaluation?

In order to make the final results of the evaluation useful, it is important to understand who holds a stake in the program and its evaluation. For example, the agencies or organizations that provide funding for a program may be interested in knowing the numbers and types of educational materials produced or the number of best management practices implemented. Program directors will have different needs. They might be more interested in how citizen advisory committees were organized or how information was delivered to specific audiences. The program's stakeholders' specific needs also determine how evaluation findings are reported. It is important to understand the issues the stakeholders would like the most information on. It is also important to understand the amount and complexity of the data that is best suited to the needs of the stakeholders.

✓ **What evaluation methods are most appropriate?**

Based on the answers to the above questions, one can begin to choose from the broad array of evaluation methods available. This is a good time to seek advice from people with program evaluation experience. In addition to the topics discussed above, there are a number of other important considerations in choice of methods. It is useful to ask questions such as: What level of funding, staff or volunteer resources are available? Does the value of involving volunteers in conducting the evaluation outweigh a modest decline in data reliability? Are experienced people available to help with the evaluation method to be employed? Asking questions and seeking broad input into evaluation efforts is the best insurance that time and resources will be successfully utilized. It is also useful to monitor and amend the evaluation strategy as it unfolds. Finally, if evaluation is a fairly new topic, start with a modest evaluation program and build on experience.

Different Types of Evaluations for Education Programs

Different types of evaluation serve different purposes. For example, one purpose might be to learn how a water education program was conducted, while another purpose might be to understand the impact or what happened as a result of the educational program. To help guide one's choice of evaluation tools and strategies, it is helpful to have a general understanding of the purposes for evaluation. For water-related educational programs there are three commonly used categories of evaluation.

1. **Formative evaluation** - also called developmental evaluation. These evaluations are aimed at providing information for program planning, improvement, modification and management. The evaluation often focuses on identifying audience needs and/or issues, problems, behaviors, etc. that a water resource program should address.

2. **Impact evaluation** - also called summative or effectiveness evaluation. These evaluations are aimed at determining program results and effects, especially for the purposes of making major decisions about program continuation, expansion, redirection and funding. The evaluation often focuses on what happened that would not have occurred if the educational program had not been implemented. Such evaluation usually requires a pre- and post-test design that compares the circumstances before the program was implemented with a future point in time after the program ended. This traditional approach can be modified by collecting data at multiple points in time, and then using the information to improve educational program approaches, topics and teaching methods during program implementation.

3. **Program monitoring** - The kinds of activities involved in these evaluations vary widely from periodic checks of compliance with policy to routine tracking of services delivered and counting the number of clients. These evaluations most often include post-workshop and post-field day questionnaires, and program participant surveys that focus on the groups and how they felt about the educational program they attended.

Often these categories of evaluation are not used as single approaches. For example, two or more might be used to evaluate any one particular educational program. However, when time and funding is limited one may choose to focus efforts by utilizing more of one approach over another.

Before choosing one over the other, remember each of these approaches have different purposes. During the process of designing an educational program, formative evaluation techniques are helpful because they focus on identifying audience characteristics that are important in tailoring the program to the target audiences. In some instances, formative evaluation can provide valuable data that can be used as a baseline for a future survey. Used in this way, both formative evaluation with impact

(summative) evaluation are incorporated by including a comparison before the program began with a future point in time. If funding is limited the fastest and least expensive evaluation techniques are program monitoring. However, results are often limited and may not help to fully understand the impact of educational programming.

Keep in mind that there is no single set of procedures for evaluation. The best advice is gained from experience. An evaluator will want to select the technique or combination of techniques that are appropriate to a given situation. The effective evaluator often brings together a collection of methods and approaches to fit the program being evaluated.

Evaluation: Matching a Method to Your Madness!

Getting started on the right track is essential to a good evaluation. A fairly common problem in evaluating a program is immediately jumping to a method, such as assuming that a survey will meet all needs. Choosing an appropriate evaluation method involves figuring out what one wants to measure and what one wants to do with the information collected. For example, if one asks questions that have a range of potential responses, or if the questions require detailed qualification, a method like an interview that allows for respondents to elaborate will likely be needed. Likewise, if one is looking for specific information, or measuring widespread occurrence of something in a target population, a survey may be appropriate.

Before deciding what is right for evaluation, keep in mind that even the most common evaluation methods have their strengths and limitations. After gaining a general sense of the different types of evaluation methods, try seeking advice from those who have used some of these techniques.

Aiming for Results: Planning How To Use Evaluation(s)! Before setting out to evaluate a program, try writing down some evaluation goals and objectives. This important step will clarify the purpose of the evaluation and help communicate the evaluator's intentions to those involved in the project, including bosses, landowners and agency staff. Careful thought should go into deciding what questions need to be answered and how to get that information with integrity and without bias. A good principle to follow is that bad or inaccurate data is worse than no data at all because people make decisions based on the wrong information. Defining goals also helps to look toward the future, forecasting problems, needs and resources. During the course of an evaluation, these forecasts can be compared with incoming data. In other more general areas, goal-setting leads to staff commitment to action, a feeling of being a part of the team where people are involved with the educator in determining what the program should achieve. These goals can be modified throughout the life of the project as evaluations add changing perspectives and new information.

Planning and evaluation should focus on: (1) what information is needed (i.e., knowledge, skills, attitudes and/or behaviors); (2) how the information should be collected (i.e., survey, meeting, focus group, interviews, etc.), (3) who will

collect this information (i.e., project staff or an external professional), (4) in what time frame will the information be collected (i.e., weeks, months, is it a one-time/time-two comparison) and (5) how will results be communicated (i.e., reports, newsletters, news releases, memos, personal discussions, etc.).

Choosing the right approach is not an either/or decision. Clearly, a watershed project needs to be able to describe the impacts it has had on the lives of those in the watershed. However, successful programs also need feedback loops that can help staff determine what is working. The trick is not to become overwhelmed by the evaluation techniques, but rather to choose the right evaluation tools to meet the original intent of the evaluation process. When assessing educational programs, keep in mind that many others have faced the same evaluation issues. Here are some evaluation tools that should prevent reinventing the wheel.

The Landowner Assessment Project

The University of Wisconsin (UW) Extension conducts several active evaluation projects all with help from the "Landowner Assessment and Program Evaluation Project." One of the most popular evaluation efforts has been the Farm Practices Inventory (FPI-Survey). This standardized survey approach is used in selected watersheds each year to help target audiences and specify objectives for educational programming. The FPI survey records the extent to which farm management practices such as nutrient application, manure and legume crediting and soil testing are used by farmers. When the FPI survey is administered at the beginning of a watershed project, it is used to help plan future educational programs. When used at a second point in time, after implementation for example, the FPI survey can identify changes in farm practices, especially the adoption of nutrient management strategies that protect water quality. Along with the FPI survey, the Landowner Assessment and Program Evaluation Project also has a set of similar, standardized surveys for urban, lake shore and rural nonfarm residents. Each year based on county requests, UW-Extension and the Wisconsin Department of Natural Resources' Nonpoint Section select a small number of watersheds where the Landowner Assessment survey is used. For information about the Landowner Assessment and Program Evaluation Project, contact the Environmental Resources Center, UW-Madison 608/262-1016.

Workshop Questionnaires and Field Day Surveys

It is often a good idea when time and money are dedicated to organizing a watershed event, to ask a few simple questions about who came and why. These short and informal evaluations are often referred to as participant questionnaires. The goal is to record the demographics of those who attended the field day/workshop, how far they traveled to get there, and where they heard about the event prior to coming. Results from a field day or workshop questionnaire should help plan future events by letting organizers know who the event attracted and what form the publicity should be in to reach similar audiences. There are many different versions of field day and workshop questionnaires. Area educators and county extension faculty are good sources of examples.

Newsletter Evaluations

For new watershed projects, especially those in their planning or early sign-up phase, the watershed newsletter is a regular source of information for landowners. UW-Extension has developed a standard telephone survey that measures the degree to which watershed residents use the newsletter as a regular source of information about the project. Results are used to help improve local newsletters by focusing stories on local interests and reader styles. For information about newsletter evaluation, contact Bruce Webendorfer at the Environmental Resources Center, UW-Madison, 608-262-1369.

Miscellaneous Evaluation Strategies

The University of Wisconsin Environmental Resource Center (ERC, UW-Madison) tracks many different evaluation projects, techniques and methodologies. In considering evaluation it can be helpful to see what other projects have done. Other projects have used surveys, focus groups, interviews and case studies. While some needs are very specific, someone else has probably addressed similar issues and a quick call or little research in past projects may prevent reinventing the wheel–saving time and resources. For information about program evaluation, contact the Environmental Resources Center, UW-Madison 608-262-1916.

Good books on program evaluation:

Herman, Joan L., Lynn Lyons Morris and Carol Taylor Fitz-Gibbon 1987. *Evaluator's Handbook.* Newbury Park, California: Sage Publications.

King, Jean A., Lynn Lyons Morris and Carol Taylor Fitz-Gibbon. 1987. *How to Assess Program Implementation.* Newbury Park, California: Sage Publications.

Mohr, Lawrence B. 1995. *Impact Analysis for Program Evaluation.* (Second Edition) Thousand Oaks, California: Sage Publications.

Morris, Lynn Lyons, Carol Taylor Fitz-Gibbon and Marie E. Freeman. 1987. *How to Communicate Evaluation Findings.* Newbury Park, California: Sage Publications.

Patton, M.Q. 1982. *Practical Evaluation.* Newbury Park, California: Sage Publications.

Stecher, Brian M., and W. Alan Davis. 1987. *How to Focus an Evaluation.* Newbury Park, California: Sage Publications.

Session D: Marketing Strategies

Chair: Gary Anderson, University of Maine, Orono, Maine
Moderator: Monika Roth, Cornell University, Ithaca, New York

A Role for the Land-Grant System in Strengthening the Marketing Skills, Practices and Opportunities of Small Farmers

Monika Roth
Cornell University
Ithaca, New York

Small farmers are unable to compete in a homogenous, concentrated national and international marketplace. In order to succeed, they must access local and regional markets to satisfy niches which are unmet by the large scale food and feed supply networks. As the gap between large and small continues to widen, more opportunities are being created for small farms who can satisfy buyers who are unable to justify large volume requirements. One role for the land-grant system is to create awareness of growing market opportunities and to enhance the abilities of producers to access these.

The significance and scope of the contributions of small farmers is poorly documented, hence the resources of the land-grant system and other institutions have not been directly targeted at small farm audiences. Data, if available, is incomplete and inadequately represents the economic contributions of small farms.

Universities and other institutions vary widely in their commitment to small farm programs. Examples of successful state and local efforts to strengthen small scale farming exist and need to be farming and marketing, resulting in an inconsistent response to emerging issues, needs and opportunities.

The National Consortium to facilitate Direct and Diversified Marketing (1994-5) identified many needs to be addressed which fall into the following broad categories:

- new enterprise opportunities
- strengthening existing businesses

- community impact assessment
- institutional supports, especially in farm finance
- government agency support
- national priorities for small farm programs
- enhanced information outreach
- grant funds to initiate programs
- data collection
- regulatory review to identify barriers

At the 1996 North American Farmers' Direct Marketing Conference, Extension and the Department of Agriculture staff participating in a one day inservice program identified the following needs:

- greater collaboration and exchange of information
- feasibility analysis of farming alternatives, costs and returns
- strategies for increasing farmer to consumer direct marketing
- agri-tourism development marketing associations, collaboration among marketers
- business planning and marketing for beginning marketers
- decision making tools for existing businesses
- market research, trends information, better data
- economic impact information or studies

At the present, many programs address these issues under a variety of titles including sustainability, small farms, farming alternatives, and direct marketing. To join the production, marketing and community issues that affect small farmers would create an opportunity for a more comprehensive response to the issues, needs and opportunities; utilize existing resources more effectively; and would realize a greater impact on the promotion of agricultural diversity and security for producers, consumers and communities.

What Producers Need to Know about Research and Education to Develop a Strong Local Market

Eric Gibson
Placerville, California

Notes from Presentation

Farmers have sometimes become lazy when it comes to marketing. There is a new kind of marketer/farmer who views marketing as an integral part of farming.

Grow the Niche-Market Crop

Define your niche, whatever customers cannot find in the supermarket! Diversity –the main trend is towards diversity. Thirty thousand kinds of edible fruits and vegetables. Specialty crops do not have to be exotic.

Farmers' Markets as Theaters

Roadside Market not a convenience store or a supermarket. Restaurants, tents etc. Retail: try to find local independent retailers, Wholesale Frieda Caplan is an example of Community Supported Agriculture. (Ultimate in personalizing the product)

Educate the Customer

The more they know of your product, what went into growing it & how to use it, the more willing they are to pay a premium price. Direct Marketing: Talk to customers, obtain information about varieties, growing methods, storage, cooking, serving & nutrition. Health food items will be eaten as much for their health benefits as for their taste.

Recipes
Newsletters
Samples once they try, they will buy
Wholesale/Retail material/educational flyers & brochures/educational arts to media/product information on labels with nutritional information/storage tips.

Make the Sales Call/ Get the Accounts

Oldest, most effective way to sell your product/People make buying decisions
Prospecting New Accounts
Sell in winter months
Go after top of the line (fancy restaurant or retail store with top of the line products)
Qualify Customers
Evaluate markets 80/20 rule drop bottom 10%; Increase the order size
Prepare to Sell
Know yourself & the product
Buyers' concerns: Quality & Inconsistent Supply;

Tell buyer: When available/Volume can supply; Product size & quality (show samples if possible).

Price List
Know your product
Sales' Call
Ask questions. Objective is to listen and talk until you have learned about customers' needs & how to satisfy them.
If you want to sell/then ask, do not tell.
Repeat & meet formula: repeat needs, meet needs.

Features/Benefits: Home grown = fresher, tastier, supports local economy

Restaurants
Affordable labor big problem (do as much pre-prep of products as possible)
Stress specialty varieties, 3 days a week delivery
Offer convenience packages

Retail
Work with produce manager first in intro of new products, buyer wants to see your investment in promotion and education of customer/POP materials/free samples & demos

Guarantee sales: offer to take back products that don't sell
Offer unique, smaller volume items in a convenience package/Offer retail pack of tomatoes with different sizes

Roadside and farmers' markets
Turn employees into frontline salespeople

Promotion & Advertising

Advertising does not work very well. (Use free publicity and promotion before spending $ on advertising).
Free Publicity: Kind of advertising money cannot buy;

News Releases: Always looking for stories (lots of space or air time to fill)
News Release Subject Matter: Unique or new/Make it news, not advertising
Examples: Free events, Human Interest, Uniqueness, Recipes, Current events, Business news.

Word of Mouth (WOM)

Powerful! (Last movie you went to)
Campbell Soup survey: 90% of consumers try new soup when someone personally recommends it.
Ohio Roadside Market survey:
50% came to roadside markets based on WOM

Positive WOM should not be left to chance; Make it a happy experience and positive WOM will follow
WOM really takes off with the unusual
Negative feedback should not be left to fester. Go all out to get customer feedback even before complaints start;
Quality goes in before the name goes on

Things To Do To Promote WOM

Group Promotion
More attractions in an area, the better
Regional Marketing Associations
Services can provide:
Developing a logo
Cooperative Advertising
Farm Trail Maps
Tasting Events
Finding a commercially certified kitchen
Educating consumers about the value of buying local products

Customer Service Makes Good Business Sense

James C. McConnon, Jr.
University of Maine
Orono, Maine

There is a growing number of small and part-time farmers in this country involved in marketing their products directly to consumers. While the popularity of direct marketing has increased, so has the competition. The survival of these producers will depend on their ability to meet the needs of a growing number of consumers who are demanding high levels of quality and service.

I think Cooperative Extension has done a pretty good job of helping producers transition from a production-distribution system to a production-marketing system. However, I think we can do more to help producers strengthen their business management skills and help them become more customer driven and service-oriented toward consumers.

Customers are the most important part of any business and how you treat them will determine whether your farm business will be successful or not. Yet, it is astonishing how many direct marketers mistreat their customers. Establishing an effective customer service program is an important first step in meeting the wants and needs of your farm customers.

This seminar provides an overview of a successful extension education program developed in Maine that helps producers become more service-oriented toward their customers and improve their bottom lines. The key elements of an effective customer service program are explored.

"Customer Service Makes Good Business Sense" Workshop Outline

The educational program "Customer Service Makes Good Business Sense" is a three hour workshop designed to help direct marketers increase sales and profits through improved customer service. This is accomplished through an interactive workshop that focuses on the following topics:

Dynamics of Customer Service

Customers are the most important part of your farm business. Surveys show that you have more dissatisfied customers than you realize and unhappy customers can destroy your business.

What Offends Customers

Different customers are offended by different things. Identify some of the more common offenses and avoid them!

The Building Blocks of Customer Service

A good customer service program is built on satisfying the many diverse wants and needs of your customers. Learning about your customers' wants and needs is an important first step in the process of providing good customer service.

Customer Service Program Guidelines

Some businesses have short-run successes despite poor customer service. However, in the long-run, you must establish an effective customer service program if your business is to grow and prosper.

Points to Consider in Pricing a Product

Albert E. Essel
Virginia State University
Petersburg, Virginia

Agriculture Marketing Overview

Developments in Agriculture Markets
Traditional vs Consumer Oriented Marketing
Managing Market for Profit
Role of Price in Marketing
Developing a Successful Pricing Program

Developments in Agriculture Markets

More Consumer Orientation
Increased Direct Marketing
Increased Integration
Increased Contracting
Increased Demand for Food and Environmental Safety
Global Markets
Changing Role of Government

Traditional vs Consumer Oriented Marketing

Focus on production; Focus on customer; Operate within budget needs in target market, Use existing marketing; Evaluate costs and benefits' channels to dispose of meeting needs products; Assemble product, price, place, and accept market prices, promotion mix to satisfy needs

Managing Markets for Profit

Evaluate Market Opportunities - Size, Potential, Trends, Select Target Markets, Customer Needs, Profiles
Develop Marketing Mix - Product, Price, Distribution System, Advertising and Promotion Plan,
Evaluation, and Feedback

Role of Price in Marketing

Conveys Image
Coordinates Markets
Influences Revenue and Profitability
Proxy for Value
Influences Market Share

Developing Successful Pricing Program: Process

Set Pricing Objective
Study Demand
Determine Costs
Analyze Competition
Select Pricing Strategy
Determine Final Price

Developing Successful Pricing Program: Pricing Objective

Maximize Sales Growth
Maximize Revenue
Maximize Profit
Maximize Price (Market Skimming)
Quality Leadership

Developing Successful Pricing Program: Demand

Quantities Sold at Different Prices in a Given Period
Difficult to Estimate
Factors Affecting Demand
- income
- prices of other goods
- number of buyers
- tastes and preferences of consumers, time, etc.

Developing Successful Pricing Program: Price Sensitivity

Measured by Price Elasticity of Demand
Elasticity = <u>% Change in quantity</u>
% Change in price
>1 Elastic - Raising price lowers revenue
<1 Inelastic - Raising price increases revenue
Customer Price Sensitivity is Affected by:
- Number of substitutes
- Uniqueness of product
- Percent of consumer budget spent on product,
- Perceived quality

Developing Succesful Pricing Program: Costs

Consider <u>all</u> costs
Total costs = Production costs + Markeing costs
Total costs vary with quantity produced
Separate costs into fixed and variable costs

TC = Fixed costs + Variable costs

Fixed costs (FC) - buildings, machinery, etc.

Variable costs (VC) - seeds, fertilizers., supplies, etc.

Unit costs + TC/Quantity (Q)
Unit costs vary with quantity

Developing Successful Pricing Program: Analyze Competition
- Major Competitors - Location
- Competitors' Product, and Features Offered
- Competitors' Prices
- Competitors' Costs
- Competitive (Cost) Advantage
- Market Barriers/Regulations

Developing Successful Pricing Program: Pricing Strategy

Many Methods Exist for Pricing a Product
Pricing may be based on costs and/or demand
Cost-based pricing easier for farmers
Common Strategies Used by Farmers Include:
- Pricing at the market
- Cost-plus pricing
- Pricing with break-even analysis
- Pricing with contribution margin

Pricing Strategy: Pricing at the Market:
Price According to Competitors' Prices
- Adjust for Quality Differences
- Advantages:
  - Simple to use
- Disadvantages:
  - Ignores costs and demand

Pricing Strategy: Cost-Plus Pricing
Selling Price + Unit Costs + $ Markup
or

Selling Price + <u>Unit Costs</u>
(1-desired % Markup)

Advantage:
Easy to use
Disadvantages:
Ignores demand and competition
Discourages efficiency

Pricing Strategy: Cost - Plus Pricing -

Example
Suppose an Enterprise Budget for Hydroponic Greenhouse Tomatoes Shows the following:

Variable cost per pound = $0.77
Fixed costs per pound = $0.29
Total costs per pound = $1.06

If the Farmer Wants a 20% Markup, then
Selling price = $\frac{\text{Total costs per pound}}{1.06}$ =

1-desired% markup)(1-0.20)=
$1.33 / pound

Developing Successful Pricing Program: Profit Equation

Profit = Total Revenue (TR) - Total Cost (TC)
= (Price x Qty) - (Fixed costs + Variable costs)
= P.Q - (FC + v.Q)
When, TR - TC > 0 Profit
= 0 Break-even
< 0 Loss

Pricing Strategy:
Pricing With Break-Even Analysis
Profit = Total Revenue - Total Costs + 0
= P.Q - (FC + v.Q) = 0

Break-even price = $\frac{FC + v.Q + (Profit=0)}{Q}$ Break-even Q = $\frac{FC}{(P - v)}$

Where, P = Selling price, Q = Quantity,
v = var. cost per unit, and
FC = Total fixed cost

Pricing Strategy: Break-Even Analysis-Example
The Hydroponic Greenhouse Tomato Producers Projected Budget Shows the Following:

Annual production (Q) = 25,200 lb.
Variable costs per lb. (v) = $0.77
Total fixed costs (FC) = $7387
Break-Even P
$= \frac{7387 + (0.77 \times 25{,}200) + 0}{25{,}200}$

Suppose that the farmer wants to earn $5000 profit, then,

Selling Price =
$\frac{7387 + (0.77 \times 25{,}200) + 5000}{252000}$ = $1.26/lb

Pricing Strategy:
Pricing With Contribution Margin
For Each Unit of Product:
Selling Price = Fixed costs + Var. costs + Profit
Selling Price - Var. costs = Fixed costs + Profit = contribution margin

Selling Price = $\frac{\text{Variable costs}}{(1 - \text{contribution margin percent})}$

Where,
contribution margin % is % of selling price or sales revenue left to cover fixed costs and profit after variable costs are paid

Pricing Strategy: Contribution Margin - Example

Suppose an Enterprise Budget for Hydroponic Greenhouse tomatoes Shows the following:

Variable costs per pound = $0.77
Fixed costs per pound = $0.29
Total costs per pound = $1.06

From past enterprise budgets (income statements), the farmer's contribution margin percent is 35% of sales.

Selling Price =
Variable cost = $0.77 = $1.18

(1-cont., margin%) (1-0.35)

Developing Successful Pricing Program: Setting Final Price

Other factors to consider in establishing final price include:

- location of farmers
- business/markets
- type of product
- seasonality of product
- volume of sales
- desired image
- market conditions
  - market demand and supply
- Sensitivity of customers to
  - -price
  - -psychological factors
  - -discounts, promotions, etc.
  - -macroeconomic conditions

Session E: Economic Opportunities

Chair: Dennis Lamm, Colorado State University, Fort Collins, Colorado

Moderator: Cliff Herron, USDA-Farm Service Agency, Washington, DC

Business Opportunities for Small Farmers

Dwight Carmon
USDA - Rural Development
Washington, DC

The Rural Business Cooperative Service (RBS) has several programs which can provide financial assistance to producers of agricultural products:

Business and Industry (B&I) Guaranteed Loan Program. The B&I program guarantees loans made by eligible local lenders to businesses which create and maintain employment, and improve the economic climate in rural areas. The program typically guarantees losses on loans of up to 80 percent of the original loan plus accrued interest. Loans can be made for up to $10 million for virtually any legal business activity. Farmers could benefit from the B&I program in a number of ways such as establishing agricultural products processing and/or marketing businesses.

Examples of the type of businesses which assist farmers and for which B&I loans have been guaranteed include:

1. Aquaculture;
2. Seed handling and processing;
3. Forestry;
4. Livestock and poultry processing; and
5. Other value added processing and marketing operations

The 1996 Farm Bill contains authorization for the establishment of a Cooperative Stock Purchase Program as an authorized purpose of the B&I program. Under this program a B&I loan could be guaranteed to a farmer for the purchase of stock in a start up cooperative which would process agricultural products produced by the farmer. Farmers can establish a value added feature to their product with this feature. For example, stock proceeds could capitalize a business for the purpose of processing and/or marketing beef produced by the farmer members of the cooperative.

For further information contact the Rural Development Office in your State listed under U. S. Govt. in the phone book.

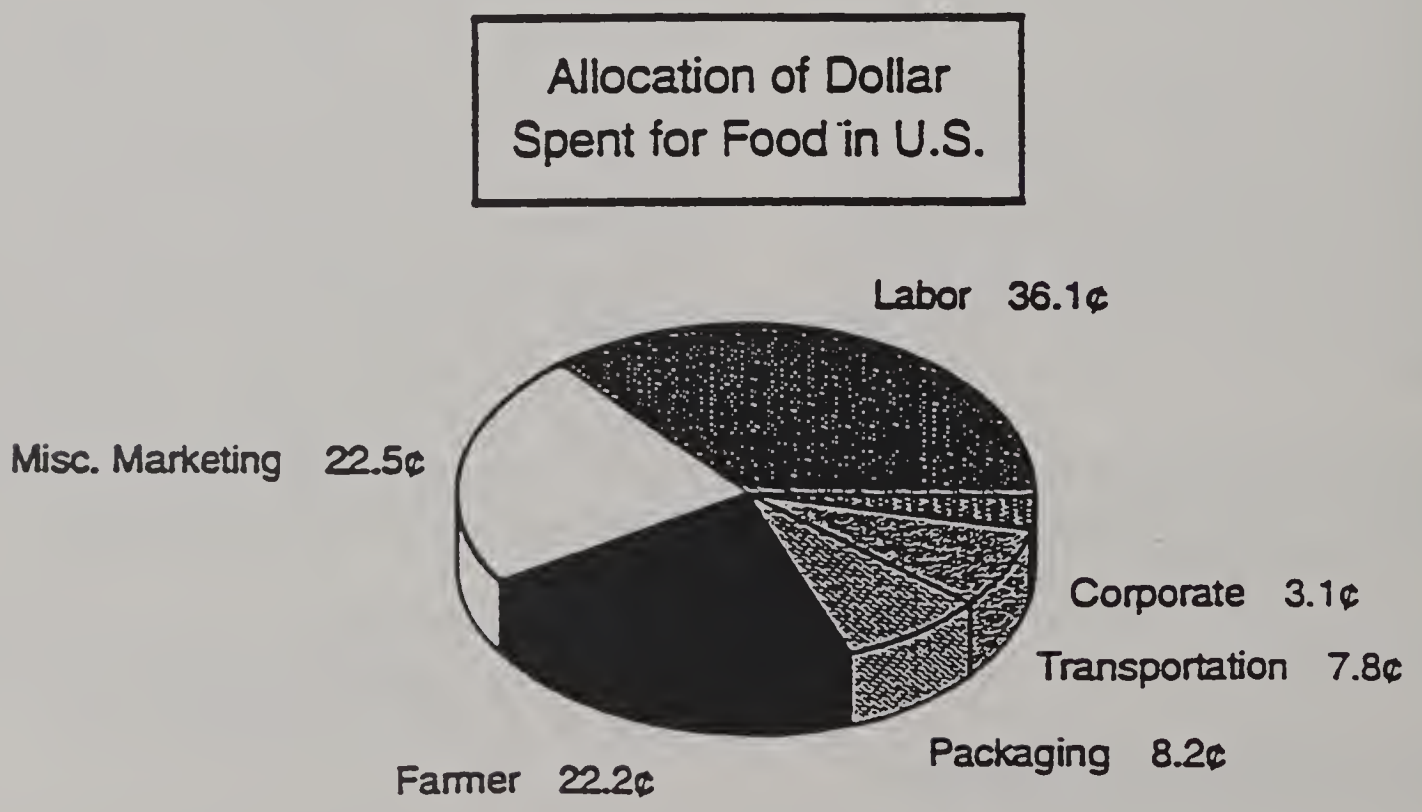
Value-Added Opportunities for Small Farmers

Alan E. Ware
The Kerr Center
Poteau, Oklahoma

Value-added agriculture is the processing of raw materials in both food and nonfood areas to add further value to a product. Value can be added to products in a variety of ways such as packaging, drying, canning, handcrafting, or juicing. Some incentives associated with value-added agriculture include:

- increasing the monetary value of raw materials
- accessing niche markets
- prolonging product shelf life
- creating a profitable use for seconds or culls
- extending the season
- making handling easier for mid and end users
- providing more convenience for mid and end users

Value-added processing helps farmers receive a larger portion of each food dollar. As seen in the accompanying chart, a farmer receives 22.2 cents of each dollar spent for food in the United States. The labor in the chart represents the processing sector, which converts raw materials into a final product. The goal of value-added agriculture is to move part of the 36.1 cents that currently ends up in the processing sector to the farmer.



Let's look at two examples. In this example, a farmer found a way to drastically increase the value of his compost. Crappy Critters target home-owners who are looking for an attractive and convenient way to fertilize house-plants. Each critter is made of 7 ounces of compost and is shaped like an animal. The product retails for $1.29. Estimated return to the farmer is 39 cents/critter. One ton of compost creates 4560 critters. Estimated return to the farmer is $1,778.40/ton of compost. As a raw product, compost normally sells for about $75/ton.

The other example is less dramatic but still shows how a farmer can increase his returns. A nurseryman was selling flowers for $11/flat. His cost of production was $3.75/flat, leaving a return of $7.25/flat. He now sells flower boxes already planted for $18/box. His cost of production is $7/box, leaving him a return of $11/box.

These farmers found a way to successfully add value to their products. They began by selecting a product that was marketable and complemented their existing farm operation. Producers interested in value-added processing should begin by writing out a plan. Include a budget, a timeframe, and attainable goals. Research available markets and processing requirements and contact local, state, and federal agencies and institutions for information and assistance. Several states have marketing programs that benefit small farmers. Begin on a small scale with plans for future expansion if the venture is a success.

The Southern Sustainable Agriculture Working Group recently published a book, *Making it on the Farm: Increasing Sustainability Through Value-added Processing and Marketing*, that profiles successful farmers. It also includes some keys to success that were identified by the farmers.

- Choose something you love to do.
- Create a high-quality product.
- Start small and grow naturally.
- Make decisions based on good records.
- Follow demand-driven production.
- Establish a loyal customer base, preferably local.
- Provide more than just food or a product.
- Get the entire family or partners involved.
- Keep informed.
- Plan for the future.

Value-added agriculture does have pitfalls. You must evaluate the cost and returns for developing a value-added product just as you would for producing the raw material. Avoid high overhead through capital investment.

Value-added agriculture can be a benefit to more than just the farmer. David Henneberry of Oklahoma State University believes that value-added food processing means adding an entirely new layer of industry dealing with our own native agricultural commodities. He foresees positive effects at the producer level, but thinks the bigger effects would be on the general level of state employment and the level of the value of exports that leave the state.

NOTE: *Making it on the Farm: Increasing Sustainability Through Value-added Processing and Marketing* by K. Richards and D. S. Wechsler can be ordered by sending $12.00 to SSAWG, P.O. Box 324, Elkins, AR 72727

Session F: Social Issues

Chair: Robert Zabawa, Tuskegee University, Tuskegee, Alabama
Moderator: Charles Whitaker, USDA-Office of Civil Rights, Washington, DC

Collaborative Efforts on Behalf of Small Farmers: The Role of Non-Governmental Agencies

Edward J. Pennick
Federation of Southern Cooperatives
Atlanta, Georgia

The debate over what defines a small farmer is one that may never be resolved. Nonetheless, since black farmers live in some of the most economically depressed areas in the country, they are, whether full or part-time, "small" or "large", more dependent on farm income than are other segments of the farm population. Although black farmers face many of the same problems experienced by others, their problems are compounded by factors unique to them, including discrimination in the lending and marketing places and lack of access to technical assistance. In fact, until the late 1980s black farmers were left to fend for themselves for the most part even though there were government programs mandated to assist all limited resource farmers.

As stated in the 1982 Report of the United States Civil Rights Commission, entitled *The Decline of Black Farming in America, "* there has been no significant federal effort to halt the loss of black-operated farms. Within the USDA, interagency efforts to assist small farmers have not been targeted towards minorities. Furthermore, those activities geared toward small farmers have lacked direction, specific goals, systematic program evaluation, coordination and communication among agencies, and flexibility in program guidelines and regulation necessary for their success."

These and other problems have led to a steady decline in black farms and land. Most data indicates that blacks are losing their land at a rate two and one-half times greater than their white counterparts. In the early 1900s, 746,717 black farmers owned or leased 41,766,238 acres of land. In 1922, 18,816 black farmers owned less than 2,310,349 acres. Some say that the remaining black owned land is being lost at an annual rate of 500,000 acres. Although that figure may well have been accurate during the farm crisis of the 1980s, it appears that the decline has slowed somewhat over the past eight

years or so, especially in those areas where the Federation of Southern Cooperatives has an established presence. This is not to imply that the crisis is over or has subsided appreciably. It does indicate, however, that there is hope of reversing the still alarming trend of decline in black farms and land loss.

That hope lies in successful and transferable models of collaboration between governmental agencies, non-governmental organizations and 1890 Land Grant Institutions.

The development of such a model began in 1988 with the first cooperative agreement between the Federation and the USDA. This may well have been the first collaboration between USDA and a non-governmental agency (NGO) that was dedicated to the survival of black family farms. The goal was and is to provide outreach and technical assistance to limited resource farmers in order to enable them to receive maximum benefit from their farming operations and to solve some of the problems outlined in the Civil Rights Commission Report. The initial effort covered six counties located in southwest Georgia. There were 30 farmers participating. Today, the project covers four states and has 239 farmers enrolled.

The project has achieved notable accomplishments over the past nine years.

- In 1988, none of the participants grew alternative crops. Today, 95% of current participants are involved in some type of alternative enterprise. These enterprises range from cut flowers to pecan processing
- Over the past nine years, a total of $5,265, 654 in operating loans from the Farm Service Agency have gone to program participants
- Approximately 2,000 acres of land valued at $1,220,100 have been saved
- Participants have acquired 1,104 acres of land valued at $902,818
- Five new cooperatives representing over 250 farmers have been organized
- Farm income of participants has increased by an average of 29%

These were milestones that had to be met under the terms of the cooperative agreement. However, the impact of the project was felt far beyond any desired outcomes specified in that agreement.

Most notable was in the area of marketing. Prior to the Outreach and Technical Assistance Project, most farmers in the Federation's target area were at the mercy of a marketing system that either took unfair advantage of them by giving lower grades and prices for produce comparable to that of other farmers, or ignored them altogether. The problem was compounded by the fact that the farmers themselves had no coordinated marketing plan.

Through this project, the Federation was able to assemble a team of specialists to provide hands-on marketing assistance and conduct a series of workshops throughout the year. Subject matter at the workshops includes information on packing, grading, alternative crops and additional topics as the need dictated. The agriculture specialists develop individualized assistance packages for each participant. Continuous follow-up is provided throughout the year and the assistance packages are modified according to the farmer's need. In 1995-96 alone, over 1,000 farmers and 15 cooperatives received individualized marketing assistance, and over 1,500 farmers attended at least one of the more than 75 workshops held throughout the Federation's service area. This coordinated training and technical assistance now enables participants to successfully compete in the commercial market arena not as individuals, but as cooperatives. During 1995-96 session, these cooperatives will gross over $2 million in sales to markets such as Kroger and Kraft.

In addition to commercial markets, the Outreach and Technical Assistance Project was instrumental in the development of the Federation's Rural/Urban Marketing Program. The success of this effort depends largely on the collaboration between farmers, government agencies at all levels, religious organizations, foundations and nongovernmental organizations. The goal of the Rural/Urban Marketing Program is to help establish a stable, secondary market for member farmers while providing inner city, mostly poor, citizens with high quality affordable produce. In 1995-96, produce was marketed from 15 sites, over half of which are located in or near public housing. All are readily assessable to the poor. In addition, the Federation works with agencies that provide training to consumers in the areas of nutrition and fresh food preparation. Five cooperatives representing 100 farmers grossed over $500,000 by participating in the Rural/Urban Marketing Program.

The success of the above efforts are due to a collaborative effort in which each partner came to understand and accept its role. The primary role of the USDA is to provide financial assistance in several key areas. First, it provides the funds to enable the Federation (NGO) to put qualified agricultural specialists in the field. Second, it provides loans to program participants who can show management as well as pay back ability. It is also imperative that county and state officials buy into the program and not view other partners as a threat, but as a tool to make their jobs easier. The 1890 Land Grant Institutions play an equally important role. They make it possible to provide a much wider range of technical assistance than is available through this project alone. They also provide much needed research, especially in the area of alternative crops.

In order for the USDA or any other governmental agency to successfully implement this or any other project aimed at assisting small farmers, it must first be able to reach and get the cooperation of the farmer. Thus, the Federation's main asset to this collaborative effort is its ability to gain the trust of the target audience – small farmers, most of whom, especially those who are black, view the government as the enemy and a threat to

their farms. That fear is not totally unfounded. There were and to some degree still are individuals within the USDA who are no friends to small farmers. However, because the Federation and other NGOs have a proven track record, these farmers are more willing to try the various programs provided by the government and others. The NGOs must be allowed and empowered to serve as a bridge between all parties in a collaboration, if it is to be successful. In specific counties of the Federation's four state target area, this collaborative effort is being successfully implemented.

This model could and should be duplicated throughout the rural south, as it is one of the only ways for a small rural community without many resources, other than land, to develop economically and to ensure that small, especially black farmers, remain part of this country's agricultural system.

The Small Farmer and Social Issues

Ntam Baharanyi & Robert Zabawa
Tuskegee University
Tuskegee, Alabama

To introduce this session on Social issues, some of the major issues currently facing the small farm sector will be highlighted. The presenters in this session represent institutions and organizations that are charged with assisting the small farmer. The question that rises, however, is whether the small-scale producer should receive special attention, given his or her overall participation in production agriculture. This discussion will, therefore, focus on the issue of status (production, social, political), assistance (availability, accessibility, equity, and social capital), context (regional, cultural, type) and need, and programs for the small farmer.

Status

Three areas can help in defining the status of the small farm operator and highlight the importance of the small farm sector to rural America.

Production

Overall, it can be argued that the production capacity of the small farm sector is very low. For example, farms with annual sales of $100,000 and over account for less than 15 percent of the farm population and over three-quarters of the total farm sales. At the same time, farms with less than $50,000 in sales account for over three-quarters of the farm population, but less than 12 percent of the sales. But these are aggregate numbers. At the regional and local levels, small farms are major suppliers of produce to local farmers' markets and roadside stands. These farmers are also increasing their share of produce sold at local grocery stores.

Social

Small farmers make up a significant portion of the rural population employed in the off-farm workforce as well as recipients of local government services.

Political

Given the number of small farms versus large farms, this population makes up a significant constituency from the local to the national levels.

Assistance

Based on their unique production characteristics, social standing and potential for political power, the question arises concerning programs targeted for the small-scale producer in general and the limited resource and socially disadvantaged farmer in particular. Four questions concerning these issues are:

Availability

Are there programs available that target the specific needs of the small farmer?

Accessibility

Are those programs that target the small farmer accessible?

Equity

Are small farm programs funded and delivered in an equitable manner given the population and needs of the small-scale producer?

Social Capital

Do local farmers have the necessary social capital that allows them access to available programs and other related resources?

Before these questions are answered, however, the related issues of *context* and *need* of the small farm sector must be addressed. For example:

Context

Regional

Small farmers in different regions of the country (e.g., the South, the Pacific Northwest, the Southwest, etc.) have different potentials and face different constraints.

Culture

Farmers with different cultural background (e.g., race, ethnic group, gender, and age) have different goals and objectives, and face different problems.

Type

Not all small farms are alike even when taking into consideration sales and acreage (e.g., full-time, part-time, limited resource).

Need

To use a specific example, there is a critical need for assistance targeting the minority farmer in general and the Black farmer in particular. Since experiencing a peak in both numbers and acreage at the beginning of this century, the Black farmer has seen a steady decline of over 99 percent in both of these areas. Even after the 1982 report by the U.S. Commission on Civil Rights highlighting this decline, this situation continues, in some counties at a rate of over 50% per agricultural census.

Programs

Given this context and state of need, the questions, availability, accessibility,equity, and social capital can be addressed. In general, there have been very few programs available that specifically target the small farmer. Those programs that are available have often been inaccessible. And finally, those programs that have been accessible have traditionally been underfunded and/or of short term measures.

Returning to the example of the minority and the Black farmer, until recently, there was no program that focused on their specific needs, despite their obvious decline and given the context-based issues of region, culture and type mentioned earlier. Based, in part, on the Civil Rights Commission Report, one

program that has developed is the USDA 2501 Small Farmer Outreach Training and Technical Assistance Projects, currently administered through the 1890 Land-Grant Institutions, Tuskegee University, and regional non-governmental organizations such as the Federation of Southern Cooperatives and the Arkansas Land and Farm Development Corporation. These programs are charged with assisting limited resource minority and socially disadvantaged farmers in the areas of production, recordkeeping and marketing. Over the life of this program, millions of dollars in loans have been approved, for established farmers to improve their operations and for new farmers to start out, who previously were denied access to federal program support.

Other programs that may assist the small farmer on a case-by-case basis include the Small Business Innovation Research Program (SBIR) administered through various federal agencies including the USDA and the Sustainable Agriculture Research and Education/Agriculture in Concert with the Environment Program (SARE/ACE) administered by the USDA and EPA. However, these programs are grant-based, not farm type specific, and not long-term assistance programs.

Even with these newly created programs, it is important that farmers have the necessary social capital to provide them access to the programs. That is, farmers need to be a part of that network found at the local community level whereby they are informed of programs, projects and activities specific to their needs and farming goals. The recent Empowerment Zone/Enterprise Community process based on community level planning and decision making is one effort in this direction.

Conclusion

There are social issues for small farmers and about small farmers. These issues extend beyond the farm gate to the community and enter into the social and political arenas. That the needs specific to the small farmer, the limited resource farmer, and the minority and socially disadvantaged farmer are being recognized is a start; but even with the creation of small farm-specific assistance, including the 2501 program, this assistance is only temporary. For example, the 2501 projects in the participating states are funded based on an annual budget review process. That is, state project personnel and the farm clientele they assist do not know how long the program will continue. In this last year alone, the 2501 program was reauthorized, it was dropped, it was reauthorized with no funding, and finally reauthorized with funding. A commitment to these groups needs to be extended beyond an annual program budget item to a permanent item in the USDA budget. Until then, the collaborative efforts of the 1890s and Tuskegee University and community-based organizations are crucial for the support of and program assistance to the small farmer.

What Is a Farm, and Why Does It Matter?

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The question, "What is a Farm?," is not heard very often. Nevertheless, it matters whether a place is counted as a farm in the U.S. Census of Agriculture and the national data base on agriculture. And, it matters whether an agency includes a place and its operator as among its farm and farmer clients. It does matter to the person or family who operates the farm, or nonfarm, place. To be excluded is to lose information on the nation's agriculture and to restrict the services available to farms and farmers.

What is a Farm?

Farming Behaviors. Farms do not occur in nature; they are a product of human and social behaviors. Therefore, according to a behavioral definition, it is suggested here that a **farm** is a place where agricultural behaviors produce food and/or fiber from plants and/or animals on a sufficient scale for household consumption, sales and/or leisure.

Note that this definition does not depend upon the size or acreage of the place, upon the amount of agricultural goods that might be sold from such a place, whether it operates at a profit or a loss, or the way in which it is organized. Along the same lines, a **farmer** is one who engages in agricultural behaviors that attempt to produce food and/or fiber from plants and/or animals on a sufficient scale for household consumption, sales and/or leisure. Whether farms are **small farms** or **large farms** is a matter of degree and dimension; there are no absolute dividing lines between them. Some are simply smaller or larger than others in terms of a given characteristic or pattern of characteristics. A hundred acre farm, for example, may be a small farm for raising beef cattle, but it would be a large farm for growing strawberries.

The Official Definition of a Farm

The official definition of a farm in the United States is determined by the U.S. Department of Commerce. As might be expected, this definition has a commercial orientation and not the more general behavioral perspective on whether a place is a farm. Variations of this official definition have been around since 1850 when the first census of agriculture was taken (Harlan, Vacca, and Swaim 1993; Reilly and Hartwig 1995). Officially, the farm definition has gone through nine sets of criteria since 1850.

- **1850 and 1860**

At least $100 worth of agricultural production for home use or sale and no acreage limitation.

- **1879, 1880, and 1890**

  Any agricultural operation of three or more acres; if less than three acres, at least $500 worth of agricultural products sold.

- **1900**

  An agricultural operation requiring the continuous services of at least one person.

- **1910 and 1920**

  Any agricultural operation with three or more acres; if less than three acres, $250 worth of agricultural goods produced for home use or sale. Or, an agricultural operation requiring the constant services of at least one person.

- **1925, 1930, 1935, and 1940**

  Any agricultural operation with three or more acres; if less than three acres, $250 worth of agricultural goods produced for home use or sale.

- **1945**

  Agricultural operations consisting of three acres or more of cropland or pastureland; or, $150 worth of agricultural products produced for home use or sale. If less than three acres, $250 worth of agricultural products produced for home use or sale.

- **1950 and 1954**

  If three acres or more, $150 worth of agricultural products produced for home use or sale. If less than three acres, $150 worth of agricultural products produced for sale.

- **1959, 1964, and 1969**

  If ten acres or more, at least $50 worth of agricultural products produced for sale; if less than ten acres, a minimum of $250 worth of agricultural products for sale.

- **Since 1974**

  In the agricultural censuses of 1974, 1978, 1982, 1987, and 1992, a farm was defined as, ". . Any place from which $1,000 or more of agricultural products were produced or sold, or normally would have been sold, during the census year" (U.S. Bureau of the Census 1994; vii).

Past criteria for official definitions of farms have included various combinations of the value of the farm goods produced, the home consumption of farm products, the sale of farm products, acreage and labor requirements. Today's narrower economic definition only uses the value of the annual commercial sales of farm products from a place. It does not use acreage, labor requirements or the amount of farm products consumed by the farm residents and not sold. Omitting home consumption of farm products from the official criteria for a farm serves to officially omit an unknown number of places from being

counted as farms – no doubt small farms and behaviorally important to those households and communities – in the U.S. census and national agricultural database used by rural and agricultural scientists, public agencies and farm-related businesses.

Nonetheless, although the current, official, $1,000 definition of farms is not as broadly inclusive of the full range of farms as allowed by the behavioral definition outlined earlier, the $1,000 definition is much more inclusive of small farms than a $10,000 sales threshold would be.

Faced with a large budget reduction in late 1995, the Bureau of the Census proposed changing the current definition of a farm to a minimum of $10,000 of agricultural products sold or normally expected to be sold in the census year. This would have meant that only about half as many farms would be counted in the 1997 census, a number that could be included with the funding anticipated by the agency (Wimberley, 1996). However, there was much public resistance to raising the sales threshold of the farm definition for farming operations to be officially considered as farms. Many agency administrators as well as private citizens and organizations with agricultural interests opposed the pending change of farm definition. In other words, the answer to the question, "What is a farm?," mattered to many. Consequently, the budgeting issue was resolved by transferring the responsibility and budgeting for the forthcoming 1997 agricultural census from the Department of Commerce to the Department of Agriculture, a transfer that would be permanent. This marks a historic change in the census of agriculture. More importantly for the 1997 census, USDA announces that it will keep the $1,000 threshold in the farm definition for the immediate future.

Since the farm definition determines the very data farmers, scientists, public and private agricultural agencies and farm-related businesses use to inform their programs and policy or business decisions, it matters a great deal how farms are defined. There are public and environmental reasons, food-security reasons and quality-of-life reasons to keep the farm definition behavioral broad and inclusive. To illustrate, let us consider some of the effects – an impact assessment – of what would happen if the $1,000 definition had been pushed to a minimum of $10,000 in farm product sales. Such a change in the farm definition appears highly unlikely at this point since the authority for the 1997 census rests with USDA.

The Public Good of an Inclusive Definition of Farms

What if farms accounting for over 13 % of U.S. farmland, averaging 136 acres, having machinery and equipment values of $24 billion, and with farm real estate exceeding $132 billion were excluded from basic information on U.S. agriculture? What if more than one-fourth the farms showing profits were left out of the official U.S. count? And what if farms operated by 28% of the farmers whose principal occupation is farming were omitted from our nation's basic agricultural database? In other words,

what if the farm census no longer covered half the U.S. farms and ranches? This would take a toll on each state's agricultural programs; many farm, food and fiber-related businesses; scientific research and applications; environmental and health information; small farms; and farms operated by minorities and women.

What droughts, floods, freezes, pests, prices, diseases, politics, legislation, and urbanization could not do to American farms, a definition could.

- **Nationally**

Nationally -- based on the most recent 1992 census count as a basis for future estimates (U.S. Bureau of the Census 1994; Reilly 1995), 0.9 million of the 1.9 million U.S. farms would no longer count as farms. That is, 47% of the farms would no longer officially exist. In essence, we would lose half the U.S. farms by a single swoop of the definition (Table 1).

- **By state**

In addition to the loss of information on half of our farms nationally, 29 states would lose at least half of their farms from the census data. These and many other states would be pressed to make up for the loss in agricultural data. Absolute declines of 50,000 or more farms would occur in four states: Texas would go from 180,644 to about 70,000 farms; Missouri from 98,082 to about 47,000; Tennessee from 75,076 to -about 24,000; and Kentucky from 90,281 to about 40,000. Other states suffering large numerical decreases include Oklahoma from 66,937 to around 30,000 farms; California from 77,669 to about 41,000; Ohio from 70,711 to about 38,000; and North Carolina from 52,854 to about 25,000.

According to data from the Bureau of the Census (Reilly 1995), the state where farm numbers would fall proportionately the most is West Virginia where at 78% of the farms in 1992 grossed less than $10,000. Farms there would decline from 17,020 to less than 4,000 farms. Tennessee's loss would be approximately 68%; South Carolina's 67%; Alabama's and Mississippi's 64% each; Oregon's 62%; Texas 61%; and Virginia's and New Jersey's 60% each. Overall, southern states would appear most frequently among those with larger declines. Of the 16 southern states, six are among the top ten losers as are 12 of the top 25.

States losing relatively fewer farms by a change in census definition concentrate in the upper North Central region. These include North Dakota, South Dakota, Iowa, Nebraska, Illinois, Minnesota and Wisconsin. States that lost proportionately the fewest farms are likely to receive the most government payments to farms as reported in the 1992 census.

Overall, the number of states that would lose more than the national average of 47% of their farms by changing the farm definition from $1,000 to $10,000 far exceeds those losing less than 47%. The ratio is nearly two to one. Thirty-two states exceed the national percentage of loss; only 18 states lose less than the average loss. Although some states could lose more than others, none gain. With a more restrictive definition, everybody loses farms and information.

Table 1. Distribution of Farms by Sales Level Ranked by Percent Grossing <$10,000, 1992.

		<$10,000				<$10,000	
States	Total Farms	Farms	Per-cent	States	Total Farms	Farms	Per-cent
United States	1,925,300	906,517	47				
West Virginia	17,020	13,274	78	Arkansas	43,937	22,815	52
Alaska	512	353	69	Missouri	98,082	50,869	52
Tennessee	75,076	50,729	68	North Carolina	51,854	26,834	52
South Carolina	20,242	13,555	67	Washington	30,264	15,547	51
New Hampshire	2,445	1,596	65	Maryland	13,037	6,505	50
Alabama	37,905	24,105	64	Michigan	46,562	22,889	49
Mississippi	31,998	20,326	64	California	77,669	37,269	48
Oregon	31,892	19,793	62	Ohio	70,711	32,754	46
Texas	180,644	110,519	61	Pennsylvania	44,870	20,503	46
Hawaii	5,336	3,259	61	Vermont	5,436	2,444	45
Virgnia	42,222	25,394	60	Colorado	27,152	12,007	44
New Jersey	9,079	5,455	60	New York	32,306	14,249	44
Connecticut	3,427	2,038	59	Idaho	22,124	9,345	42
New Mexico	14,279	8,446	59	Indiana	62,778	26,090	42
Louisiana	25,652	15,079	59	Wyoming	8,716	3,199	37
Rhode Island	649	375	58	Montana	22,821	7,968	35
Florida	35,204	20,259	58	Kansas	63,278	21,813	34
Georgia	40,759	23,455	58	Delaware	2,633	857	33
Maine	5,776	3,251	56	Wisconsin	67,959	21,863	32
Utah	13,520	7,575	56	Minnesota	75,079	22,140	29
Oklahoma	66,937	37,299	56	Illinois	77,610	21,689	28
Kentucky	90,281	49,755	55	South Dakota	34,057	7,229	21
Massachusetts	5,258	2,883	55	Nebraska	52,923	10,651	20
Arizona	6,773	3,584	53	Iowa	96,543	19,419	20
Nevada	2,890	1,519	53	North Dakota	31,123	5,693	18

Source: Reilly (1995) and U. S. Bureau of the Census (1994).

- **Information for agricultural research, extension, businesses, farmers.**

With such a change in definition, we would also lose much of the database used directly and indirectly for every U.S. county by federal, state and local officials; scientific researchers; agricultural extension services; agribusinesses; and, not least, farmers and ranchers themselves. Furthermore, a change of definition in the census of agriculture would trigger the same change in the decennial census of population, housing, and socioeconomic information for farm and nonfarm, as well as rural and urban people and places.

- **Environmental and health information**

Furthermore, we would stand to lose baseline data on the environmental and health-related factors pertaining to various crop and animal products associated with soil, water and other conditions. Such information would be lost in both rural and urban areas where small farms exist. For example, farms grossing less than $10,000 annually amount to nearly 27 percent of the productive farms having some or most of their acreage in the Conservation Reserve Program. A $10,000 definition would move those that produce, but sell less in dollar values of farm goods, still further out of the U.S. agricultural database.

- **Minority-operated farms**

Nonwhite, minority farms would decrease by 65% from 43,487 to 28,235. Three-fourths of the farms operated by African-Americans would officially disappear as a result of the new definition, down by 76%, from 18,816 to only 4,567 farms. Black-operated farms have been disappearing at high rates for decades. However, the change of the farm definition would instantly push the numbers down to where they might otherwise be projected in another 20 to 30 years. Similarly, farms operated by women would drop from 145,156 to 50,292, a 65% decrease.

- **Full and part-time farms**

Nearly three of every ten people, 28% whose principal occupation is farming would no longer be included in the agricultural census if the $10,000 requirement were used in the farm definition. Nearly seven of every ten who are primarily part-time farmers would be dropped from the count and from the official database.

- **Sales**

The largest 2% of the U.S. farms, those with $500,000 or more in sales in 1992, produced nearly half of all the farm products sold. The 47% of the farms that grossed less than $10,000 in 1992 accounted for less than 2% of the sales of agricultural goods (U.S. Bureau of the Census 1994: 5). In the U.S., large farms produce more and small farms produce a smaller share of the agricultural goods marketed. This is not new. However, eliminating so many small farms from the definition and agricultural data would be new. Small farms and their characteristics are typically undercounted while large farms tend to be overcounted. In the 1987 census, for example, farms selling under $10,000 were undercounted by 22% while those selling more were overcounted by nearly 4% (U.S. Bureau of the Census 1990: xiii and 1). With a

behavioral definition of farms that includes home consumption of farm products rather than sales alone, still more small farms would be found and counted in the nation's agricultural data.

- **Small-farm commodity production**

Large farms do not simply replace the roles played by small farms. Large farms do not exclusively produce all the food and fiber items that we consume or export. Certain commodities are often produced on small farms. Smaller farms provide many specialty goods. These include nearly 30% of the pecan sales; 12% of the walnut acreage; 7% of the ginseng acreage; 19% of the blackberry acreage; 10% of the hay sold; 8% of the sheep, lambs, and wool that are sold; and 55% of the horses. However, farms grossing less than $10,000 contribute little to big-farm cash crops such as corn, wheat, soybeans, sorghum, Irish potatoes, and cotton or to poultry, dairy products, or pork. In today's agricultural structure, it appears inefficient for small farms to try to compete in the mass production of such crop and livestock commodities.

- **The small-farm market for farm supplies and services**

The 47% of farms in 1992 that grossed less than $10,000 account for about $5 billion in purchases of farm supplies and services including about $0.7 billion in local property taxes. Furthermore, the farms that would have been defined out of the database account for nearly $24 billion of the total, $93 billion value of U.S. farm machinery and equipment (U.S. Bureau of the Census 1994: 49-50 and 52). Small farms are big businesses. Regardless of the proportions that the smaller farms purchase and maintain, these billions represent major markets and revenues from purchases of farm inputs that are important to agricultural businesses as well as to the farmers.

- **Small farm real estate and profit**

The change in farm definition would eliminate from the census coverage about 27% of the farms showing profits where the value of product sales exceed production expenses. These farms represent over 13% of the U.S. farmland. They have an average size of 136 acres and a total real estate market value of over $132 billion. By any interpretation, a sizable amount of U.S. agriculture would be omitted from the census and information base with the higher sales requirement in the farm definition.

- **A diverse farm structure and food security**

All Farms are not alike. The overall structure of U.S. agriculture is multi-dimensional (Wimberley 1987). In addition to corporate-commercial and large-family-farm-area agristructure, one of the three major dimensions is small-farm agriculture. Small-scale structure is characterized by farms that are independently owned and operated by

individuals or families who live on them. Their acreage tend to be lower. Their operators are often part-time farmers, and they frequently hire labor.

Small-scale agricultural structure is an added dimension of diversity for the strength of the nation's food security and sustainability. If there is strength in diversity, the diversity in the American food and fiber system is a basis for food

and fiber security, agriculture's biological and economic robustness, and other agricultural strengths. A policy hypothesis is that the diversity of agricultural structure is important for a secure system of food and fiber and for a sustainable agriculture and environment. In a diverse structure of agriculture, it is unlikely that all farms will use the same practices, technology, genetic stocks, inputs, processors or marketing outlets.

- **Small-Farm Structure and Quality of Life**

It is not that small farms with low incomes are unimportant. Small farms can be quite important to families with low incomes. These farms supplement family incomes and food resources in many impoverished areas. Historically and even today, many low-income farm families depend upon what they grow to increase their incomes through cash sales. Low-income farm families can likewise consume some of the food they produce and thereby offset family budget expenses, improve their diets, or both.

Research on corporate-commercial, large-family-farm-area and small-farm agricultural structure have shown that the structure of agriculture is related to socioeconomic quality of life (Reif 1987; Lobao 1990). Essentially, high levels of corporate-commercial agricultural structure show little relationship to socioeconomic conditions. Large areas of family farm structure show positive benefits on socioeconomic well being. However, small farm structure is related to poorer socioeconomic conditions of poverty, low incomes, and unemployment. But does this suggest that poor places would be better off without small farms? Not likely. Rather, the presence of small-farm structure helps prevent the poorer quality of life in those places from becoming worse.

Conclusions

Losses that would be suffered by a narrow official definition of U.S. farms are far reaching. Keeping the farm definition behaviorally diverse in addition to or instead of a low sales threshold will keep the information needed to understand, serve and guide the diversity and strength of American agriculture and the biological, economic, social, and environmental security of our food and fiber system. In the future, the issue of what is officially a farm will emerge again. Those for whom the definition of farm matters – farmers, other citizens, agricultural scientists, public agencies, and private agricultural business interests – will have to determine what criteria are important for including places as farms in the national base of statistical information. When the time comes, perhaps a definition can be more clearly formulated to include behavioral criteria beyond annual farm product sales. If so, this will be to the advantage of keeping small farms in the data and information base on American agriculture.

As long as there are producers and consumers, it matters what a farm is – in the behavioral sense of the term.

NOTES

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2. Much of this analysis draws from an article, "Lose Half of American's Farms? A Definition Can," by the author (Wimberley 1996).

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Facilitating Market Access for Small Farmers

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These comments address some of the programs in the U.S. Department of Agriculture (USDA), and particularly those in the Agricultural Marketing Service (AMS), designed to improve market access for small farmers. Improving market access for the small to medium sized farmer is of paramount importance. Larger producers with greater production and access to capital can invest in new techniques to make their products "market ready". Smaller producers, however, generally do not have the production volume needed to utilize advanced packing and handling techniques and find it difficult to access mass markets. The importance of a strategic marketing plan is therefore essential to the survival of the small limited resource producer.

The mission of the Agricultural Marketing Service is to facilitate the strategic marketing of agricultural products in domestic and international markets while ensuring fair trading practices and promoting a competitive and efficient marketplace for the benefit of producers and consumers. This mission is carried out through eight broad activities that encompass a wide range of programs.

Those eight activities include:

(1) Market News

(2) Standardization, Grading, and Shell Egg Surveillance

(3) Market Protection and Promotion

(4) Wholesale Market Development

(5) Transportation Services

(6) Strengthening Agricultural Markets and Producers' Income (Section 32 Program)

(7) Payments to States and Possessions and

(8) the Perishable Agricultural Commodities Act (PACA). These activities are structured to promote a strategic marketing perspective that adapts product and marketing decisions to consumer demands and changing domestic and international marketing practices and technologies.

Most of my comments will focus on the Wholesale and Alternative Market (W&AM), one of four program areas in the Transportation & Marketing Division of AMS. I will also describe some of the other programs in the Division and the Agency and how they impact marketing strategies for small farmers.

The mission of the Wholesale and Alternative Markets program is to promote regional economic development and improve market access for the small to medium sized farmer, thereby enhancing the overall effectiveness of the food marketing system and providing better quality products to the consumer at a reasonable cost. To accomplish this mission, the W&AM program conducts research and provides technical assistance to State Departments of Agriculture, municipalities and other non-profit organizations that are interested in expanding market potential and creating or upgrading facilities to enhance the overall marketing, handling and distribution of agricultural products. The program also analyzes potential delivery systems to allow customers, particularly the under-served inner city residents, greater access to a variety of fresh fruit and vegetables and specialty crops that might not be available in mass markets.

The W&AM program mission is accomplished through three functional areas:

(1) Farmers' Markets

(2) Public Markets, and

(3) Wholesale and Collection, or Assembly Markets.

Farmers' Markets

The term "farmers" markets" has been used to describe several different types of marketing facilities. We define farmers' markets as a common facility or area where several farmers or growers gather on a regular, recurring basis to sell a variety of fresh fruits and vegetables and other farm products directly to consumers. Farmers' markets give consumers direct access to fresh fruits and vegetables and other farm products and provide small farmers with a profitable sales outlet for their production.

Research shows that the additional income from sales at farmers' markets is sometimes the factor that enables smaller growers to farm profitably. The popularity and growth of farmers' markets has resulted in a major upswing in the number of markets operating throughout the country. The 1994 Farmers' Market Directory identified 1,755 farmers' markets operating in the U.S. Our 1996 Farmers' Market Directory identified over 2,400 farmers' markets operating in the U.S. during the 1995 season, a 37% increase over those listed in the initial directory.

Farmers' markets are dynamic enterprises that also contribute to community development, economic development and nutrition delivery, generate additional tax revenues, and build community spirit and empowerment. They make significant contributions to rural areas in close proximity to cities. In a recent study commissioned for the Dane County Farmers' Market in Madison, Wisconsin, it is estimated that the market contributed nearly $5 million to the local economy. In smaller markets such as Sante Fe, New Mexico, estimates

are that the market contributes over three-quarters of a million dollars to the surrounding farm economy. The "Greenmarkets" in New York City estimate their markets generate over $20 million sales to regional growers.

A recent Cornell University study that examined the entrepreneurial business incubation capabilities of farmers' markets identified three major benefits to farmers.

(1) They enhance business opportunities by promoting business start-up and development, facilitating product development and diversification, creating opportunities to add value to products, enhancing the customer base, and expanding sales and income.

(2) They foster the development of business skills and entrepreneurship.

(3) They have positive effects on the vendors' families.

An increasing source of income for farmers at farmers' markets are the Women, Infants and Children (WIC) farmers' market nutrition coupons. I am sure most of you know how this program operates. Qualified WIC recipients receive coupons or checks to purchase fresh fruit and vegetables at authorized farmers' markets from bonafide farmers. Slightly more than $9 million in coupons were redeemed by 8,047 farmers at 1,143 farmers' markets in 1995. Opportunities exist for small farmers to tap into this market, particularly when they are positioned to sell products in communities where these coupons are issued.

Farmers' Market Survey

A major objective of this study was to measure farmer and consumer participation at those farmers' markets that engage in direct sales to consumers. Of particular interest were the number of participating farmers, the number of sales' days on a national basis, and the distance both consumers and farmers traveled to the markets. Included in the survey were questions suggested by those actively involved in market management and questions on participation in the WIC Farmers' Market Nutrition program, participation of tourists, and identification of various market rules that affect grower participation.

During September 1994, 1,755 surveys were mailed to farmers' markets as listed in the 1994 Farmers' Market Directory. Market managers completed and returned 772 responses relating to direct sales. Here are a few highlights of the survey: 20,496 farmers use farmers' markets to sell directly to consumers, 6,648 farmers are reported to use farmers' markets as their sole marketing outlet, 772 farmers' market managers report a total of 915,774 customer visits per week, and validation of previous studies that estimate direct marketing sales as over $1 billion nationally.

Wholesale & Alternative Markets program has initiated several other projects.

The ***1996 Farmers' Market Directory*** catalogued over 2400 farmers' markets operating in the U.S. This directory lists market locations, contacts and phone numbers where available, and type of operation (seasonal, year-round). The ***Delaware Consumer Survey*** assessed consumer needs and opinions of direct market operations in the state of

Delaware. The ***California Web Site*** developed a World Wide Web site for California farmers' markets. A ***Madison, Wisconsin,*** study assessed the feasibility of relocating successful farmers' market from the downtown area. A ***Toledo, Ohio,*** study examined the feasibility of establishing fresh food market adjacent to successful outdoor farmers' market. A study on ***farmers' market tourism*** assessed the impact of tourism on farmers' market sales. A study in ***Columbia, Missouri,*** examined facility layout and design for market to serve farmers in central Missouri. In ***Little Rock, Arkansas,*** business plan and operational enhancements for a new farmers' market were studied.

W&AM's future projects will include:

(1) Conducting a generalized, national survey every 2 years, measuring market and farmer activities;

(2) Tracking market development, developing consumer profiles of most likely users, and attempting to establish parameters that indicate a market's potential success;

(3) Collecting site-specific data, emphasizing consumer surveys to establish activities at individual markets, and developing a set of predictable variables that will accurately predict the potential of a market expansion;

(4) Continuing efforts to estimate national sales' figures for farmers' markets to more accurately measure their impact on small- to medium-sized farmers.

Public Markets

Public markets are defined as a group of locally owned, primarily owner-operated, private retail businesses leasing or renting space in a shared facility on a permanent basis with an emphasis on the sale of fresh foods. Located in inner-city urban areas, public markets provide a vehicle for delivery of fresh agricultural products in areas where the mass merchandisers have disappeared. Independent businesses operating in these markets may include produce, meats, poultry, fish and seafood, eggs and cheeses, baked goods, fresh cut flowers, ready to eat foods and other related items and services. Often a combination of government and private funds are used to construct or renovate a market facility. Market administration and management is generally performed by non-profit organizations which generate the operating capital necessary for continued market maintenance.

Besides expanding market access for local growers and producers, public markets also provide urban consumers with a much needed supply of fresh fruits and vegetables. Today, more people are realizing the importance of good nutrition in maintaining their health.

However, many Americans' efforts to eat more farm fresh products are hampered by factors beyond their control. Residents of low-income communities in many larger cities generally do not have adequate access to fresh farm products. Their access is limited by the scarcity of chain stores in inner cities and older stores that have inadequate facilities, limited storage space, and outdated equipment.

The benefits of public markets are diverse. They promote small scale farming and they provide local farmers' access to a large number of consumers in a direct marketing environment. For producers of varietal products that have an ethnic appeal, those who grow organically, those who cannot produce enough to interest large scale buyers and growers who are transitioning crops, public markets - and their adjunct in-season farmers' markets - have a direct benefit. They also support nutrition programs and healthful consumption of fresh agricultural products by providing inner city residents with access to reasonably priced fruit and vegetables and other fresh food products.

The ***1996 Public Market Conference*** convened industry leaders, planners, developers, market operators, and city and state officials to develop strategy for planning and expansion of public markets.

Projects in ***Asheville, North Carolina; Boston, Massachusetts; North Market, Columbus, Ohio; Findlay Market, Cincinnati, Ohio,*** involved facility and/or business planning for development of public markets to serve inner-city communities. In ***Baltimore, Maryland,*** an entrepreneurial training and merchant development program for refurbishment and expansion of public market was conducted. A study in the ***Reading Public Market, Philadelphia, Pennsylvania,*** examined the feasibility of establishing satellite markets in low income communi-ties. A ***Sea Islands, South Carolina,*** study identified a public market and/or alternative retail marketing facility for minority farmers.

Wholesale Assembly Markets

By definition, **Collection, Assembly or Shipping Point Markets** are facilities where small growers can collectively assemble sufficient product volumes to attract buyers for subsequent shipment to population centers. These types of operations are usually in an area of commercial production. When located near towns or cities, markets of this type may also serve as a source of direct supply for local grocers and food service operators. Research findings indicate that the heavier concentration of these types of markets are located east of the Mississippi River in the Atlantic seaboard states.

Of the approximate 100 markets operating in the 1950s, over one-third were located in Georgia and Florida. Although once a popular form of marketing, fewer of these types of markets exist today. Several factors contribute to the decline, including shifts in demand, modes of transportation, cultural practices, declining production, and changes in wholesale and retail marketing services caused by supermarkets. Although the number of markets have declined, the functions performed by the operations - packing, cooling, sorting, grading - for small farmers remains a critical process in the continued survival of the small-to-medium sized farmers to access the mass marketers.

In ***Thomasville, Georgia,*** a state-owned market serves primarily as an auction facility for small farmers in south Georgia. A study in the ***Mid-Hudson Valley, New York,*** examined the feasibility of consolidating a marketing facility for growers in region that is only 50 to 100 miles from New York City. In ***southwest Virginia,*** a study assessed the feasibility of establishing a shipping-point market to serve producers. These producers are primarily tomato and green pepper growers.

Other AMS Small Farm-Related Initiatives

Shore-to-Store Produce Marketing Program

This program is basically a campaign that encourages supermarkets in Maryland, Delaware and Virginia to stock their produce departments with locally grown items. The program has shown a great deal of success with sales in 1989 of $302, 508 that rose to $937,802 in 1995, a tripling of sales in six years. It is intended to help both the supermarkets by providing fresh, high-quality produce and the growers by offering them a profitable outlet for their production. Shore-to-Store combines point-of-purchase display materials such as posters, banners, and price labels with television, billboard, radio and store window advertising. The goal is to encourage customers to request local produce. The program also provides directories of participating supermarket produce buyers to growers and directories of growers to buyers. Research projects continue in an effort to improve this program with a recent survey of participating producers. Results taken from this study generated many new recommendations that would enhance future Shore-to-Store operations. They include an initial information package, USDA grading standards, growers' and buyers' meetings, local grower organizations, and newsletters.

The ***Opportunities for Limited-Resource Producers to Supply a School Lunch Program with Local Agricultural Products Pilot Project*** is a cooperative project with the Georgia Department of Agriculture and Fort Valley State University to develop a pilot project in which a school lunch program operates for a school year with local agricultural products supplied by limited-resource producers.

The ***Agricultural Export Transportation Seminars'*** initiative is administrated through the Shipper Exporter Assistance program of TMD. Participants learn the basics of export transportation. Informa-tion covered in these seminars includes: definition of appropriate terms; how to select a freight forwarder; freight forward-ers' role; shippers role; documentation; ocean cargo rates and service for containerized shipments and less-than-containerloads, air cargo rates and services; how to select the right transportation; export payment options; proper procedures for stowing cargo; how to facilitate customs clearance; insurance options; USDA services; potential pitfalls and how to avoid them. The seminar and program materials are designed for individuals who are producing or marketing high value or value added agricultural products; considering exporting; and/or new to exporting; a new employee in marketing, distribution, or export divisions. USDA

responsibilities facilitate the coordination of these seminars with workbooks, speakers, program guidelines, and other assistance as needed. The seminars are taught by industry experts, including international freight forwarders, international bankers, carrier representatives, experienced exporters, USDA, and participants from the sponsoring organization. This program may offer strategic opportunities for emerging farm groups or organizations that may have the potential to amass sufficient quantities and/or varieties of products to access a foreign market.

The ***National Organic Standards' Program*** through the Organic Foods Production Act of 1990 mandated the Secretary of Agriculture to establish an organic certification program for producers and handlers of agricultural products who use organic methods. The Organic Foods Production Act has three purposes:

(1) to establish national standards governing the marketing of certain agricultural products as organically produced

(2) to assure consumers that organically produced food meet a consistent standard

(3) to facilitate interstate commerce in fresh and processed food that is organically produced.

The process of developing the national Organic Program has been a public /private partnership with the organic industry. With help from consumers and representatives of the organic industry, the USDA has been working to develop standards, rules and regulations that will ensure that organically labeled products purchased in the marketplace meet consistent nationwide standards. The process of developing these standards has been very complicated because they will apply to all agricultural production – fiber, produce, livestock, poultry and processed foods. Once these standards are developed, the Agricultural Marketing Service will accredit State and private organizations or persons to become "Certifying Agents" to certify that production and handling practices are met.

Developing and certifying a national organic program is a complex and far-reaching process, however, substantial progress has been made. The 14-member National Organic Standards' Board, first formed in 1992, has delivered recommendations on the major issues to the Secretary of Agriculture which will form the basis of the regulations and a policy guidelines' manual that will be used to implement and operate the program. Beyond the regulatory and enforcement issues associated with the adoption of these standards, this program will open international markets for organic products and expand consumer confidence and ultimate purchases of organic products. This would create a niche market for small farmers to pursue as they explore alternative production strategies.

The ***Federal-State Marketing Improvement Program (FSMIP)*** is a matching funds program which supports State marketing projects. This fund is designed to support State Departments of Agriculture in:

(1) identifying and evaluating new uses, markets, and marketing systems for agricultural produce, both domestically and internationally

(2) improving the efficiency of marketing processes and systems to enhance competitiveness and profitability

(3) improving or maintaining the quality and marketability of agricultural products through new handling, processing and distribution techniques

(4) assessing opportunities for alternative crops, direct marketing, and farmers' markets to enhance income and market access for small or limited resource farmers. Twenty-one projects received funding during the 1996 fiscal year. Examples of projects that were awarded grants include:

- **Kentucky**

  Assess the existing diversification and marketing activities underway in fifteen "tobacco dependent" counties; develop a coordinated, multi-county approach to improve these programs; and document diversification successes for use in future educational and training activities.

- **Minnesota**

  Identify marketing opportunities and strategies for small scale producers and processors by increasing the scale of direct marketing of meat, fish, fowl and by developing niche retail and food service markets for value-added products.

- **New Jersey**

  Form a farmers' market coalition, document characteristics and examine efficiency of farmers' market operations, and examine characteristics and demographics associated with farmers' market customers.

Market News

The primary objective of the AMS Market News Programs is to provide timely, accurate, and unbiased market information to buyers and sellers of agricultural commodities. Market News' reports reflect current conditions on supply, demand, price, trend, movement, and any other information pertinent to trading. This market information aids producers in production planning and is reported in uniform terminology that places the producer and buyer on a more equal bargaining basis. Timely and accurate information is particularly important for small farmers as farm profitability depend heavily upon their ability to get products to market at optimum periods for sale. The Agency is aggressively working to enhance its market databases via the INTERNET and other electronic media in a continuing effort to make this information accessible to a wider group of users.

Commodity Procurement

The primary objectives of the Section 32 - Commodity Purchase programs are to remove excess supplies of agricultural commodities from the markets, to provide a dependable supply of agricultural commodities for the Department's domestic feeding programs, and to encourage the domestic consumption of American agricultural products.

A majority of these purchases are for the school lunch program. The program buys food from farmers who have wholesome, high-quality (fresh or processed) products to sell. A requirement of this program, however, is that a farmer must commit a truck load of products for sale. A truck load is equivalent to 45,000 pounds. Opportunities exist for small farmers to access this market for their products.

For additional information concerning the Wholesale and Alternative Market Program or other information cited in this presentation, you may contact Errol R. Bragg at USDA, AMS, TMD, W&AM, P.O. Box 96456, Room 2642 South Building, Washington, DC 20090, Phone: (202) 720-8317 or Fax (202) 690-0031.

Land-Grant Universities in Support of Small Farm Families

Edward "Ted" Wilson
Deputy Administrator
Cooperative State Research, Education, and Extension Service
Washington, DC

Good morning, ladies and gentlemen!

I feel great, how about you? You know, we live in a fantastic nation; for example, we all got out of bed this morning and not one of us had to worry about where the food for the next meal would come from. We live in a nation where less than 2% of the population produces the food for the rest of us, some 266 million, and yes, our farmers are ready to feed the world. This is also a testimonial for the capacity and excellence of our land-grant universities, our Cooperative Extension Service, and the USDA. You have done an outstanding job. Let me also congratulate each and every one of you for participating in, and making, this national small farm conference the success that it is.

It is my hope that when you leave this place in a few hours, you will leave with increased knowledge, renewed energy and enthusiasm, and a clarity of vision which will enhance local, state, and national small farm programs. I need not remind you that our small farmers are stewards of one-third of our farm land, and that our small farms represent 73% of all farms. It is important, however, that we remind decisionmakers of these facts and emphasize that U.S. agriculture needs all kinds of agricultural producers.

You should also leave this conference confident of the fact that USDA and in particular the Cooperative State Research, Education, and Extension Service is supportive of your research and extension programs. We are supportive of your programs which focus on the problems, concerns, and issues of small and part-time farmers.

Ladies and gentlemen, the topic I should be addressing is, "Land-Grant Universities in Support of Small Farm Families." However, I have decided to take the advice of Sir Winston Churchill, the great British Prime Minister, when he said, "Never speak to an audience who knows more than you do" and you certainly know more about our land-grant universities' support for small farm programs than I do. On that topic, let it be sufficient for me to say that the issues faced by our small and mid-size farms must be a priority for all our land-grant universities: 1890 land-grant universities, 1994 land-grants, and our 1862 land-grant universities.

So, instead of addressing the topic as listed in the program, I am taking the opportunity to ask you to look with me for a few minutes at the bigger picture, that is, some of the factors which will influence the future direction of agricultural research and extension.

In the interest of time, I will make brief comments on five major factors: public expectations and perception; global competitiveness; fiscal constraints and accountability; changing demographics; and advances in telecommunications.

Public Expectations and Perception

The public investment in agricultural research is approximately $3.2 billion per year and $1.4 billion for cooperative extension each year for a total investment in agricultural research and extension of $4.6 billion. In return for this investment, the public increasingly expects us to address issues that are of concern to them, they expect to be involved with our priority-setting process, and they expect to see new science and technology that significantly improve the quality of life.

On the other hand, the public perception is that we often do science for scholarship and to promote our discipline rather than to address society's issues. The perception is that we give little research attention to the long-term consequences of agricultural acitivies that is, the impact of agriculture on the environment and on the quality of our water, soil, and air. The American public is no longer concerned with food availability; instead, the concern is for the quality and safety of food and the impact of food production on the quality of the environment. These concerns are, and will be translated into public policies that will affect the funding of agricultural science and, therefore, the future direction for agricultural research, education and extension.

Global Competitiveness

Another factor which will influence our future is global competitiveness. U.S. agriculture has for years enjoyed a positive balance of trade. This year, agricultural exports are expected to exceed $60 billion, with a positive balance of trade in excess of $20 billion. Yesterday, Secretary of Agriculture, Dan Glickman said his goal is for agricultural exports to exceed $100 billion by the year 2000.

That is achievable; however, the competitive position that the United States now holds in international markets is a concern. The dominance the United States once enjoyed as an abundant supplier of low-cost commodities may no longer hold true. Other countries have begun to catch up, and in some cases have surpassed the U.S. agricultural productivity growth in certain areas. The result is a weaker competitive position. Global competitiveness will further intensify with full implementation of GATT, NAFTA, and with the new freedom-to farm provisions of the 1996 Farm Bill.

This global competitiveness should stimulate new lines of research and new extension program foci and priorities. The--need to be more competitive internationally could lead us to focus on

value-added products, new uses for agricultural commodities, and a systems approach to our research and extension programs;--"systems" in the sense of focusing on issues rather than disciplines, and in looking at the farm unit as a food, feed, and fiber production system, rather than as an isolated set of production issues.

Fiscal Constraints and Accountability

Fiscal constraints and accountability are two inseparable factors that will also impact the future direction of agricultural research, education, and extension. The country is faced with an enormous fiscal demand, which is fueled by programs such as Medicaid, Medicare, welfare problems, the cost of cleaning up the environment, and the cost of maintaining an enormous defense establishment. If we look at the expense side of the ledger along with an ingrained resistance to increasing state or federal taxes and a deep worry that we are too much in debt with a serious deficit problem, there emerges a worrisome conclusion: that is, agricultural research, education, and extension will experience declining appropriations or at best flat budgets with marginal increases in special emphasis areas.

At the same time that we face declining budgets, there will be increased requirements to be accountable to the public and to contribute to the goals of public policy. The Government Performance and Results Act of 1993, (GPRA) aims at revolutionizing the way the Federal government does business. The Act institutionalizes an accountability system based on performance measurement--setting goals and objectives and measuring progress towards achieving them.

In my optimistic view, publicly funded agricultural research, education, and extension will continue to deserve and receive public support. Why? Because we will meet the GPRA accountability standards and we will continue to address important public needs. We work in the public interest producing a public good; that will be enough to secure increased funding. The level of funding will also be influenced by our skills in demonstrating our accomplishments; by how those accomplishments impact societal issues; and by how effectively we work with the political system.

Changing Demographics

Changing demography is another factor to be considered. It will have a greater impact on education and extension programs than on research.

For example, the movement of the population from rural to urban and suburban areas has not only shifted the fulcrum of need but also shifted the political power base. This has prompted some Extension Services to increase their programming in urban areas. One result has been some criticism by the farm sector that extension is abandoning agriculture. This may or may not be the case, but the perception is still there.

Another demographic change is in the trimodal farm sector, with an increase in the proportion of small part-time operations, an increase in large commercial farms, and a decline in the number of mid-size farm operations.

Extension grew up with the mid-size farms and designed most of its programs and education information strategies to serve this audience. It will be necessary for extension to develop the capacity to serve this new trimodal agriculture. Hence the importance of this conference, which focuses on linking research and extension to meet the needs of small and mid-size family farms.

A third demographic change is the rapid increase in ethnic and minority groups. Members of these groups often need flexible professional development opportunities and education to help them keep up with changing family, social, cultural, professional, and work environments. Our education and extension programs will need to develop a variety of delivery methods and to make each option affordable and accessible to all ethnic and minority groups.

Advances in Telecommunications

The last factor which I will comment on is telecommunications. Advances in telecommunications comprise perhaps the greatest opportunity and challenge facing our education and extension programs, and could result in revolutionary changes in our university outreach programs. These advances provide the opportunity for our universities to become truly engaged with a number of communities. Through a variety of delivery methods, the university now has the opportunity to reach all those who need its services. Satellites, cable, and fiber optics will increasingly be used for program delivery, and computers and wireless systems will become more important with the use of digital technology.

In summary, some of the factors which will influence the future of agricultural research, education, and extension include public expectations and perception, global competitiveness, fiscal constraints and accountability, changing demography, and advances in telecommunications.

Ladies and gentlemen, the bottom line was succinctly stated in a recent report by the National Academy of Sciences entitled, "Colleges of Agriculture at the Land-Grant Universities." The report stated that the extension system of tomorrow will have to be results driven; relevant to consumers and producers; science based; and more efficient in both delivery mechanisms and the use of public funds.

The question I will leave you with is,
Will our small farm programs of the future be results driven, relevant to consumers and producers, science based, and more efficient in both delivery mechanisms and the use of public funds? The answer, my friends, is dependent on you.

Thank you for inviting me to share in this conference, and good luck as you return home to revitalize your programs to meet the needs of our small and mid-size farms.

Reports from Sessions

Summary Report on Technology Transfer

John T. Harris
USDA-Natural Resources Conservation Service
Nashville, Tennessee

I am pleased to serve as your reporter for this session. Like some of you, I can relate to both small farms and technology transfer, having been born and raised on a small farm and having spent most of my career with SCS/NRCS, being involved in some form of technology transfer.

We had four presentations with six presenters, a good cross section. We had researchers, academics, government representatives and practitioners. Each gave a unique perspective to the chosen topic.

First Presentation

John Schweitzer and Eileen Griffin - Assisted technology on the small farm

John is with the New Ground Resource Center at Purdue University and he said that his program is designed to help individuals with disabilities. The program is designed for the entire agricultural community. The AgrAbility program serves 18 states. People are assisted in various ways, from reassigning tasks to using devices, some simple and some complex, to enable the indidvual to do the job needed. Most of the devices involve mobility. Some examples are ramps, modified all terrain vehicles (ATVs), lifts, hand controls, automated gates, swivel seats, and automatic hitches.

Eileen said that one out of five farmers has some type of disability. She is with the Tennessee AgrAbility program which is co-sponsored by the University of Tennessee and the Easter Seal Society. Each farmer is unique in his/her needs. In helping these individuals, simple and low cost methods are explored before high tech and expensive ways.

Second Presentation

James Ford - Adoption of Conservation Practices to Enhance Farm Programs

James discussed the reorganization of the SCS/NRCS and the creation of Regional Offices. He said this was a move to promote technology transfer by moving staff out of Washington and getting them closer to the customer. He pointed out that NRCS has 2500 local offices thereby creating an excellent delivery system and opportunities for partnerships. He pointed out the fact that the new Farm Bill gives NRCS additional responsibilities (Financial Assistance in addition to Technical Assistance).

James emphasized that NRCS is interested in small farmers and that the agency is constantly striving to transfer the needed technology to them to encourage the conservation of their natural resources. He encouraged the use of cost effective and easily installed conservation practices.

Third Presentation

Ron Macher - Selecting the Right Tools and Equipment for Small Farms

Tools selected need to be durable and dependable. Select the right tool for the job. A lot of people getting into small farming these days do not have a farm background, and need help in selection of tools as well as other farm issues. Ron said that innovation is a very important part of the small farm operation. Other important elements are the good old-fashioned principals of make it yourself, wear it out, use it up, and make it do. He said oftentimes that the simpler the better in tools for the small farm. He also believes in direct marketing. He also said that some of the old ways may be better than new ways on small farms.

Fourth Presentation

Bill Tallent and Mike Brown - Putting Research Technology to Work in the Agricultural Community

Bill talked about ARS and its scope and capabilities, with 104 locations. Five of these are on 1890 Land Grant Campuses. The largest facility is in Beltsville with 1,000 employees. He discussed eight specific research projects, selected for discussion for their diversity. There are 81 "Small Farms" projects at 47 locations.

Mike Brown discussed the work that is going on at the South Central Family Farms Research Facility in Boonesville, Arkansas. Mike said that the staff of six scientists were working toward rural development ideas for family farms. Some of the subject areas are agriforestry, agronomy, and animal science. He emphasized the concepts of Value Added and Sustainability in their work.

Words of Wisdom

After the presentation, I asked each of the participants to give me their "Words of Wisdom" concerning their topic or small farming in general. They were asked to do this in one or two sentences.

Dan Lyons - The best technology in the world is useless unless it is used for its intended purpose.

Ralph Otto - Conservation concerns touch all of us and must be addressed regardless of the size of the operation. As USDA and the Nation begin to implement the conservation provisions of the 1996 Farm Bill, I believe small farms can set the standard for the rest of us.

John Schweitzer - Through technology, farmers with disabilities are able to remain in and pursue an occupation in agriculture.

Eileen Griffin - The AgrAbility Program is a shining example of a consumer-driven USDA funded program that helps provide vital education, technical assistance, and support to farmers with disabilities.

James Ford - Consider conservation practices in planning your production just as you would consider seed, fertilizer, fuel labor, and capitol.

Ron Macher - An optimist counts his chicks before they hatch; an agripreneur (small farmer) markets his chicks before they hatch.

Bill Tallent - Research scientists and research organizations need to consider that using research is as important as doing the research in the first place. Results of the most creative and ingenious research are not worth much if not used.

Mike Brown - Technology developed for family farmers needs to be simple and affordable in addition to solving real life problems. However, the best information differs little from the worst unless it is communicated properly to the farmer.

In closing, I chose to observe some commonalities of "common threads" of the presentations concerning small farming in general. They are - use a common sense approach, be innovative, keep overhead down, communciate in an effective manner, and small farms are not miniature big farms, they have unique needs.

I thank you for inviting me to share in this conference with you. If you will allow me to, I want to leave you with this closing thought - This country grew up with the help of small farmers and the majority of the world still depends upon small farmers for their food. This tells me that small farmers have always been important and will always be important.

Summary Report on Environmental Issues

John Ikerd
University of Missouri
Columbia, Missouri

Environmental Concerns Create New Opportunities for Small Farms

John Ikerd
University of Missouri
Columbia, Missouri

- Environmental concerns in agriculture are linked directly and inherently to large-scale, specialized, industrial farming practices and methods.

- As large farms begin to consider <u>all</u> costs – environmental and social as well as economic, either voluntarily or through regulations – small farms will become more competitive with large farms.

- Small farms, however, will be successful <u>only</u> if they take a fundamentally <u>new approach</u> – adopt a new paradigm or philosophy of farming.

- Environmental concerns in agriculture are linked directly and inherently to large-scale, specialized, industrial farming practices and methods.

- Success in the new approach to farming will depend on knowledge and information rather capital and production technology.

- In general, the key to success for small farms in the future is to "do different things by different means" than do large farms.

- Do things that big farms cannot do – such as produce quality products for niche markets.

- Avoid doing things that big farms cannot avoid doing – such as polluting the environment and depopulating rural communities.

Conservation Provisions of the 1996 Farm Bill and Their Impacts on Small Farmers

Gary Jackson, University of Wisconsin, Madison

- Needs of small farms are similar in many respects to all farms. -Efficiency of Production and Marketing,-Physical and Emotional Safety,-Environment Security
- Conservation– major environmental issue addressed by all sizes of farms in the past.
- Environmental focus– expanded to include management of total farm resources as well as conservation. LandNutrientsWildlife/Animals/Air /Landscapes, Culture
- The current emphasis on Total Resource Mangement creates a window of opportunity for "voluntary" rather than "regulatory" action. If "voluntary" doesn't work, the "regulatory" will come.
- Success with the "voluntary" requires effective partnerships from public and private sectors.
- Various Provisions of the new farm bill now address a wide range of farm resource issues – it's not just conservation any more
- Research and education will be critical to implementing current farm bill provisions.
- Questions of partnerships will be critical to all aspects in implementing the new farm bill.

Delivering Educational Information to Improve Water Quality

Fisseha Tegegne, Tennessee State University, Nashville

Overview:

- Agriculture is the major source of non-point sourcre (NPS) pollution.
- Economic and social, as well as environmental, costs are growing concerns.
- Thus, we need to provide education for farmers to address all three issues.

How Do We Develop Programs?

- Gather information to define the situation – physical or natural resource, economic, and social situation.
- Identify potential problems – prioritize problems, focus on possible solutions to priority problems.
- Develop educational information – depending upon key concepts to be addressed, resources available, and benefits to be achieved.
- Select appropriate modes of delivery – ranging from mass media to one-on-one.
- Program must be collaborative in nature: linking research, policy, extension, farmers, government agencies, communities, & others.

Assisting with Compliance Concerning Environmental Regulations

Phyllis Flaherty
U. S. Environmental Protection Agency
Washington, DC

- A major change in philosophy concerning compliance has taken place at EPA. The emphasis now is on "Compliance Assist-ance" rather than "Enforcement."

- Compliance assistance is now handled by sectors, or types of businesses, rather than by sections of environmental law.

  - Each EPA person(s) is responsible for *all* laws that impact a particular group, such as agriculture or farmers.

  - Priority is placed on making requirements easy to understand and information easily assessible to all concerned.

- The focus is on voluntary compliance – Enforcement is a last resort.

  - EPA people provide information, assistance, and incentives.
  - Penalties for "self reporting" of problems or violations have been removed.
  - Relationships are now adult/adult rather than and adult/child or crop/crook.

- Readily accessible information is available from EPA through a whole host of programs – all of which are designed to assist with voluntary compliance and to minimize enforcement.

- Partnerships will be the key to making voluntary compliance work.

Summary Report on Program Delivery

Alfred Wade
Prairie View A&M University
Prairie View, Texas

Farm Clubs and the Agriculture Options

Larry J. Smith
University of Idaho
Moscow, Idaho

This presentation was centered around field tests and how to get the farmers to network. It was brought out that systematic replication field tests are much more successful than one year demonstrations. The presenter told of his success in bringing together environmental groups to work with traditional farmers. The environmental groups and farmers were at odds and did not get along at first. These groups are now providing grants to these farmers to get them to change their farming practices and become environmentally friendly.

Reaching the Agricultural Community by Electronics

Dave Varner
University of Nebraska-Lincoln
Nebraska

Issues discussed:

1. Nufacts Information Center
   - fast, convenient, and user friendly
   - accessible 24 hrs/day, 7 days/wk
   - audio hotline messages
   - fax-back documents

2. Part-time farming video
   - learn at leisure - an example of video was shared. It included five sections: Livestock; poultry, horses, Crops; Hayland and pasture Speciality enterprises, Farm management

3. Acreage and Small Farm Insights on the Web
   - Global Access to information
   - Data bases
   - Audience include part-time farmers. Those that worked and used computers and fax machines to access information.

An Alternative Educational Delivery Opportunity

John Richardson
North Carolina State University
Raleigh

This presentation discussed low tech distance education. It pertained to developing self directed learning modules. These modules were developed to address specific problems in a particular county. They were developed by the local County Extension Agent. They included:

Photographs
Video Tapes
Pocket Guides
And Information

Para-professionals: Teaching in a One-On-One Setting

Terry Gibson
Kentucky State University
Frankfort

Para-professionals' main duties are to reach a specific audience. They work one-on-one on the farmers farms in a whole farm development program.

Some of the steps utilized in working with hard to reach farmers include:

1. Establish a report
2. Help them establish goals
3. Educate them to reach their goals
4. Collect data throughout the process

National Agricultural Library Databases: A Sampler

Andy Clark & Mary Gold
USDA-ARS
Beltsville

The intent is to link research and Extension.

It includes: Databases
Discussion group on the internet
Gopher
WWW
Diskettes
Other databases

Under the databases, Agnet was discussed. This is a way to find out which databases do exist.

Summary Report on Economic Opportunities

Joe Julian
Colorado State University
Fort Collins, Colorado

Business Opportunities for Small Farmers

Dwight Carmon, Director, Processing Division, U.S.D.A.-Rural Development

- The small farmer, many times, must rely on another job or business opportunity.
- Farm Bill - can get guaranteed loans to buy stock in Cooperative. Gets Co-op going. (Example: Peanuts, Aquaculture).
- In North Dakota for example, straw used to be burnt, now particle board is made out of it.
- The definition of Rural - 50,000 population - outside city.
- Loans available for Agricultural production - no more than 1 million dollars per person. Program must be integrated. (eg.-use whole eggs including the shell).
- Loans can be for any Agricultural business venture - Example: new farm products, equipment.
- Rural Development Office all over the U.S. (Formerly Farmers Home Administration).
- Money available has gone from $100 million to $700 million over the past few years.
- Collateral- not as important as ability to do good business.
- Mr. Carmon's phone number 202-690-4100.

Valued Added Opportunities for Farmers

Alan Ware - Kerr Center for Sustainable Agriculture, Poteau, Oklahoma

- The farmer gets .22 cents for every dollar.
- Increase amount going to farmer.
- Incentives of Value Added
  Higher economic returns
  Longer product shelf life
  (Example: jams and jellies)
  Profitable use of culled materials
  Extending the season
  (pickled products)
  Access to niche markets
  Easier handling for mid and end user
  More convenience for users
  (Example: pre-made salad)

- Ways of Adding Value
  -Packaging
  - Drying
  -Canning
  -Handcrafts
  - Juicing

Financing Opportunities for Farm Ownership, Youth Projects and Farm Operating Loans

James Radintz
USDA-Farm Service Agency

- Direct loans including advise to farmers from FSA.

- Farm Assessment Program - FSA sits down with farmer to develop business plan depending on goals for the farmer.

- Loan Guarantee Program - Private leader makes loans.

- In 1997, $400 million for operating funds.

- $30 million for real estate loans.

- 25% of the funds go to beginning farmers for direct loans.

- Farm Bill - If one-half funding comes from another lender - the FSA can loan the rest at a fixed rate of 4%.

- Farm Bill:
  FSA cannot finance non-farm enterprises.
  Cannot use real estate loan funds to re-finance debts. Unified Certification rather than several forms - one form

- Youth Project Loans (FSA)
  $5,000. Under 21 years of age - over 10 years. Live in rural area.
  Youth can borrow money.
  Purpose - 4H Project or FFA.
  Example: Lawnmowers, steers, machinery.
  No need for parent to co-sign.
  Loan term is up to 7 years.
  Interest is 2-3% lower than bank rate.

Opportunities for Exports

Bill Westman
USDA-Foreign Agricultural Service

- The purpose of the FAS is to help develop new markets.

- Promotes United States products overseas

- In 1996 - exports expected at $60 billion.

- People overseas want export products from the United States.

- Markets are growing rapidly overseas

- United States- advantageous in food production.

- Agricultural Exports increased $17 billion in the last 2 years.

- In 1975, Value added =
  10% (overseas)

Summary Report on Social Issues

Sarah T. Warren

Alabama Consortium on Forestry Education and Research
Tuskegee University, Alabama

Although there were five distinct presentations in the concurrent session on Social Issues, two themes emerged in common. First, who is the small farmer, and why does it matter? And second, what are some working models of institutional collaboration in projects designed to meet the needs of small farmers?

In an overview of the demographics of small farmers across the United States, Ronald Wimberly (North Carolina State University) used recent proposed changes in census counting of farms to illustrate how redefinition might affect our perceptions of American agriculture. For example, if the census definition were to change upward from the current minimum $2,500 annual sales figure to one of $10,000, then the number of farms in the U.S. would decline by 45%. Viewed in another way, 47.1% of the farms that have the lowest sales figures produce only 1.9% of sales' value in the agricultural marketplace. Rather than employ minimum acreage or minimum production, as has been the pattern in the past, Wimberly suggested that engaging in certain agricultural behaviors – specifically the production of food and fiber, on a scale that meets household consumption, sales, and/or leisure requirements – might be a more useful definition.

Why does definition matter anyway? Wimberly proposed three primary grounds for continued re-examination. First, definition matters in terms of program practicalities. Second, it matters for environmental reasons – particularly biological and cultural diversity. And third, it matters in understanding small farm structures as determinants of quality of life. For example, why are areas of poverty so frequently areas of small farms? Wimberly concluded his presentation by suggesting that small farms keep poor areas from becoming worse.

Is the small farmer in Alabama the average farmer? By no means, according to George Paris (Alabama State Department of Agriculture and Industries). The average farmer is where we locate our expectations, but no one fills that role exactly.

Paris then progressed to the second theme – that of institutional collaboration. In addition to describing specific programs that the Alabama State Department of Agriculture and Industries directs to small farmers, such as the permanent farmers' market in Montgomery, alternative agricultural production, and marketing local produce to chain stores, Paris described several of the constraints to maintaining a small farmer's way of life. Of greatest

importance, he suggested, is the need to change the farmers' age-old habits of not sharing new idea and improvements with their neighbors.

Taking the definitional issue to a more conceptual plane, Robert Zabawa (Tuskegee University) submitted that the manner in which we look at the numbers (which are abstractions in any case) is all wrong. In order to determine the value of small farms and farmers in U.S. society, it is necessary to look at their productivity at a regional or local level, rather than nationally. It is necessary to look at them in terms of community, not simply as individuals. Further, we should see them as a voting block.

Programs designed to reach small farmers would then need to be examined in terms of their (1) availability, (2) accessibility, and (3) equitability (both in funding and implementation). If programs are further re-examined in the context of regions, culture, and farmer characteristics, then their response to definitional issues would be more successful.

The second theme – of collaboration and collaborative models – was illustrated by two case studies: one of the Southwest Georgia Alternative Agriculture Project, and one of the Federation of Southern Cooperatives. The former is a new consortium-like project newly created; the latter has several decades of history.

In describing the Alternative Agriculture program, Frederick Payton (University of Georgia) emphasized the way in which the six participating institutions work together. The opportunities available to the institutions have contributed to early successes of the original "good idea": serving an under-served population, using a systems approach, and paying careful attention to the "mix and fit" of the institutions themselves. The multidisciplinarity within multiple institutions has helped to create longer-lasting relationships between the institutions and the communities they serve. Additionally, such collaboration is generally very attractive to donors. The challenges that face such a group of diverse institutions, however, still require consideration. These include institutional practices and patterns of behavior, concerns over boundaries and turf, the increased labor required to coordinate communication among the collaborating institutions, and the maintenance of community focus in the face of outside pressures.

The model of the Federation of Southern Cooperatives contrasts with the consortium approach. Rather, the collaboration has been one of a grass-roots non-governmental organization with a major government agency (the USDA).

Of importance to Jerry Pennick (Federation of Southern Cooperatives) was defining the roles that different types of collaborating institutions can play. In the structure he described, the financial role was taken by the USDA as the institution that pays for program development and implementation. The 1890 institutions in this case have provided the technical assistance role. The Federation itself plays the vital role as intermediary between funding and technology and the target audience -- acting as a bridge between collaborators and the community, and building trust within the population.

In summary, the Social Issues session covered well-worn themes, asking questions to which one would think we should now have the answers. After all, there has been agriculture since before recorded history. Why do these questions recur with such regularity? Is it because they are intrinsically and intellectually fascinating? Is it because our values are so fluid and change so rapidly as to require constant redefinition? Is it simply a pragmatic response to shrinking dollars? Or more optimistically, is it because we are all co-learners? There is an element of each of the alternatives with us at all times, but perhaps recently too much of the second and third alternatives to be of significant comfort.

Contributed Papers

Early Rearing of Channel Catfish Fry in Above Ground Raceways and its Impact on Fry Survival in Farm Fingerling Production in Western Alabama

Lisa M. Bailey, J. C. Jones
John R. Morrison
U.S. Department of the Interior
Marion, Alabama

Alabama has a rapidly growing catfish farming industry which has made its largest strides in the wake of the earlier development in Arkansas and Mississippi. Currently, catfish farming in Alabama is experiencing unparalleled growth in terms of increasing water acreage and numbers of farms. It is now the most active sector of agriculture in the state.

The majority of Alabama catfish farms are either partially or completely dependent on an outside source of fingerlings to stock into their production ponds. Relative scarcity of groundwater supply prevents most catfish farmers in Western Alabama from using the time-honored methods employed by the large-scale catfish fingerling producers in the Delta regions of Arkansas and Mississippi. Alabama fingerling ponds must be filled gradually with water from low capacity wells and rainwater runoff from large watersheds. Due to the lengthy filling period and dependence on surface water, predation by insects and wild fish can be devastating until catfish fry attain 1 to 2 inches (2.5 to 5 centimeters) total length in these ponds. We proposed an above ground raceway rearing system with well water supplied by gravity flow or relift pump from a water storage reservoir. Fry were raised from swim-up stage in raceways until 1.25 to 2-inch (3 to 5 centimeters) size before stocking into rearing ponds on a Western Alabama catfish farm and at the Southeastern Fish Cultural Laboratory (SFCL). Survival of fry raised in this manner was compared with that of swim-up fry stocked directly from the hatchery into rearing ponds.

Both raceway systems used well water from a reservoir containing no fish other than a few grass carp (20 fish/acre) to control aquatic vegetation. Water flow was regulated to permit 5 exchanges/hour in each of the raceways used. Inflowing water entered raceways from behind a head wall which eliminated turbulence from the screened compartment which contained the catfish fry. A flow baffle

wall at the opposite (rear) end of each raceway enabled exchanged water to be discharged from the bottom. This prevented accumulation of solid waste, most of which exited through the rear standpipe drain. Well water made a single passage through raceways and was then used to fill other fish production ponds. Diffused air aeration was continuously provided to each raceway by a low-pressure air blower and several airstones per tank. Channel catfish fry (swim-up stage) from hatchery rearing troughs were stocked at a density of 1,000 fish/cubic feet into raceways after a few days of feeding on a finely ground 50 percent protein trout starter diet (Purina Mills, St. Louis, Missouri).

Volume or weight estimates were used to determine fry numbers. Feeding was continued in the raceways on the same diet three to four times daily according to observed feeding response. Feed particle size was increased as fish grew. Raceway walls and bottoms were cleaned by scrubbing each morning prior to feeding. Fry were then given a static water treatment of 50 ppm (mg/L) formalin (Paracide F) for 20 minutes to control external bacterial infections.

At both raceway facilities, catfish fry attained 3 to 5 centimeters of total length within a 24- to 27- day period with an average survival of over 95 percent. Of nearly one million fry reared on the commercial catfish farm in two 1,000 gallon raceways during May to July 1995, over 700,000 survived further rearing to 6-inch fingerling size. This surpassed previous survival rates achieved on this farm in several years of operation.

At the Southeastern Fish Cultural Lab., when raceway-reared fry were stocked into ponds for further growth, 86.4 percent survived to 5-inch fingerling size. Other ponds stocked with swim-up fry directly from the hatchery yielded 82.7 percent survival. Although, in this instance, survival of raceway-reared and pond-reared groups was high, overall study results indicate that stocking larger fry can help assure higher, more consistent survival from ponds that typically yield poor survival. Raceway rearing may be a means to improve fingerling production efficiency on catfish farms and reduce the need for purchasing fingerling stocks from distant producers.

Assistance to Small Farmers: The Small Farmer Outreach, Training and Technical Assistance Project

Ntam Baharanyi, Bobby England, Bob Mants, Jeffrey Moore, Miles D. Robinson, Nii Tackie, and Robert Zabawa
Tuskegee University
Tuskegee, Alabama

On March 1, 1993, Tuskegee University entered into a cooperative agreement with USDA/RECD (formerly Farmers Home Administration) creating the Small Farmer Outreach, Training and Technical Assistance Project to provide intensive training and management assistance to small-scale and limited resource farmers in selected Black Belt counties in Alabama.

The overall goal of the project is to directly improve the farm income and economic well-being of borrowers, socially disadvantaged and limited resource farmers, through increasing their production and financial management skills. The project staff includes a director, associate director, farm marketing specialist and a secretary on campus, and farm management specialists in Macon County (serving east Alabama), Lowndes County (serving Central Alabama) and Dallas County (serving west Alabama). Additional goals of the project are to: (1) develop and implement outreach programs so that eligible farmers may acquire farm ownership loans and operating loans; (2) develop and enhance business and marketing skills of selected borrowers; (3) develop the financial documentation of the farm business to the point where graduation to a commercial lender is feasible; and (4) develop a long-range base for self-sustaining farm business analysis services through existing associations and institutions.

Outreach activities include: presentations before local farmer groups, workshops, newsletters, articles in local newspapers, radio public service announcements and brochures, and, most importantly, one-on-one technical assistance. The outreach activities target record keeping, farm and financial management, marketing, and alternative and value-added enterprises.

1994-1995

Results over the first year of the project have been significant for a group of farmers who have traditionally been ignored in terms of financial and technical assistance. For the major objectives of the project, outreach and access to financial assistance, over 1,305 contacts were made to farmers, 259 eligible farmers were identified and 179 were enrolled in the project. Five farm ownership loans were approved, totaling $173,500 and 78 farm operating loans were approved, totaling $563,000.

A significant outgrowth of this project was in the areas of youth loans and housing assistance. Through the efforts of the small farm project, rural youths were able to access loans for small enterprise development including small herd projects, lawn mower repair, and other small business development. In this area, over 64 loans were approved, totaling $320,000. Finally, small farm project staff assisted rural residents in the area of housing repair loans, 11 loans totaling $24,000.

1995-1996

The Small Farmer Outreach Training and Technical Assistance Project expanded its service to the limited resource and small-scale farmers in the Alabama Black Belt. Along with on-going farm management and technical assistance with project participants identified and enrolled the previous year, 252 new contacts were made to farmers, 201 eligible farmers were identified, and 49 farmers were enrolled in the program in 1995-1996. Ten new farm ownership loans were approved, totaling $791,000 and 16 new farm operating loans were approved, totaling $212,000. In the related areas of youth and housing, 31 new youth loans were approved, totaling $154,000 and 18 housing loans were approved, totaling $372,000.

The Impact of Socioeconomic Factors on Sustainability of Agriculture In the Alabama Black Belt

Ntam Baharanyi & Andrei M. Cotton
Tuskegee University
Tuskegee, Alabama

The purpose of this study is to assess the impact of socioeconomic factors on sustainability of agriculture in the Alabama Black Belt. The portion of the Black Belt of interest to this study consists of 12 counties directly served by the Tuskegee University Cooperative Extension Program and the School of Agriculture and Home Economics. These counties are: Barbour, Bullock, Dallas, Greens, Hale, Lowndes, Macon, Marengo, Montgomery, Perry, Sumter, and Wilcox.

Specific objectives of this paper are to:

(1) review and discuss the components of an economically sustainable farming system as they relate to limited resource farmers, and

(2) develop a model to assess the sustainability of individual farming systems in the Alabama Black Belt Counties as a function of selected socioeconomic factors.

Variables affecting the economic sustainability of limited resource farmers in the Alabama Black Belt were collected through a survey. These variables were then used to develop the following model:
ES = f(ED, AG, VA, SP, OF)

where,

ES: is the index of economic survivability

ED: is the educational level of the operator and of the immediate family members

AG: is the age of the farm operator.

VA: is the income generated as a result of on-farm processing or product differentiation

SP: is the degree to which the farm operator participates in social, civic, and professional organizations.

OF: is the income received from all sources aside from farm operations.

This model will then be assessed as a Logit probability model. The logit model will be expressed in terms of event probability (the probability of an individual farming system being economically sustainable).

It is expected that this analysis will show that education, value added enterprises, social participation and off-form income, have a significant positive effect on the sustainability and survival of farming in the Alabama Black Belt while age has a negative effect on sustainability.

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Developing Aquaculture Businesses Among Under-Represented Groups in Rural Communities

Nathan Stone, Carole Engle and Robert Rode

University of Arkansas at Pine Bluff
Pine Bluff, Arkansas

The Mississippi Delta region is characterized by a high percentage of socially disadvantaged, limited resource farmers. With small plots of land and little capital, there is need for a viable agricultural business alternatives for these farmers.

Aquaculture has grown rapidly in the past ten years and has proven to be a profitable enterprise for many farmers. However, the high capital investment and operating capital requirements of most aquaculture businesses have prevented many limited-resource farmers from participating in these enterprises. For example, in channel catfish production, pond construction, equipment and operating expenses average $5,300 per acre before the first fish is harvested. In many years, small-scale break-even costs are higher than prices paid by processors to farmers. Economies of scale, based on sales to processors requires a minimum of 80-100 acres of water to establish and maintain a profitable and viable business.

The objectives of this paper are to:

(1) present a rationale for an alternative production-marketing system for catfish production that is economically feasible, and

(2) present an Extension education program designed specifically to overcome financial and informational constraints to participation in commercial catfish production on the part of socially disadvantaged limited resource farmers.

Research and demonstration have shown that direct retail marketing can bring the farmer a higher price than sales to processors, and the local demand for live fish may be far higher than commonly thought. In addition, many farmers have existing farm ponds or access to their own earthmoving equipment, allowing farmers to construct ponds at a lower cost.

If production and niche marketing efforts are carefully integrated into one comprehensive management strategy, it should be possible to operate small-scale aquaculture business profitability.

To accomplish this, however, requires a level of management of both production and marketing phases that is not commonly held by limited resource farmers.

The Extension educational delivery system in this program focuses on assistance primarily on the integration of production and marketing management through hands-on training of individual participants. The goal of this project is to provide management assistance, education, support, and encouragement. In support of this goal, the first phase is to locate or develop program resources appropriate for profitable small-scale production.

A series of fact sheets are being developed that cover the following topics: Introduction, Using Existing Farm Ponds, Holding Fish for Sale, Cleaning Catfish, Pond Construction, Economics, and Growing Fish. There is apparently considerable interest in small-scale catfish production, as the first printing of 3,000 copies of the "Introduction" fact sheet was exhausted in less than a year.

The second phase is to assist Extension personnel and others to hold workshops to inform socially-disadvantaged farmers of alternative aquaculture enterprises with potential for small farms. The third phase is to develop the capability to demonstrate small-scale production and marketing operations (live sales, small-scale processing) and to conduct such demonstrations. A small processing and marketing facility, linked to a farm production pond, is scheduled for construction in 1997. This project is a long-term effort intended to stimulate business and economic development in rural Delta communities.

Environmental Issues for Small and Moderate Sized Farms

Joe Julian
Colorado Coperative Extension
Castle Rock, Colorado

Douglas County, Colorado, is located in the "Front Range" of Colorado. Its borders are within thirty minutes of Denver to the north and twenty-five minutes from Colorado Springs to the south. The current population of Douglas County is 100,000 which includes approximately 2,130 Agriculture properties of which 1,500-2,000 are individually owned. Douglas County's Agriculture has evolved from large cattle grazing areas to small lot acreage programs for horse owners, part-time farmers and ranchers, and special land usage for animals such as llamas, goats, and other livestock.

According to "USA Today," Douglas County, Colorado, is the fastest growing county in the nation and has experienced the highest percentage gain in population over the last five years. This influx of growth into Douglas County is bringing a segment who desire to combine the best of two worlds into their new home, that is proximity to urban life and country living. The way many people do this is by living on small acreage or "ranchettes" ranging in size from five to thirty-five acres. Furthermore, many people want to conduct small scale ranching or farming, hoping to receive a tax break through an agricultural status of their property. Many of these individuals have not had any farming or ranching experience.

The objective of the Small Acreage Management Seminars was to provide an educational workshop to inform residents on such topics as pasture management, weed control, forage recommendations, pesticide safety and use, soil erosion, fencing requirements, water management, livestock reseeding, and developing a business plan. In addition, participants needed to understand that the small farms and ranches are subject to the same climatic and environmental attributes as are the larger operations. Knowledge is the key to successful management.

In 1994, 235 Douglas County residents participated in the First Annual Small Acreage Management Seminar. Evaluations indicated that over 60% of the attendees received information on agriculture that they had not received previously. In 1995, 135 residents attended the Second Annual Small Acreage Management Seminar. Evaluations however, once again indicated that over 60% of participants had learned something new in Agricultural practices, procedures or philosophy.

Several organizations from the public and private sectors including the Farm Service Agency, the Soil Conservation District participated in the Small Acreage Management event.

Agricultural Insurance Needs of Operators of Small Full-Time Farms

Robert Dismukes, Joy Harwood, and Robert Hoppe
USDA-Economic Research Service
Washington, DC

Small farms have characteristics that are related to their use of risk management programs, particularly federal crop insurance. Many small farms obtain most of their farm revenue from livestock sales, which are not covered by crop insurance. Small farms are also less likely than all farms to harvest cash grains or soybeans, commodities for which crop insurance is widely available. Although off-farm income often offsets low farm income, many small farm households have low total household income as well as low gross farm sales and farm asset values. Participants in crop insurance workshops have made suggestions on how agricultural insurance programs can better serve small farms.

Many U.S. farms are small. According to the 1992 Census of Agriculture, about 60 percent of the U.S. farms sold less than $20,000 per farm in agricultural products. Because small farm operators are often engaged in other economic activities, the small farms in this study includes only those with farm sales of less than $20,000 whose operators identified their principal occupation as farmer or rancher and reported working fewer than 50 days off the farm. These operators could be viewed as full-time farmers who operate small farms.

The enterprises of small farms are often different than those of all farms. A larger share of small farms obtain most of their revenue from livestock sales and small farms are less likely to harvest cash grains or soybeans.

Farm enterprises, such as livestock or crop production, are a part of the economic activity of the households associated with small farms. Off-farm income, such as wages and salaries from an off-farm job held by a farm household member, often offsets low farm income and provides protection against agricultural risks.

According to USDA's 1992 Farm Costs and Returns Survey, small farm households, on average, obtained virtually all of their income from off-farm sources. The largest source of off-farm income for small farm households was "other off-farm income," which includes social security. Although off-farm income raises total income in many small farm households, about one-quarter of the small farm households have low total household income as well as low gross farm sales and farm asset values. About half of these small farm households are in the South.

The small farms associated with these households with limited economic resources obtain about half of their gross cash farm income from livestock sales.

Federal crop insurance is offered to producers of about 60 crops nationwide. Crop insurance policies are sold by private insurance agents, but producer premiums are subsidized by the federal government. A producer who purchases crop insurance receives an indemnity if his or her yield falls below the guarantee level due to an insurable cause.

Catastrophic (CAT) crop insurance was introduced following the Federal Crop Insurance Reform Act of 1994. The CAT insurance guarantee level is 50 percent of expected yield. The fee can be waived for limited resource farms, which are defined by USDA's Federal Crop Insurance Corporation as having an annual gross income of less than $20,000 derived from all sources for the prior two years. The fee was waived on about 25,000 policies in 1995. Farmers can also "buy-up" to as much as 75% yield coverage, which requires additional payment.

One group of small farm operators has suggested changes to the federal crop insurance program. These farm operators, mainly African-Americans farming in the Southeast, participated in workshops on crop insurance conducted by the Federation of Southern Cooperatives. They completed a survey of their farm characteristics and risk management needs. Their suggestions included:
(1) increasing the coverage level of catastrophic crop insurance;
(2) expanding crop insurance to include crops, particularly fruits and vegetables, for which insurance is not currently available; (3) insurance coverage for livestock; and (4) personal assistance in understanding insurance sign-up procedures and program provisions.

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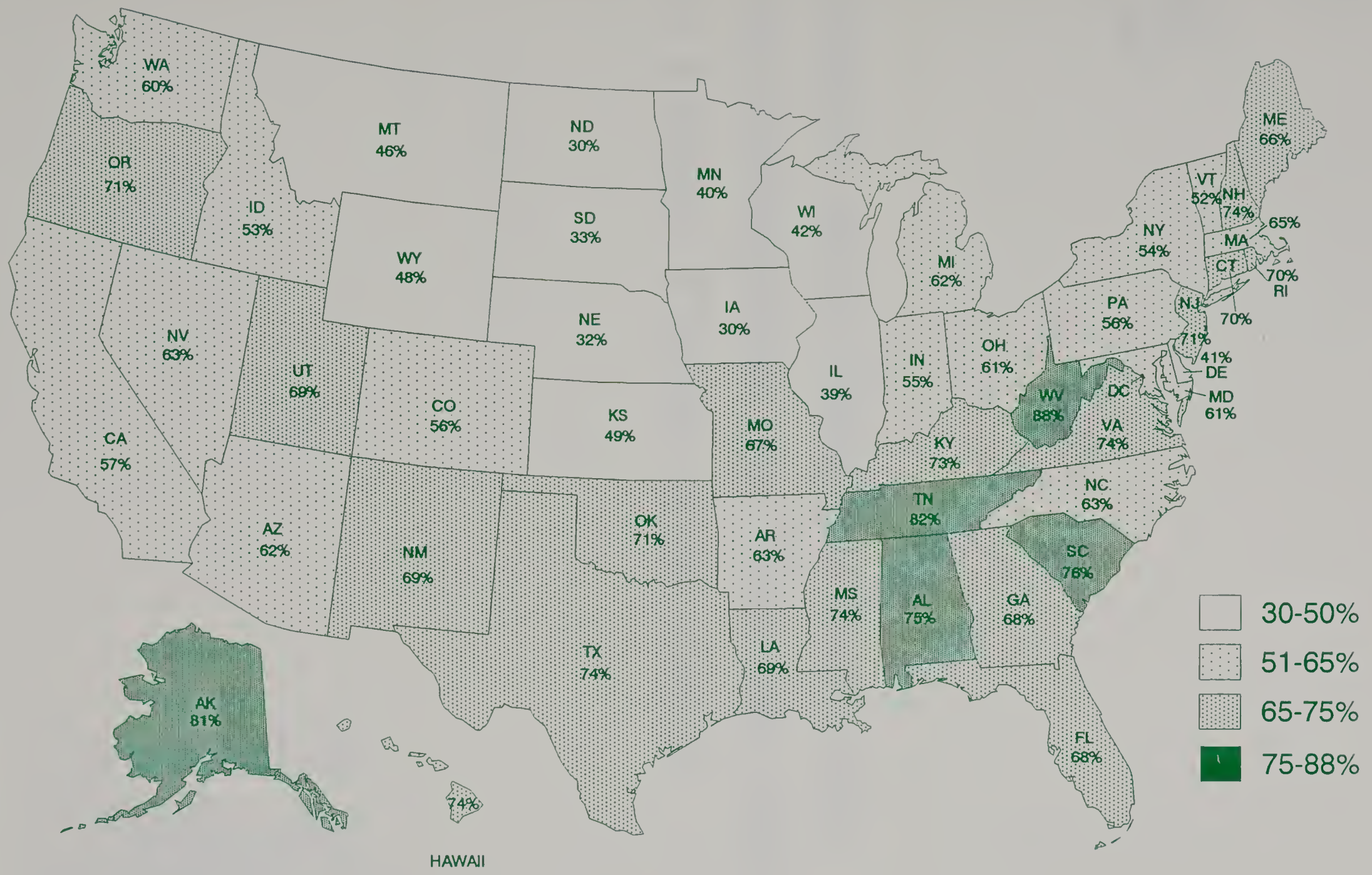
Share of small farms within each State

Small farms account for over 50 percent of farms in thirty-nine States



Source: 1992 Census of Agriculture

United States
Department of
Agriculture

Economic
Research
Service

Rural Economy
Division

Business and Demographic Characteristics of Farms With Sales Less Than $20,000

Cheryl J. Steele & Janet Perry

FCRS
Farm Costs & Returns Survey

Small Farms . . .

. . . Control 18 percent Of Farm Land

Small farm operators control 18 percent of farm land, and own 29 percent of all land in the U.S. agricultural sector.

Small farms average 134 acres, while U.S. farms average 448 acres.

Eight percent of small farms idled land under the Conservation Reserve Program, compared to 2 percent of other farms.

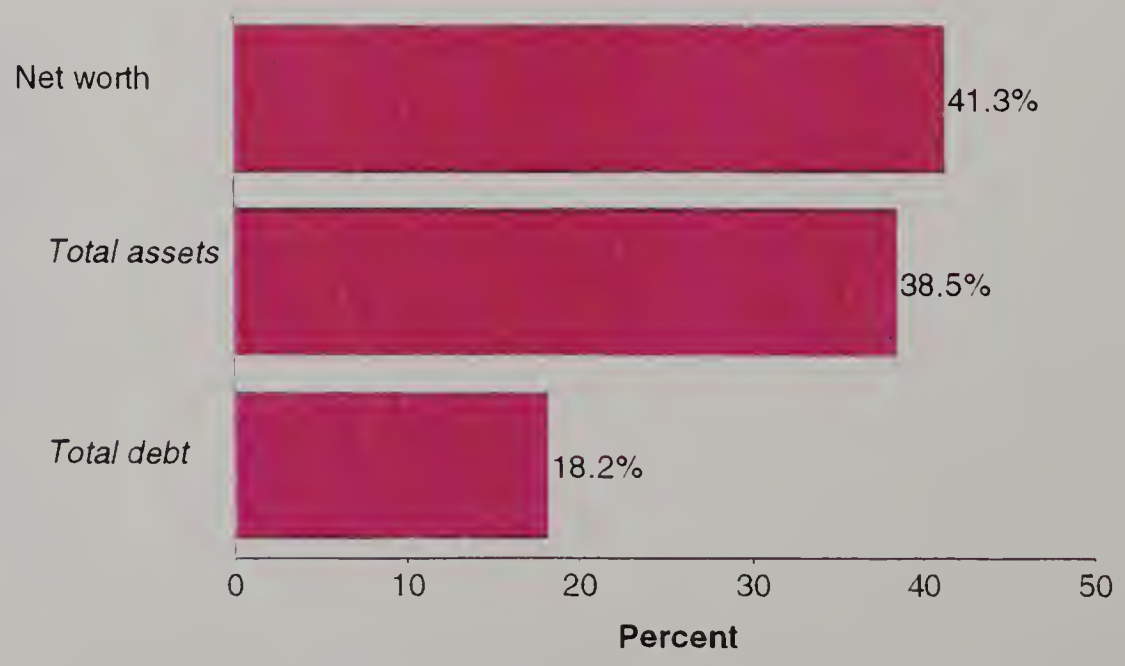
. . . Account For A Large Share Of Farming's Net Worth

Small farms, accounted for forty-one percent of farm net worth and own thirty-nine percent of farm assets.

Ninety-five percent of small farms had a low debt-to-asset ratio.

Small farm's share of the U.S. agricultural sector's assets, debt and net worth

Small farms account for a large share of farming's net worth



Small Farms *(Continued)* . . .

. . . On Average Have Higher Off-Farm Incomes Than Other Farms

Small producers have higher annual average off-farm incomes of $42,686 compared to $31,047 for other farms.

Household income for small farms averaged $38,281, compared to $48,892 of other farm households.

Components of farm operator household income

Small farm operators receive a greater portion of their off-farm income from wages and salaries

Total farm operator household income equals the sum of income from farm and nonfarm sources.

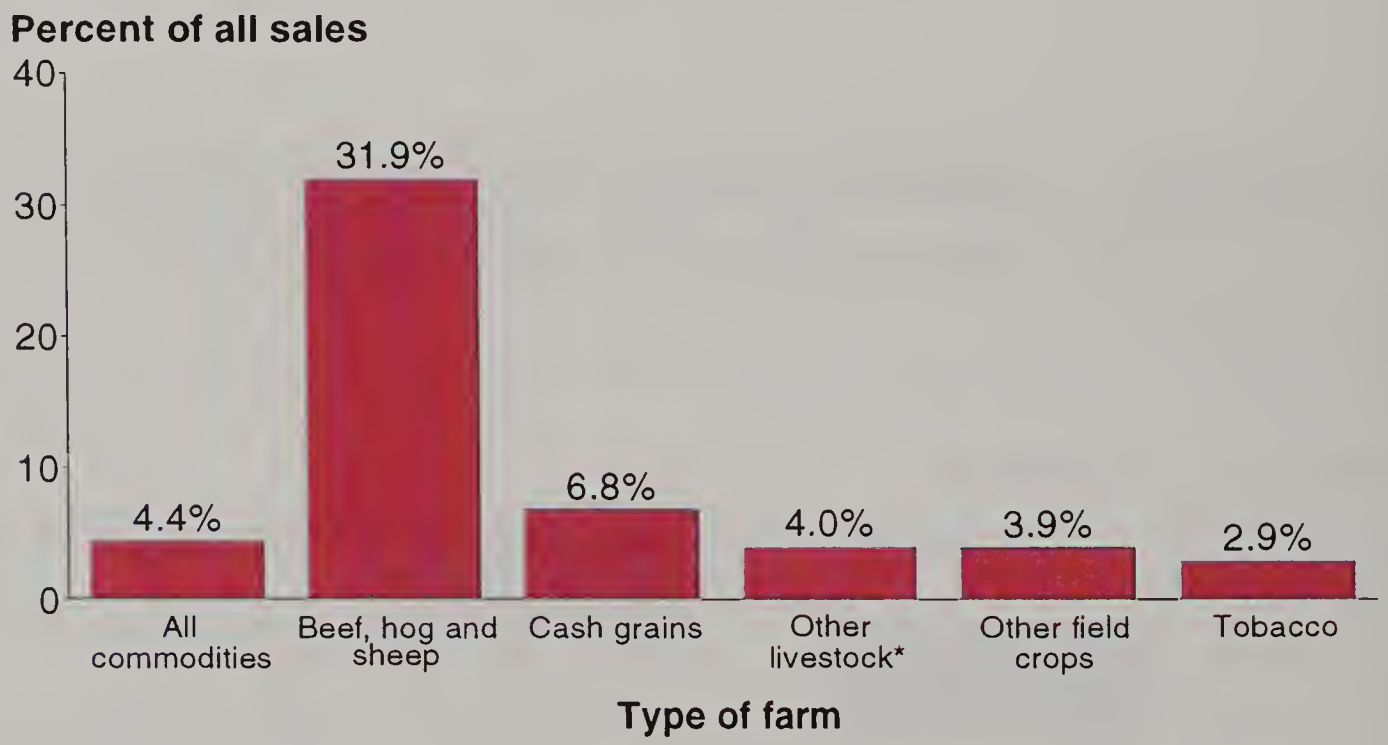
Small Farms *(Continued)* . . .

. . . Contribute Significantly To U.S. Livestock Sales

Small farms account for 4 percent of U.S. agricultural sales, and nearly one-third of U.S. agricultural sales from beef, hog and sheep farms.

Share of U.S. agricultural sales from small farms

Small farms account for nearly one-third of U.S. sales from beef, hog and sheep farms



* Horses and ponies; mules, burros and donkeys; bees and honey; goat, mohair, and goat milk; mink and pelts; rabbits and pelts; and fish and aquaculture.

Federal agencies including the U.S. Department of Agriculture (USDA), the Census Bureau, and the Bureau of Economic Analysis (BEA)—define a ***farm*** as any establishment which produces and sell (or normally would have sold) at least $1,000 worth of agricultural commodities within a given calendar year.

Household income is the combination of income from all farm and nonfarm sources.

Debt to asset ratio is a solvency measure used to indicate the relative dependence of the farm business or firm on debt, and the ability of the business to attain additional credit.

Summary

Small farms are nearly two-thirds of all U.S. farms and account for 4 percent of U.S. agricultural sales. Small farm operators own 29 percent of all farm land and contribute to 39 percent of the agricultural sector's assets. Fifty-five percent of small farm operators' principle occupation is not farming; and a large percent of their household income comes from off-farm sources. Small farms contribute to nearly one-third of U.S. agricultural sales from beef, hog and sheep farms. Seventy-five percent of minority operators run small farms.

Management characteristics of small farms and their operators are very different from those of other farm operators. Many operators of other farms share the decision-making process with spouses, partners and others. Many small farm operators don't expect to pass their farms on to the next generation and many did not want to increase gross sales.

Financial and management data for these small farms and their households are from the 1994 Farm Costs and Returns Survey (FCRS). The Farm Costs and Returns Survey is the only source of detailed financial data for farm businesses, as well as data on farm operator household income.

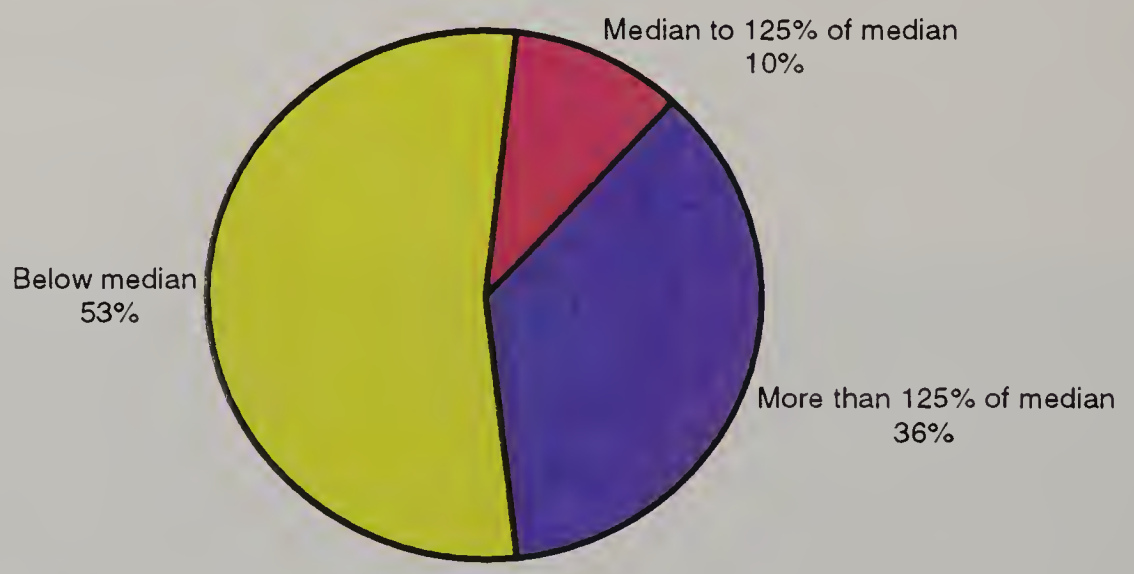
Minority operator characteristics data are from the 1992 Census of Agriculture. The Census provides statistically reliable data for states, small farms and minorities.

Summary *(Continued)*

Defining A Small Farm

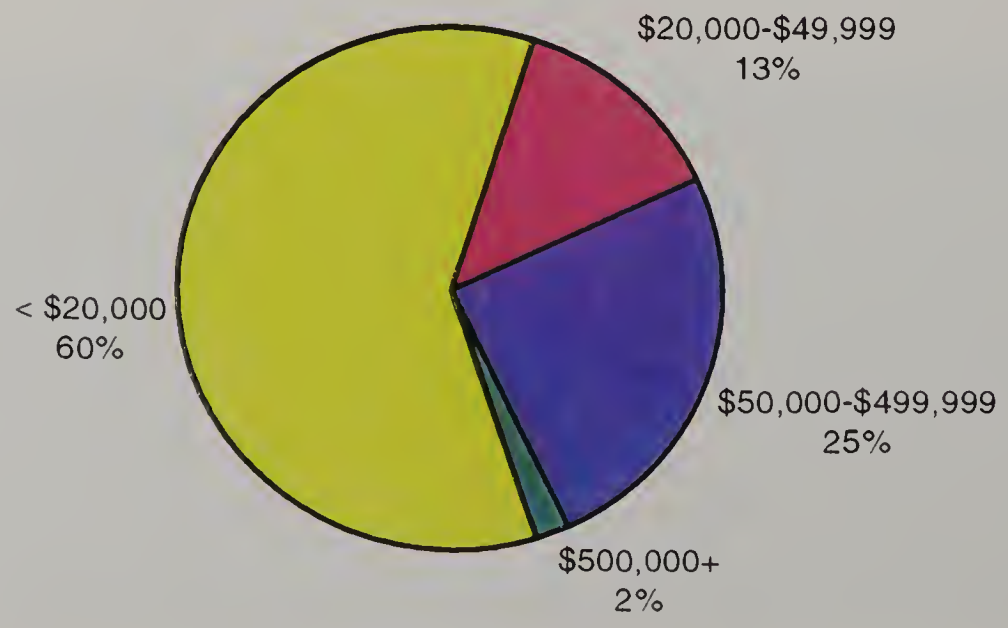
The Agricultural and Food Act of 1981 indicated that one element of a small farm is any farm household with a total family income less than the non-metropolitan median family income for their region. This definition concentrates on the farm family and their entire range of activities, both on and off the farm. A second definition, adopted here, emphasizes the farm business and is taken from the Food and Agricultural Act of 1977. This concept defines small farms as those with annual gross sales less than $20,000.

Half of U.S. farms would be considered "small farms" if the household income definition was used



1994 median income for all U.S. households is $32,264
Source: 1994 Farm Costs and Returns Survey and U.S. Bureau of the Census

Using the farm business perspective, the majority of farms have sales less than $20,000

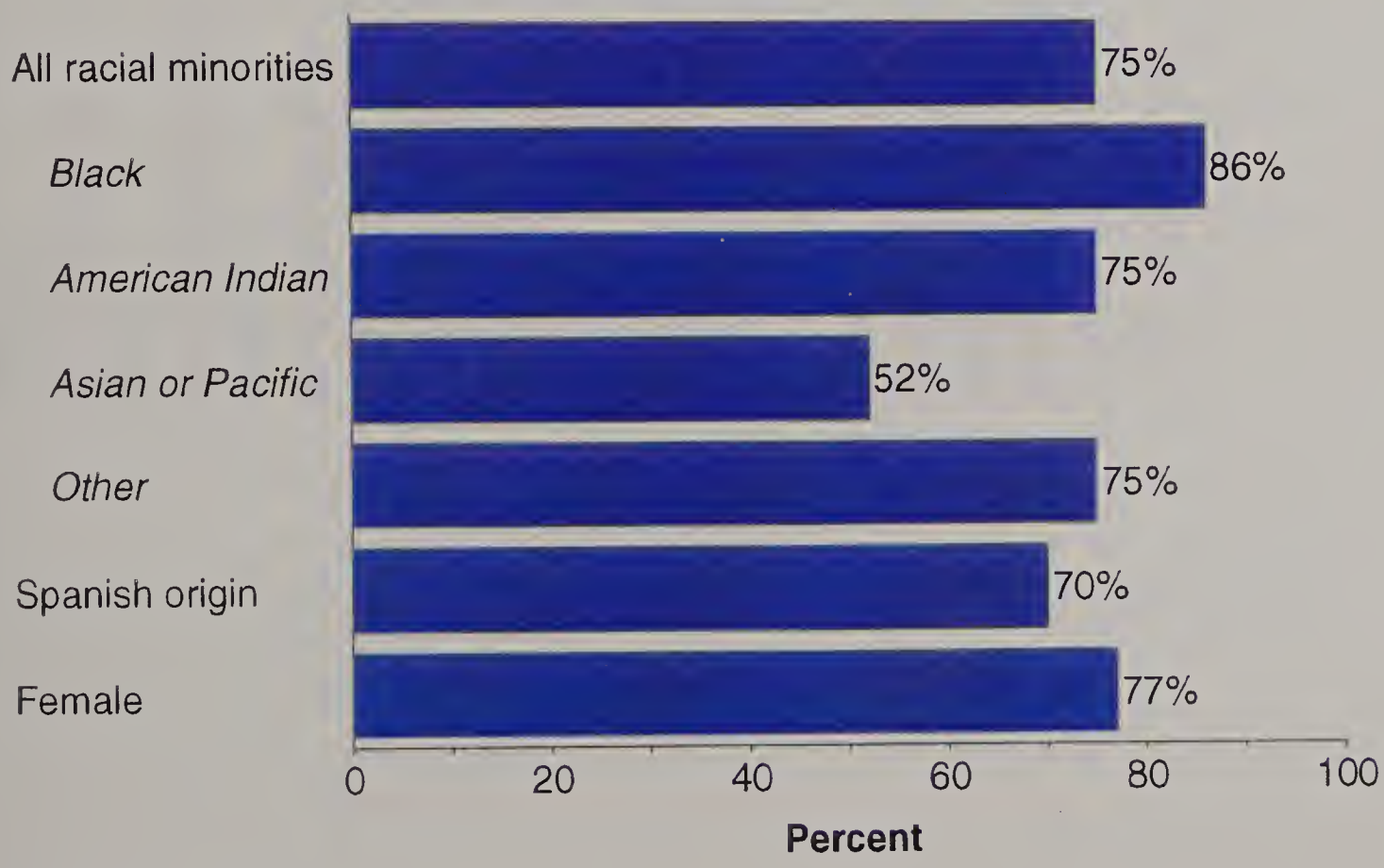


Summary *(Continued)*

Small Farm Demographics

Small farms are nearly two-thirds (60 percent) of all U.S. farms. Sixty-seven percent of small farm operators are full owners compared to 31 percent of other farm operators. Twenty-five percent of small farm operators' principle occupation is farming, compared to 78 percent of larger farm operators. Forty percent of small farm operators completed high school and 6 percent are college graduates, compared to 43 and 3 percent of other operators, respectively. On average, the small farm operator is older (55 years) than the U.S. farm operator (53 years). Twenty-one percent of small farm operators are retired compared to 3 percent of other farm operators. Although minorities accounted for only 3 percent of small farm operators, 75 percent of minority operators and 77 percent of female operators run small farms.

Most minority or female operators run small farms



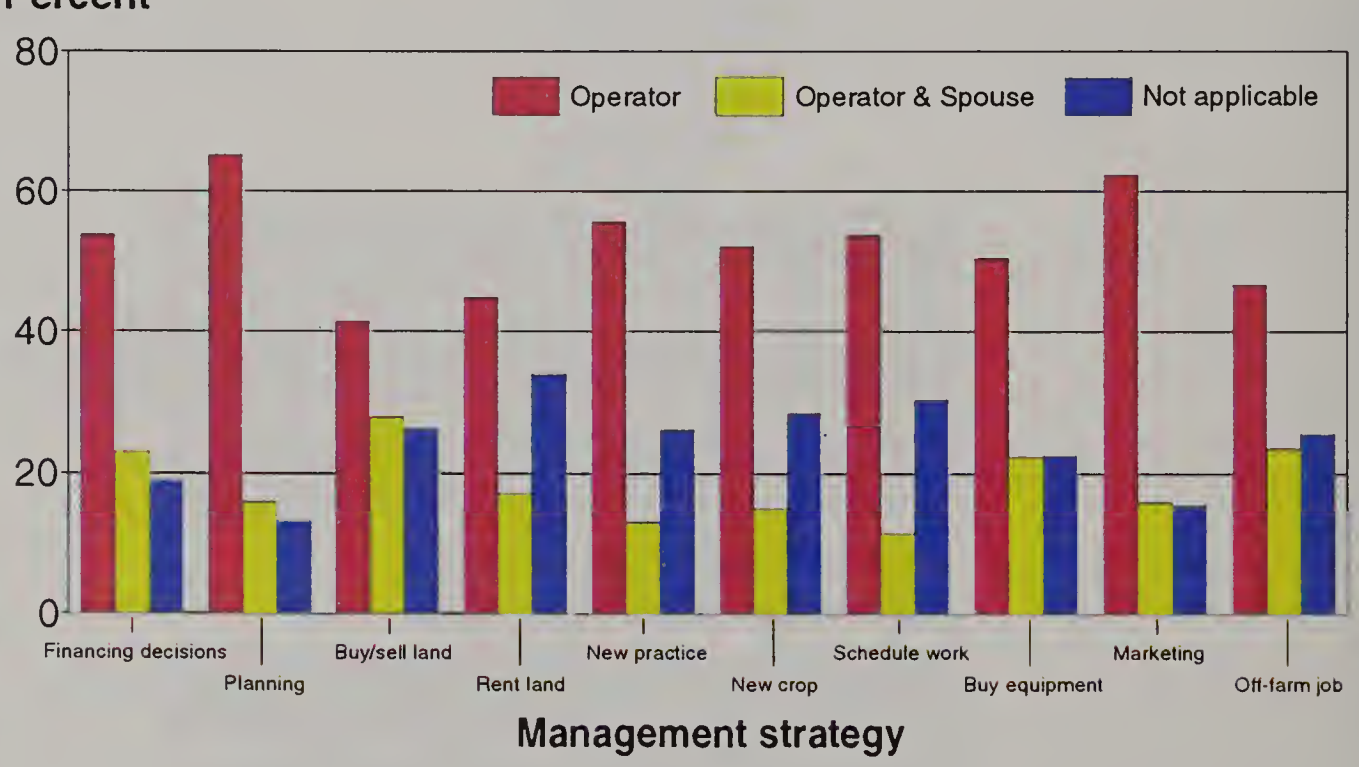
Source: 1992 Census of Agriculture

Management Style

Most small farms are proprietorships, so it is natural that the operators we interviewed were the most likely to make decisions. But, small farms are usually thought of as family farms, with the operator and spouse working side-by-side. In fact, larger farms were more likely to say that the spouse, or the operator and spouse made management decisions. Operators of small farms were very likely to indicate that they did not make specific management decisions.

Who makes the management decisions?

Like other operators, very small farm operators are the ones making the management decisions



Percentages do not add to one hundred. Other categories include spouse, someone else, and refusals.

Management Style *(Continued)*

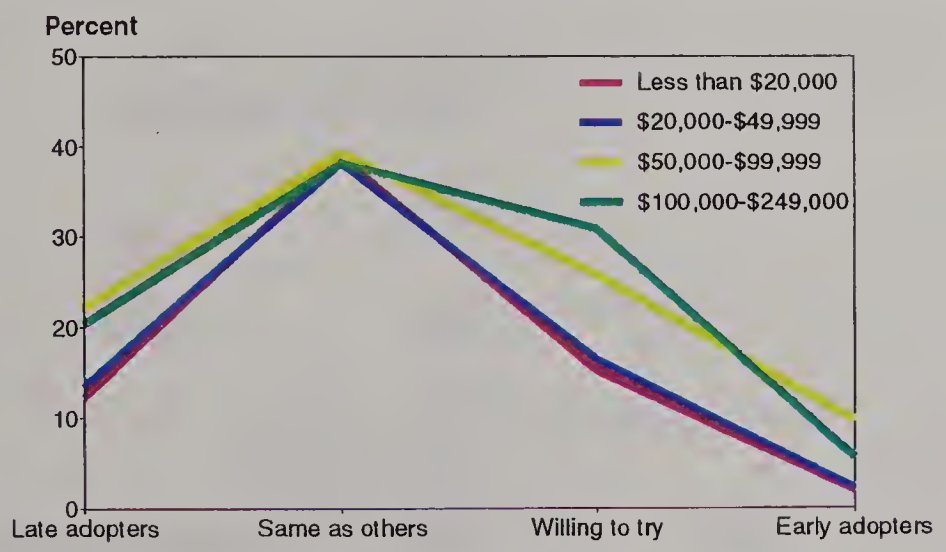
The adoption of new technologies in agriculture is credited with the enormous increases in production in the last 50 years. There are four phases of technology adoption:

- Early adoptors- an innovation is conceived and only a few will even try it.
- Willing to try new things over time
- Those about the same as other operators
- Late adoptors— those that wait to try new things will adopt the practice, or be left behind.

Small farm operators tend to try new technologies at a lower rate than other operators. And, they were more likely not to classify themselves into any adopter category.

Willingness to adopt technology by size of farm

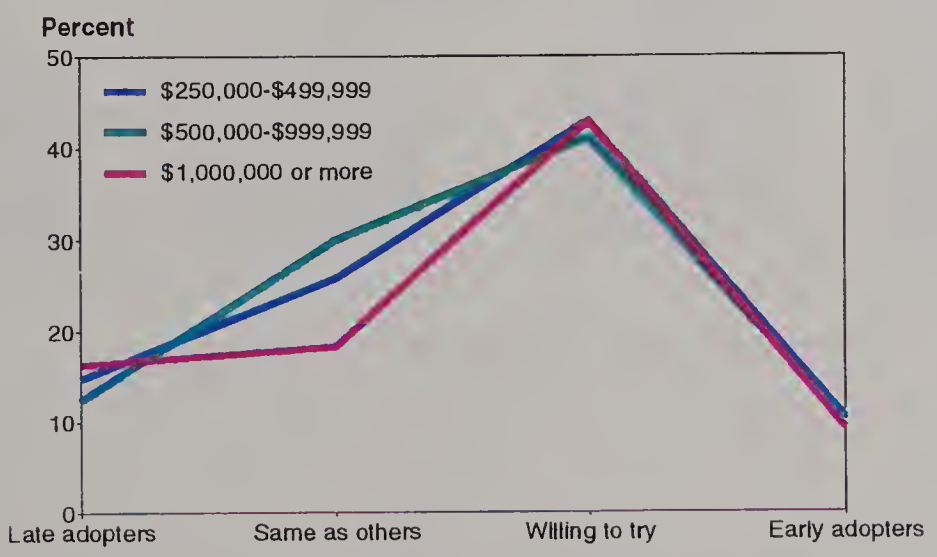
Most small farm operators say they adopt technology at the same time as others



Percentages do not add to one hundred. Other categories include "no particular management style" and refusals.

Willingness to adopt technology by size of farm

Operators of larger farms are more likely to try new technologies



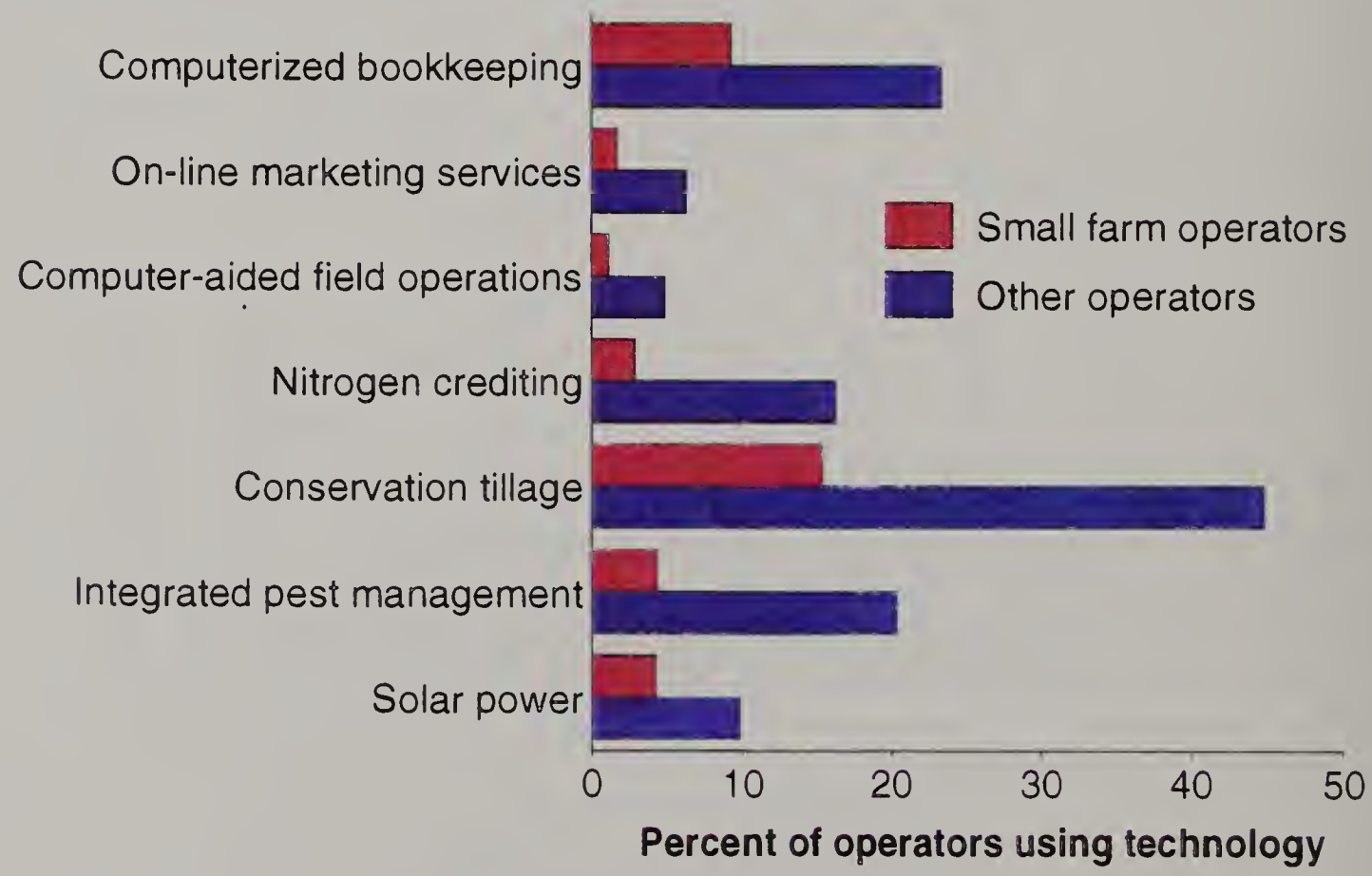
Percentages do not add to one hundred. Other categories include "no particular management style" and refusals

Management Style *(Continued)*

We asked about the actual use of selected technologies. Some technologies may be more useful to large farms, but we included technologies that were considered "size-neutral." While some small farm operators were using all of the technologies, the operators of larger farms used them at a higher rate.

Use of selected technologies

Small farm operators tend to be low users of the technologies we selected



Strategies Used

What management decisions do small farm operators make?

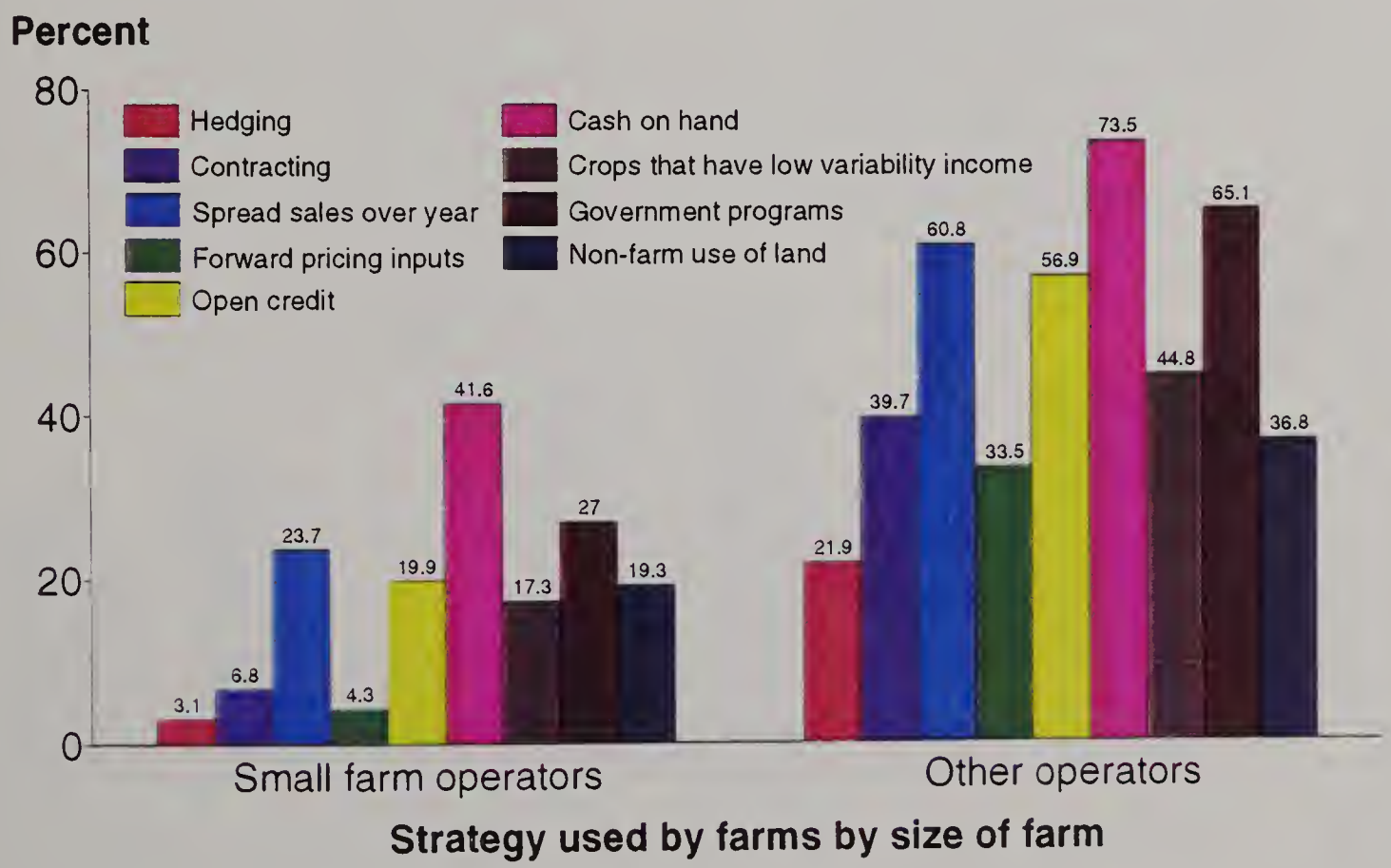
Management strategies:

- Allow operators to reduce their exposure to the variability of risk in production of agricultural products, the financial needs of the business, and the marketing of commodities.

- Benefited even operators of small farms because those that were active in the management of their farms had higher income, and their farms were in more sound financial condition.

Management strategies of U.S. farm operators

Keeping cash on hand for emergencies or good buys was the preferred management strategy



Strategy used by farms by size of farm

Measures Of Success

We asked farmers several questions about the importance of particular measures of success for their farms. Relative to other farmers, operators of very small farms were:

- More than 3 times as likely to respond that the success of their farms was not measured by the farm being able to provide adequate income to the household without having to work off-farm. This indicator was considered "very important" by more farmers as the size of their farms grew.

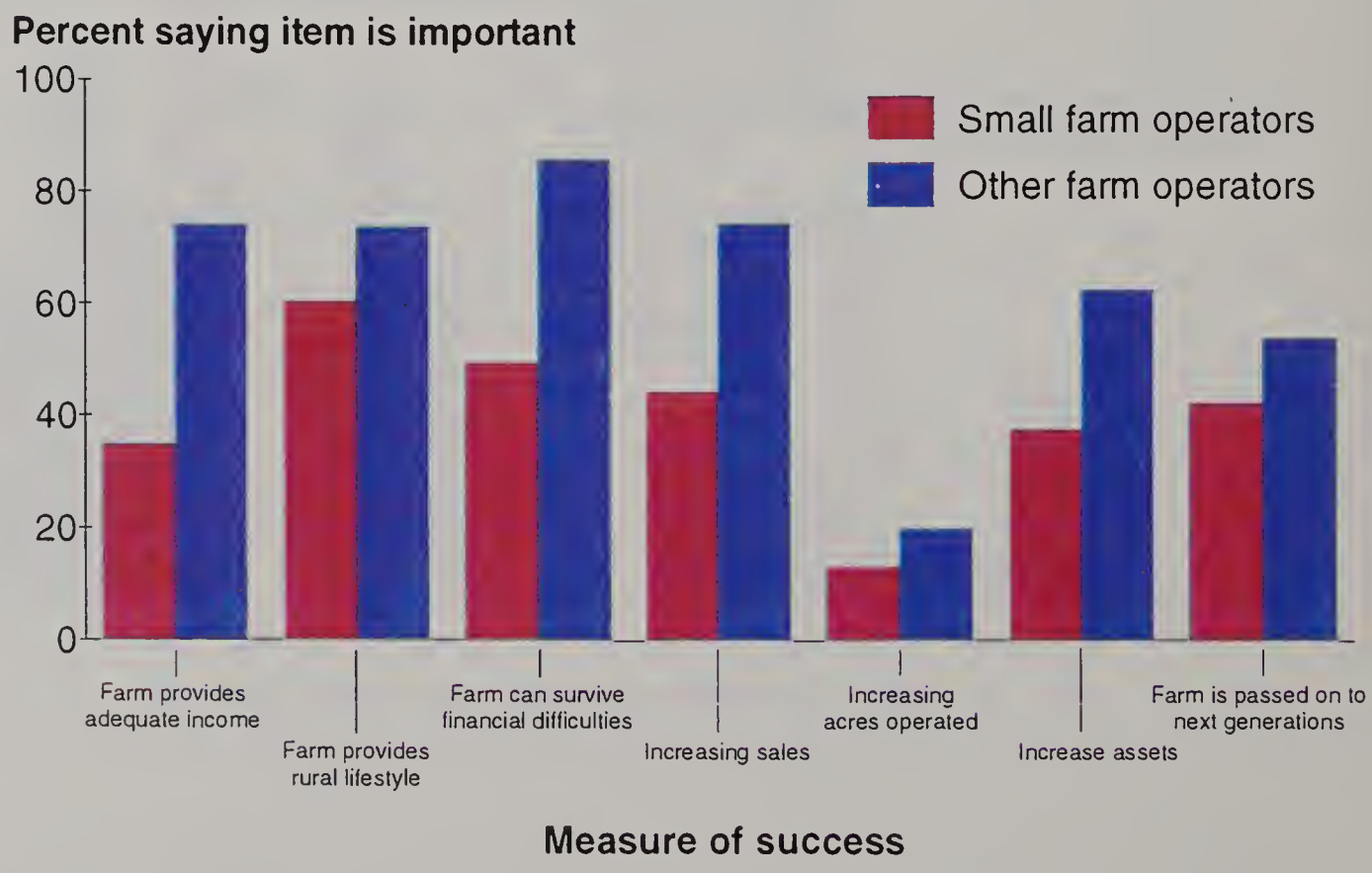
- More than twice as likely to say that having the farm provide a rural lifestyle was not important.

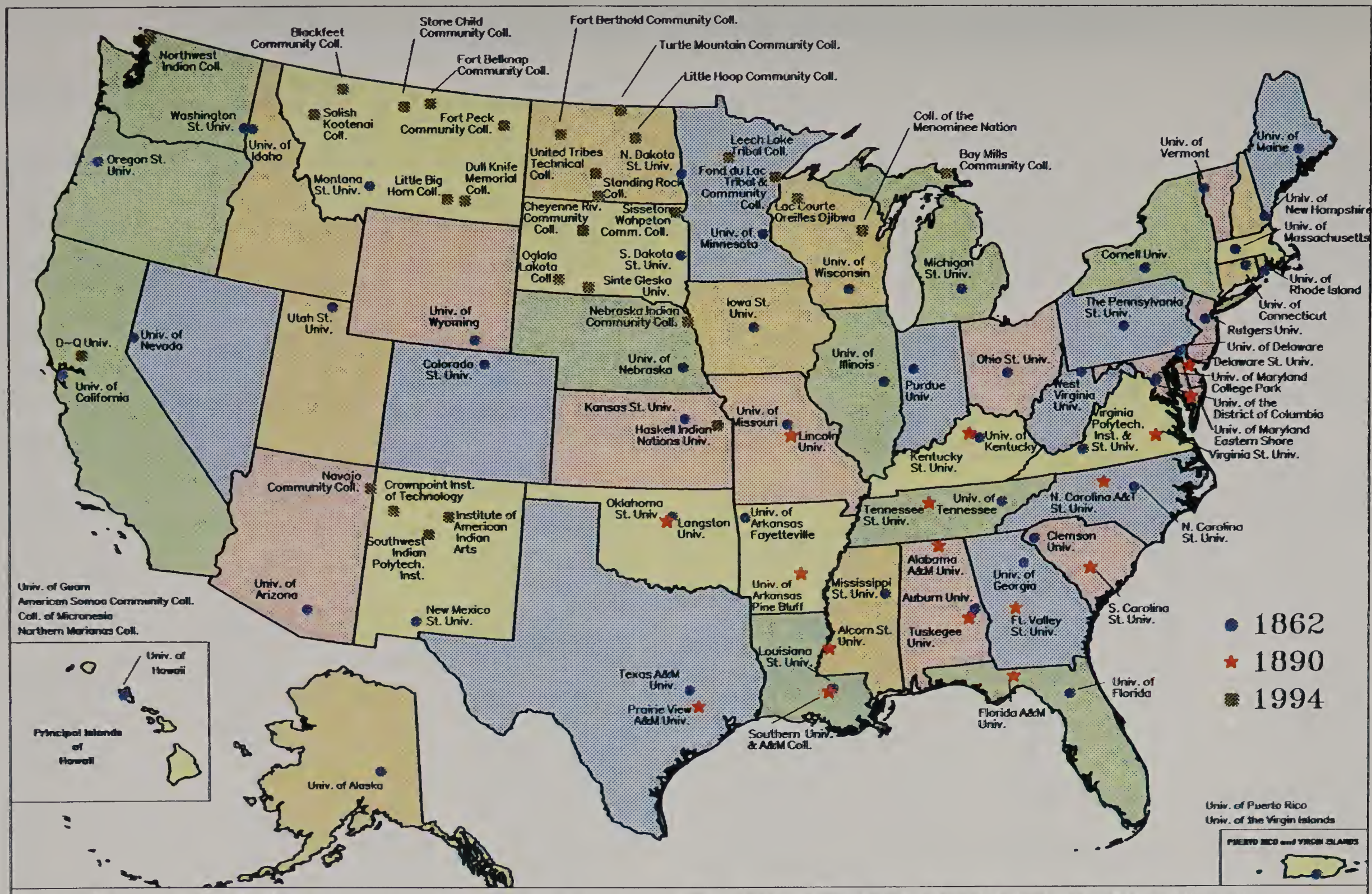
- Less likely to indicate a preference for increasing the size of their operations by increasing sales, the number of acres operated, or their asset base.

- Passing their farms to the next generation was not as important a measure of success as for other farm operators.

Measures of success

Farmers say that rural lifestyle is important measure of success





Land Grant Colleges & Universities

Source: Overview of Small Farm Programs at the Land Grant Colleges and Universities
Map generated by the Natural Resources Inventory Division, USDA–NRCS, July 1996, Map ID: DLM1653

Land-Grant Colleges and Universities (1862, 1890 and 1994)

Alabama A&M University
Normal, AL

Auburn University
Auburn, AL

Tuskegee University
Tuskegee, AL

University of Alaska
Fairbanks, AK

American Samoa
Community College
Pago Pago

University of Arizona
Tucson, AZ

Navajo Community College
Tsaile, AZ

University of Arkansas
Fayetteville, AR

University of Arkansas
Pine Bluff, AR

University of California
Oakland, CA

D--Q University
Davis, CA

Colorado State University
Fort Collins, CO

University of Connecticut
Storrs, CT

Delaware State University
Dover, DE

University of Delaware
Newark, DE

University of the
District of Columbia
Washington, DC

Florida A&M University
Tallahassee, FL

University of Florida
Gainesville, FL

Fort Valley State College
Fort Valley, GA

University of Georgia
Athens, GA

University of Guam
Mangilao, GU

University of Hawaii
Honolulu, HI

University of Idaho
Moscow, ID

University of Illinois
Urbana, IL

Purdue University
West Lafayette, IN

Iowa State University
Ames, IA

Kansas State University
Manhattan, KS

Haskell Indian Nations
University, Lawrence, KS

Kentucky State University
Frankfort, KY

University of Kentucky
Lexington, KY

Louisiana State University
Baton Rouge, LA

Southern University
and A&M College
Baton Rouge, LA

University of Maine
Orono, ME

University of Maryland
College Park, MD

University of Maryland
Eastern Shore,
Princess Anne, MD

University of Massachusetts
Amherst, MA

Michigan State University
East Lansing, MI

College of Micronesia
Kolonia, Pohnpei

University of Minnesota
St. Paul, MN

Mississippi State University
Mississippi State, MS

Alcorn State University
Lorman, MS

Lincoln University
Jefferson City, MO

University of Missouri
Columbia, MO

Montana State University
Bozeman, MT

Blackfeet Community College
Browning, MT

Dull Knife Memorial College
Lame Deer, MT

Fort Belknap Community
College, Harlem, MT

Fort Peck Community College
Poplar, MT

Little Big Horn College
Crow Agency, MT

Salish Kootenai College
Pablo, MT

Stone Child Community College
Box Elder, MT

University of Nebraska
Lincoln, NE

Nebraska Indian Community
College
Winnebago, NE

University of Nevada
Reno, NV

University of New Hampshire
Durham, NH

Rutgers University
New Brunswick , NJ

New Mexico State University
Las Cruces, NM

Southwest Indian Polytechnic
Institute,
Albuquerque, NM

Institute of American Indian Arts
Sante Fe, NM

Crownpoint Institute of
Technology
Crownpoint, NM

Cornell University
Ithaca, NY

North Carolina A&T State
University,
Greensboro, NC

North Carolina State University
Raleigh, NC

North Dakota State University
Fargo, ND

Fort Berthold Community College
New Town, ND

Little Hoop Community College
Fort Totten, ND

Standing Rock College
Fort Yates, ND

Turtle Mountain Community
College
Belcourt, ND

United Tribes Technical College
Bismarck, ND

Northern Marianas College
Saipan, CM

Ohio State University
Columbus, OH

Langston University
Langston, OK

Oklahoma State University
Stillwater, OK

Oregon State University
Corvallis, OR

Pennsylvania State University
University Park, PA

University of Puerto Rico
Mayaguez, PR

University of Rhode Island
Kingston, RI

Clemson University
Clemson, SC

South Carolina State University
Orangeburg, SC

South Dakota State University
Brookings, SD

Cheyenne River Community
College
Eagle Butt, SD

Oglala Lakota College
Kyle, SD

Sinte Gleska University
Rosebud, SD

Sisseton Wahpeton Community
College
Sisseton, SD

Tennessee State University
Nashville, TN

University of Tennessee
Knoxville, TN

Prairie View A&M University
Prairie View, TX

Texas A&M University
College Station, TX

Utah State University
Logan, UT

University of Vermont
Burlington, VT

University of the Virgin Islands
St. Croix, VI

Virginia Polytechnic Institute
and State University
Blacksburg, VA

Virginia State University
Petersburg, VA

Washington State University
Pullman, WA

Northwest Indian College
Bellingham, WA

West Virginia University
Morgantown, WV

University of Wisconsin
Madison, WI

College of the Menominee Nation
Keshena, WI

Lac Courte Oreilles Ojibwa
Community College
Hayward, WI

University of Wyoming
Laramie, WY

Overview of Small Farm Programs at the Land Grant Colleges and Universities

Denis Ebodaghe
USDA-Cooperative State Research, Education and Extension Service
Washington, DC

This overview report on Small Farm Programs at the Land Grant Colleges and Universities is a compilation to share ideas, enhance collaboration and cooperation with on-going small efforts. The programs described in this report pertain to the 1890 and 1862 Land Grant Institutions. Efforts are currently underway to link the more recently funded 1994 land grant institutions to on-going program endeavors. The intent of this report is also to reduce duplication in efforts and to provide information on how the Cooperative Extension System in partnership with the Cooperative State Research, Education, and Extension Service, other USDA agencies, public and private sectors deliver programs and services to the small scale farmer and rancher at the local level. It has been noted that not all the Land Grant schools have programs specifically targeted at small scale farms, however, these schools do have a wide range of programs and services that benefit small farmers.

Continued support of the Small Farm Program will assist the small farmer in meeting major needs in the areas of effective recordkeeping, management, and marketing strategies.

Although the viability and survival of small farms is a rural issue in most states, there is still substantial disagreement on the definition of small farms. For example, the traditional use of gross income receipts and size of holdings has been criticized as inappropriate measures. The working definition for this report is found in the 1981 Farm Bill (Public Law 97-98). That definition states:

"Small farm is defined as any farm:

(1) producing family net income from all sources (farm and non-farm) below the median non-metropolitan income of the State;

(2) operated by a family dependent on farming for a significant though not necessarily a majority of its income; and

(3) on which family members provide most of the labor and management."

Number and Regional Distribution of Small Farms

In 1992, the most recent Ag Census year, there were 1.9 million farms in the United States. Approximately 73% of these farms are classified as small farms in that they gross less than $50,000 in agricultural sales. In sharp contrast, larger farms (sales greater than $100,000) numbered only 0.3 million, or 17.3% of the total, but these farms represented 82.5% of all farm sales, and operated 54.5% of the farm acreage.

What is Coooperative State Research, Education, and Extension Service (CSREES) doing for Small Farmers?

The goal of the CSREES program for small farmers is to improve the income levels, and the economic viability of the small farm enterprises through a partnership effort with the land grant system, public and private sectors using some holistic/systems approach that addresses the needs of the total small farm family. Programs of the CSREES focus on the following critical needs:

- on-farm research/demonstration
- production/management
- traditional/alternative crops
- market development.
- family financial management,
- youth development.
- Community/rural development
- employment opportunities.

In several states, Cooperative Extension conducts programs that help small farm families better utilize community services, improve family financial management, and prepare family members for alternative job opportunities. The Food and Nutrition and 4-H Youth Development programs provide nutritional and food safety education to help families develop nutritional practices that minimize health risks, make better food purchasing decisions, and prepare youth for the world of work.

Funding for Small Farm Programs

These programs are funded through Smith-Lever appropriations (3b/c) formula as well as special earmarked allocations, and the activities are implemented through the 1862 and 1890 Land Grant Colleges and Universities.

Joint Program Effort

U. S. Environmental Protection Agency's Division of Agriculture and Ecosystem's Branch entered into an Interagency agreement with the Small Farm Program here in USDA-CSREES in 1996. The general purpose of the agreement is to enhance the relationship between the two agencies in fostering compliance assistance information to the agricultural community. Four land grant institutions- Cornell University, Kentucky State University, University of Delaware, and the University of Missouri are recipients of

this pilot project award. Goals of this grant include: identification of compliance assistance needs in the agricultural community, and the most effective ways to address those needs; development of and testing of compliance assistance materials directed to the agricultural community; and development and testing of procedures for evaluation and reporting on the effectiveness of compliance assistance to the agricultural community.

Several critical areas need increased attention:

Appropriate production technologies for the small farmer.

- Access to support services, and information technologies.
- Alternative crops production and marketing approaches.
- Access to financial resources.
- Human capital development.
- Community development.

Research and Extension have several strategies to meet the needs of small farmers in the next several years. Those strategies include:

- Increasing collaboration, cooperation and coordination with other USDA and Federal government agencies, private and public sectors to facilitate an increase in joint program delivery.

Mailing Group Internet Address-- sfpc-mg@esusda.gov

The Small Farm Program mailing group (sfpc-mg) was established in 1995 under USDA-CSREES-Plant and Animal Production, Protection and Processing Division. Please feel free to utilize this electronic address in exchanging small farm related information, request ideas, share success stories, send in activities' calendar of events, publications, and a whole lot more. Anyone with interests in small farm activities is welcome to subscribe. In 2-3 months, we will have a home page established on the internet on http:\\www.reeusda.gov.

To subscribe to the small farm mailing group sfpc-mg@esusda.gov please send a message to: almanac@esusda.gov while logged on to your computer. In the body, type: subscribe sfpc-mg After you have typed in the above command, the next step is to send the message.

To unsubscribe to the small farm mailing group sfpc-mg@esusda.gov
Send a message to:
almanac@esusda.gov In the body, type:
unsubscribe sfpc-mg After you have typed in the above command, the next step is to send the message.

If you change your e-mail address due to change in employment, relocation or for any other reason, please unsubscribe before you leave this e-mail address in order to prevent bounced messages coming to this address. Please rejoin when you have your new address.

Planned Activities

Nine major issue areas were identified at the National Small Farm Conference that was held in Nashville, Tennessee in September, 1996.

These areas are: Research and Extension Priorities, Program Impacts and Accountability, Technology Transfer, Environmental Issues, Program Delivery, Marketing Strategies, Economic Opportunities, Social Issues and National Small Farm Policy. In an effort to build a strong National Small Farm Program sub-committees consisting of the public and private sectors including farmers and non-governmental organizations are being formed to address the outlined issues in their entirety, and develop recommendations for the System.

The Office for Small Scale Agriculture under Bud Kerr who recently retired is being merged with the Small Farm Program here in USDA-CSREES. The office will no longer exist. All the services that were provided by the Office for Small Scale Agriculture will continue to be delivered without any interruptions. The Small Scale Today newsletter will be merged with the Small and Part Time Farms' newsletter, to an entirely new stand-alone newsletter that will serve the readership needs of the land grant universities, and the small farm communities nationwide.

Publications

The series of publications "Getting Started in Farming" can be obtained upon request.

The series include:

1. Getting Started in Farming.
2. Mostly On Your Own.
3. Part-Time or Small Farms.
4. So You Have Inherited A Farm.
5. Via The Home Farm.

Other available publications include:

- Small is Bountiful.
- Getting Started in Farming On A Small Scale (USDA Publication)
- Overview of Small Farm Programs at the Land Grant Colleges and Universities (125-page report)
- Directory of State Extension Small Farm Contacts
- Quarterly Small Farm newsletter
- Proceedings of the National Small Farm Conference (March, 1997)
- Getting Help for Your Small Farm from USDA
- Factsheets on the following:

Aquaculture, asparagus, beekeeping, blueberries, brambles, American Ginseng, specialty corn, angora goats, cashmere goats, dairy and meat goats, specialty flowers, foliage plants, exotic fruits, herbs, exotic livestock, mushrooms, shiitake mushrooms, specialty mushrooms, northern nuts, peppers, specialty potatoes, poultry, pumpkins, sheep, strawberries, specialty vegetables, wildflowers, and woodlots.

For any questions concerning the small farm program in USDA-CSREES, please write or call:

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To receive one or more of the listed publications at no cost, contact:

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Effects of Organic and Conventional Farm Practices on Soil Quality

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Effects of organic and conventional farm management regimes on soils were studied on two Florida farms during a two-year period. There are two goals of the project: (1) to determine the effects of different farm management systems on soil quality and (2) to relate the ratio of product output and energy input to the efficiency of the management systems. The two farms were selected because each has Typic Quartzipsamments and a cropping regime of watermelons and peanuts. The histories of the two farming systems are similar because both utilize organic matter incorporated from an eight year cover crop of bahia grass.

This long-term cover crop is used for its high lignin content and slow decomposition rate and for control of annual weed populations. This is a traditional method of watermelon farming on Florida sandy soils. This cover cropping system equally affects soils of both the organic and conventional farms. Organic management includes fertilizing with four tons per acre of composted chicken manure, rotation of rye grass cover crop, and mold board tillage. The conventional scheme includes applications of synthetic fertilizer, fungicide, herbicide, and lime. Mold board tillage, black plastic mulch over watermelons, and some use of cover crops are used in the conventional system.

Physical, chemical, and biological properties were used to quantify soil quality. Respectfully, these properties were represented by morphological descriptions, moisture holding capacity, organic carbon content and microbial carbon. Samples were taken from six different sites including the following: a control site under natural vegetation, pasture of bahia grass, conventional and organic watermelon and peanut fields. Samples were taken at two month intervals from January to September 1996. These samples represented two growing seasons including the first year crop of watermelons followed by the second year crop of peanuts.

In the short-term, improvement of soil properties with conventional practices were indicated by the results. For instance, microbial content was consistently higher through the first growing season for the conventionally grown watermelon. This may be attributed to management, which included a black plastic mulch. The dark plastic most likely increased soil temperature and maintained moisture content. The recent

turnover of organic matter in the form of bahia grass contributes the third factor that readily enhances soil microbial growth. The application of nitrogen in the conventional field contributed to a ripe environment for microbial growth. Upon harvest, microbial measurements were higher for the organic management systems. This indicates that additional nitrogen applications artificially fed the soil microorganisms under the conventional system. No statistical differences were measured in moisture holding capacity and organic matter content of cropped fields. In the long-term, both systems are predicted to sustain soil quality if fields are returned to pasture for an extended number of years.

The question of sustainability of soil quality and farm production was addressed through energy analysis of each farming system in terms of output product to energy input. Typically in conventional systems, 11% of energy use comes from fossil fuels contributing to synthetic fertilizers. Theoretically, it is predicted that this amount of fossil fuels can be eliminated in organic systems, although fossil fuels are still necessary in production because of tractor operations. Synthetic fertilizers were not used in the organic system and its microbial biomass was larger in the long-term than the first year conventional system. Therefore, it is suggested that addition of fertilizers is not necessarily the only way to effectively sustain soil organisms. Still, we are discovering that lower input systems are not necessarily the highest yielding systems and therefore not calculated to be efficient systems.

This exemplifies the problem that often faces the optimization of organic farming systems especially in Florida. Questions about quantity of organic matter, planting times, plant access to water, and plant spacing are significant issues for Florida organic and conventional watermelon farmers to perfect, in order to improve soil quality and farm production. The quality and quantity of agriculture inputs used to sustain Florida soil quality are as timely and fragile as the sandy soils themselves.

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Exotic Meat Marketing

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The marketing of exotic meats requires a perspective - different from that when marketing commodities, even those that are sold as high end products. Due to exotic meats being relatively unknown or because there is a good deal of market resistance to them, for example, the marketing of ostrich meat is different from the marketing of vine-ripe tomatoes. The differences lie in the fact that they are in different positions in the hierarchy of market development. The stages of market development are:

- Identification of opportunities
- Market entry
- Market penetration
- Maintenance of market share

It must be remembered that patience is very important and that there is a need for substantial financial and/or labor resources when initiating an enterprise.

In the automobile industry for example, the Japanese decided to establish a sales and service network and train its personnel thoroughly in a limited region before it aggressively marketed its vehicles in that region. It took a number of years to implement the strategy in a given region. Thus, when customers received service they were pleased and compared it very favorably to the service received from U.S. manufacturers and dealers. The Japanese automobile experience in the U.S. illustrates two other points. The product (Japanese cars) was imbued with higher quality than that found in U.S. vehicles and thus the product itself compared favorably. Because of their fuel economy, it was not until the fuel crisis of the mid-1970s that Japanese cars really took hold in the U.S. It was because of superior quality and service that the Japanese were able to hold their market and expand their customer base.

Identification of Opportunities

Opportunities reside inherently in an industry or product – low fat meat, for example – as well as in the market itself – increased fish prices, for example. Producers generally have selected the industry and product, but have done little regarding marketing other than sales (usually direct sales to restaurants or consumers). Although it is better to perform a range of evaluations prior to production and market entry, the evaluations should be performed even after production starts. The evaluations could reveal product and/or market opportunities.

Premarket Entry activities

This will help the producer learn more about the product or industry. Issues such as the meaning of low fat and low cholesterol and the relative position of the product with regard to those variables should be addressed in this stage. It might be discovered, for example, that the product has more fat than previously thought by the producer, but still has excellent cholesterol and saturated fat profiles. Such a finding could help to define the potential market or sales approach. It is during this stage that information regarding the market is also gathered. Is demand seasonal and, if so, how does that fit with the production schedule? What types of features do customers expect to find in the product -- packaging, size units, degree of processing, etc. During this phase the producer should establish a general idea of who the consumer or customer is and with whom initial sales contacts should be made and establish a marketing strategy.

Market Entry

Once product supply is established, a marketing strategy developed and potential customers identified, the producer is ready to enter the market. Pricing and quality of service are of critical importance when entering a market. **Customer service** must be impeccable. A customer should never be disappointed. Producers must be warned not to promise products or services they cannot (or even might not) deliver. It is much easier to lose a new customer than it is to get one. Depending upon the industry and local circumstances, it might be possible to work with competitors. For example, ratite producers might be able to share market or customer information with deer producers. They might even act as customer service representatives for each other.

With new products **pricing** is very important. Price, however, reflects service as well as product. Price should be based upon some percent (greater or less than) of the price of the dominant competitive product. The standard price should be quoted, but introductory prices or packages (a specific price discount, two for one, etc.) may be offered. During this phase logistical problems in distribution systems and customer service should be addressed.

Market Penetration and Maintenance of Market Share

Once the market is entered the producer may expand his customer base. However, expansion should not be accomplished at the expense of other customers. Nor should it go beyond the producer's ability to provide a quality product or service. If the quality of either the product or service decreases, expansion should cease. The producer may even want to let some customers go before they quit. There should be a strong relationship between price and quality of product or service.

Good quality and service are not all that is necessary to **maintain market share.** Good quality product and service is expected, especially for products such as exotic meats.

Consistency in quantity, quality and service are critical. Orders must be filled exactly as requested and when they are promised. After one or two unhappy experiences it is not unusual for a customer to say, "Who needs this headache?" and stop carrying the product. The customer's business is not based upon a particular source for a given product or even a particular product such as exotic meat. The producer should provide a money back or free replacement policy for all customers. To keep market share the producer must exceed customer expectations, not just meet them.

Conclusion

The beef industry is an example of the development and decline of the market for a specific type of meat. In the United States, prior to World War II, pork consumption was greater than that of beef.

Seizing upon the wide spread affluence and changing demographics of the post war period, the beef industry promoted the concept of "beef as king." It delivered a quality product with good customer service promoted by advertising. Beef has lost market share in part because the industry stopped innovating and promoting its products.

It is better to produce too much than disappoint a customer. Expansion should be step wise rather than straight line so that customers are obtained after production is expanded to carry new customers without losing old ones. Good customer service means listening to customers and developing or adapting some innovation. The changing market environment must be monitored regularly.

On-Farm Farmer-Conducted Research: Southern Region Sustainable Agriculture Research and Education Producer Projects

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American farmers are faced with the dual challenges of making a living from the land and also protecting the ecosystems of which their farms are a part and on which their farms depend. The Southern Region Sustainable Agriculture Research and Education (SARE) Producer Grant program is designed to help reconcile these two--at times seemingly conflicting--challenges.

Southern Region SARE Producer Grant funded projects are developed, coordinated and conducted by farmers or farmer organizations. Producer grants help farmers or farm organizations who want to solve on-farm problems by conducting their own research or by developing technologies in sustainable agriculture. Moreover, farmers put together project teams of people whose skills complement their own. These people can be Extension agents, from non-government organizations, or other farmers and they can help with experimental design, marketing, dissemination of results, etc.

On-farm farmer-designed research is more likely to provide the types of information that farmers are looking for than will conventional researcher-designed research. This is because farmers tend to design their research to solve problems that include biological, edaphic, economic and sometimes cultural components all in one project.

The funding of on-farm research

- Encourages farmer innovation,
- Facilitates on-farm problem solving
- Demonstrates the utility of on-farm research results to other farmers.

Five Southern Region SARE Producer Grant funded research projects provide good examples of farmer-designed research.

Raising Shrimp in Farm Ponds

Alternative income opportunities, through crop diversification and niche marketing, can help a family farm stay economically viable. This project demonstrated the feasibility of freshwater shrimp polyculture utilizing existing farm ponds to increase farm income in Kentucky. The objectives of the project were to: (1) etablish a freshwater shrimp production system in an existing farm pond, (2) collect water

quality, production and cost data on shrimp production systems; and (3) host a field tour to demonstrate the integration of shrimp production into sustainable agriculture systems.

Beneficial Insect Management in Cotton Production

Cotton production has historically involved the use of large amounts of pesticides. With the eradication of the boll weevil, cotton farmers have the opportunity to use pest management systems that utilize the natural enemies of common cotton pests.

In this project the farmer worked closely with a USDA entomologist. They sampled insects in a fifty-acre conservation-tilled crimson clover/cotton field and in an adjacent 50-acre conventionally tilled field. In a third field in a neighboring county they placed six three-row refugia strips of uncultivated native vegetation and plants replicated to provide beneficial habitat. The objectives of the project were to:

(1) compare insect population (beneficial and pest) found in the conventional tilled and conservation tilled fields;

(2) evaluate the benefits of utilizing beneficial-insect enhancing plants in refugia strips; and

(3) quantify the biological and economic benefits of reduced pesticide use.

On-Site Composting of Poultry Litter

The farmer grows tobacco, soybeans and market vegetables near the environmentally sensitive Okeefenokee National Park and wants to use composted poultry litter instead of commercial fertilizer. However, impending regulations in the Coastal Nutrient Management Zone, in which his farm lies, are making it necessary for poultry farmers to adopt efficient waste management programs. This project will generate information on rates and quantities of poultry litter that can be applied as fertilizer without contaminating the ecosystem.

Poultry farmers and growers near poultry operations who want to use the litter on their crops will benefit from this information. The objective of the project is to demonstrate the effect of different rates and methods of application of poultry litter applied to corn, soybeans and tobacco on crop yield and water quality.

Clover as a Replacement for Poultry Litter in Compost

One of the goals of sustainable agriculture is the reduction or elimination of off-farm inputs. Two Alabama organic growers had been using purchased poultry litter as the main nitrogen source for their component which they used on their four-acre organic garden.

Due to concerns about contamination, transportation logistics, and the economics of purchasing poultry litter, they decided to try something else.

They speculated that they could use clover clippings to replace purchased chicken litter in compost. They also were interested in determining which carbon source available on their farm would work best in their compost. The objectives of the project were to: (1) compare clover clippings with poultry litter as a nitrogen source for compost terms of handling, cost and quality for use in organic vegetable production and (2) determine the best carbon source for use in clover compost.

Cut Flowers as a Sustainable Alternative Crop

In the past few years, only slightly more than three percent of the revenue from cut flower sales in Oklahoma came from flowers grown in that state.

Little research and business start-up information has been available to help growers interested in cut flower production. For this project, two growers converted wheat acreage to a cut flower production system in order to evaluate the feasibility of cut flowers as a sustainable alternative crop in Oklahoma.
The objectives of the project were to
(1) develop a prototype mixed-species specialty cut flower production system and (2) test the use of cover crops as nitrogen sources and as companion plants for cut flowers.

A Program for the Retention and Expansion of the Aquaculture Industry in the Northern Mississippi Delta Region

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Aquaculture, the rearing of aquatic plants and animals, is an alternative form of agriculture that holds considerable potential in the northern Mississippi Delta Region. Aquaculture is positioned to expand in the northern Mississippi Delta region due to such factors as an abundance of water resources, prevalence of clay soils ideal for pond construction, availability of large tracts of land at relatively reasonable prices, proximity to large markets, and local presence of university research, demonstration and outreach programs. Currently, there is minimal local feed manufacturing, supply and equipment outlets, or processing capability. Rapid expansion of the aquaculture industry could occur once the infrastructure is more fully in place.

The goal of the proposed program is to promote and facilitate the retention, expansion and sustainability of the aquaculture industry in the northern Mississippi Delta region.

The objectives of the program are to assess the status of existing aquaculture businesses, develop strategies to increase profitability, determine financial implications of species and/or technology diversification, and provide technical and business support of individuals considering aquaculture as a business or for those currently in production. Sensitivity analyses of price and production factors will determine which factors affect profits the most, and summarize their effects on profit potential. Potential revenues feasible with an expansion will be compared with projected costs. Estimates of break-even analyses with new species and/or technology will be provided.

To provide technical and business support for individuals considering aquaculture as a new business or for those currently in production, two workshops will be developed and presented.

For current producers, a workshop will be offered on conducting, interpreting and benefiting from financial analyses of existing businesses. For those considering aquaculture as a new business, a workshop on "Starting an Aquaculture Business" will be offered. Information will be provided on various physical, biological and financial factors to be considered in starting and operating an aquaculture operation.

The proposed project will enhance the profitability and sustainability of existing aquaculture production systems. It will provide a diversification option to farmers currently in livestock or row crop production. This project will provide opportunities for growth and employment in the food and agricultural sector in the region, and will contribute to the economic growth of many rural communities in the region. The project will also serve as a model for assisting other types of small farm enterprises.

ADDRESSING ORGANIC
Sustainable Farmers' Needs

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Alternatives to tobacco farming, maintaining an agricultural heritage, revival of the small family farm, producing ecologically grown products, growing for a more health conscious consumer, developing niche markets, entrepreneurial speculation, these are some of the reasons why organic farming is slowly spreading throughout the country and Kentucky is no exception. The needs of organic farmers as far as advice on cultural practices and marketing sometimes go beyond what conventional agricultural information has to offer.

The University of Kentucky, through the Kellogg Foundation has developed the KLAES (Kentucky Leadership for Agriculture and Environmental Sustainability) project which funds many agricultural projects throughout the state Through these resources, a position was created to work directly with growers to provide necessary information and a line of communication. It is this open line of communication that links together Extension specialists from all agricultural departments, research scientists, as well as economists and marketing specialists. Many organic growers were reluctant to come to the Extension service for help because of certain misgivings and attitudes held by both growers and agricultural professionals on the subject of organic versus conventional farming. With this newly created position, the State of Kentucky now offers greater assistance to organic growers.

Objective

To be able to fulfill the major objective of addressing the needs of organic farmers, many steps were and still are being taken as the first step in meeting the needs of organic farmers. One must define what is generally meant by "organic". Under Kentucky state law, organic farming is defined as "a system of ecological soil management that relies on building humus levels through crop rotations, recycling organic wastes, and applying balanced mineral amendment that uses, when necessary, mechanical, botanical, or biological controls." To many growers, this definition is too simplistic and does not to any great extent go into more philosophical convictions about biology and ecology, to other growers, the states' definition is too restrictive. For the majority of consumers, organic farming means using no chemicals. From the Extension Service's standpoint, the state's version is appropriate, but does not go deeply into the issue of sustainability. For the conventional farmer, organic may mean negative

publicity for their way of life. Organic means different things to different people. At all times, one must keep in mind the audience that is being addressed and to be absolutely sure everyone understands the term clearly.

The second step is to visit the growers at their farms and show them that you are genuinely interested in what they have to say. In this way, the farmer is more willing to open up and a more personal working relationship can be developed. Finding out what sort of information is necessary and important to them becomes more easily obtained. In many cases, problems with cultural practices were of equal concern as was future markets.

The third step is to have access to accurate field tested data in order to make recommendations to growers. This data is often difficult to come by. Using the information highway has proved to be an effective tool in finding results of research projects conducted in other parts of the United States and throughout the world. Sometimes the only reliable information on a particular organic practice comes from farmers who have years of expe-rience. From this experience, recommendations can only be thought of as guidelines.

An equally important source of information for growers comes from the Extension Specialists and researchers within the University. There is considerable information on cultural practices, variety trials, post harvest handling, and marketing, to name a few, that is equally as applicable for organic growers as it is for conventional farmers. Acting as of a liaison between growers and university researchers assists in bringing the two groups together. From this comes a better understanding of current needs and future goals.

To bring these steps back around in a full circle, there needs to be direct communication back to the farmers with all the information gathered. Guidelines and recommendations must be made in a language that all parties can understand clearly. Face-to-face or group presentations go a long way in presenting factual information that our growers need. Printed material that is updated regularly reinforces the objective of providing essential information.

Extension Publications

In a current effort to make communication to county Extension agents and to farmers across the state, as each publication is revised or new ones are written, a copy is transposed to CD ROM disc and will become accessible shortly on the Internet.

ID 21: "Disease and Insect Control Programs for Home Grown Fruit in Kentucky Including Organic Alternatives"

The organic alternatives discussed in this publication include:

- Cultural practices
- Plant resistant/Disease resistant varieties
- Alternative organic sprays for insects and diseases

- Spray schedules for apples, pears, peaches, nectarines, cherries, apricots, and berries.
- Monitoring insect pests
- Beneficial insect control for fruit pests

Using Organic Manures and Fertilizers for Vegetable Crops in Kentucky

- An aid in converting to organic fertilizer analyses based on ID36 commercial vegetable crop production recommendations
- A guide to many organic fertilizers available within the State which are allowed for Certified Organic Production

Green Manures and Cover Crops

- Beneficial role in the practice of organic farming and sustainable agriculture
- Retention and accumulation of nutrients
- Reduction of weed populations
- Reduction of pest infestations
- Erosion control
- Improvement of water retention and filtration

"Organic Vegetable Production Guidelines"

(currently being finalized)

- Emphasis on Sustainable Practices in a whole Farm System
- Strongly emphasizes rebuilding poor soils and soil fertility
- Rotations and cover crops
- Weed management
- Pest management
- Topical discussions on subjects ranging from seeds to post harvest

Bringing Together Diverse Branches of Agriculture

An effort was made to bring together diverse agriculture related groups for mutual gain. There are poultry producers in the southern Kentucky who had built compost facilities on their farms. They composted the poultry bedding/manure from the chicken houses and produced a fine quality soil amendment that was rich in organic matter and nutrients. Vegetables growers and organic tobacco growers have been working closely together to enhance their programs.

Another agricultural enterprise was in the Lexington area with a business that collects race horse stable beddings. The horse farms have trouble disposing of this refuse. This business collects the material, shreds it, and then compresses it into bales. While the shredded material is in a bale, the composting process

begins to occur which starts a partial decmposition. The bales are sold primarily to mushroom producers across the country. This same shredded, partially composted material is an ideal mulch and soil amendment for organic growers. Since bringing together the company and a group of growers, this material is finding its way into vegetable plots across the region.

Field Trials

At the University of Kentucky South Farm Research Facility, field trials are being conducted to observe various cultural practices that might prove to be of benefit to many growers. Plasticulture is a method of growing vegetables that is fast becoming a major production tool in Kentucky. Raised beds are made by a bed-shaper pulled by a tractor. Attached to the bed-shaper is a machine that lays out a trickle irrigation tube, and then the whole bed is covered by a layer of black plastic. Later, a tractor pulled water-wheel plant setter is driven over, and vegetable transplants are planted into the beds at regular intervals.

Pre-plant fertilizer is used on the beds beforehand and just plain water is used through the tubes for irrigation. Fertigation can be used by means of the trickle irrigation set up to provide the plants with adequate nutrition during the growing season. One major problem has been with the aisles between the raised beds. Usually large populations of weeds take hold here and often become quite large. These tall weeds create problems with disease by reducing air flow and increasing humidity. These weeds also harbor insect pests. Another problem is that the weeds go to seed thus supplying the plot with a new crop of weeds next season. All the while the weeds deplete the soil of nutrients for the vegetable plants.

One of the trials conducted was to plant the aisle rows with a cover crop. A cover crop would compete with the weeds and if planted soon enough after cultivation, may crowd out the weeds from ever taking hold. Five different cover crops were used. Four were legumes (subterranean clover, white clover, hairy vetch, and Korean Lespedeza) which would help put back some nitrogen into the soil. The fifth was ryegrass which has been shown to have allelopathic affects on other plants.

Preliminary observations indicate that the cover crop needs to be kept low growing to avoid mowing. White clover started out with small plants that did not compete very well with early weed pressure. Once the clover plants took off, they became quite large. Hairy vetch germinated slowly and seemed to need more water (rainfall) for growth. Once the crop became established, it did not take well to being walked on. The ryegrass germinated quickly and was fast to cover the aisle. Weedy grasses seemed to be able to grow right along with it. During muddy weather, the young ryegrass got trampled.

The sub clover germinated quickly and covered the aisle quickly. It competed well against most weeds. After some trampling, some weedy grasses were able to grow but were not overwhelming in the aisle. The lespedeza also grew well being similar to the sub clover. Both the sub clover and lespedeza did not

grow very tall (less than 12 inches) during the summer. One of the other traits that remains to be seen is if these cover crops will be winter killed. Winter killed cover crops would be an essential asset so as not to cause another kind of "weed" problem the next season.

A second trial was conducted to evaluate subterranean clover and hairy vetch as a "living mulch." Many organic growers do not like the idea of using plastic as a ground cover and would rather have something that was sustainable. Using a living mulch cover crop is an alternative that might be of some use. After a vegetable crop has become well-established and the weeds have been cultivated down, a broadcasting of cover crop seed is spread throughout the vegetable rows. After quick germination, the cover crops essentially smother out many emerging weed seedlings. Competition between the vegetables and the cover crops can be a problem if the vegetables are not big enough. If the vegetable plants are too big, then the cover crops do not get enough sunlight to become established thickly enough. As a sideline experiment, soybeans were planted between corn rows to help keep down weed competition.

A seemingly more effective method will be tried next season based on the work by Abdul-Baki (1991). Hairy vetch will be sown in the late summer/early fall on an unused plot that also has a trickle irrigation tube running down the center. The vetch will become established during the fall and become quite thick. The plant mass will be winter killed by the cold. In the spring, vegetable plants will be transplanted into the dead living mulch. From this, it will hopefully be shown that the mulch will keep down the weeds, and the dead plant material will return nutrients and some organic matter back to the soil.

Sustainability

There are some growers in Kentucky who are making a concerted effort towards becoming more sustainable in their farming practices. Using cover crops is a low input method of reducing weed pressure as well as adding nutrients and organic matter for soil improvement.
The incorporation of animals such as goats, horses, swine, and poultry being used in rotation right along with cover crops is another avenue farmers are using to be more sustainable. Animals are used for the manure they produce as a fertilizer. Grazing animals can also reduce weed populations such as goats removing thistle in a field. The combined use of animals in a crop/cover crop rotation also aids in better nutritional grazing for the animals.

Diversification of crop plantings and agricultural enterprises

Combining vegetable growing and other agricultural crops can both extend a season of income for the farmer and offer some insurance on making some income in case of a crop failure or poor market pricing. Some of this diversification can be found in wholesale flower production, herbal products, meat, and fresh water shrimp. By-products of the diversification go back to the land for eventual soil improvement.

Marketing

Besides roadside stands, produce grown by Kentucky organic farmers is sold through three main sources. The first is at farmers' markets. There are many farmers' markets throughout the state. Some are loosely organized and meet in vacant lots. Others are quite a bit more organized with a planning board and associations. Fees are paid and an effort is made to advertise to the general public. Direct communication with customers is a must when selling organic produce. Explaining why the produce is grown organically, how the produce is grown, and maybe something about the choice of varieties all aids the customer in better understanding where their fruits and vegetables come from.

Another outlet for organic produce has been with restaurants. Many restaurants specifically want organically grown foods and label it on their menus. Others like the quality or diversity of varieties grown. The prices for this wholesale outlet are not as high as in retail, but quantities of produce bought and sold is quite often greater and consistent.

A third major market is through Community Supported Agriculture or CSAs. Essentially, a CSA is a buying club. Customers pay in advance for a seasons worth of produce. As vegetables and fruit become available, weekly orders are packed and delivered to central pick up points or, in some cases, delivered directly to the customers. With the orders, a newsletter is sent to each customer to let them know how the season looks for the grower, how the produce is grown, and other general information that helps to educate the consumer in how farmers grow food.

On a small scale, there are some outlets that are available to sell wholesale for retail markets. Some produce markets are interested in selling produce labeled as "organic." Other markets are just looking for local Kentucky grown vegetables and will not label produce as organic. These markets usually will not pay a premium price for the produce.

Conclusion

This is an ongoing project that will hopefully be self-perpetuating long after the initial grant runs out. Already there have been observable changes. Inclusion of organic alternatives in Extension publications have been added. A session in the Kentucky Vegetable Growers' Association/Kentucky State Horticultural Society annual conference has been devoted to organic growers. Field trials have been initiated in organic practices.

Attention is being paid to marketing. Students, faculty, professionals, farmers, state agencies, and consumers have become more aware of organically grown products, and equally as important, where vegetables and other foods come from.

There is still plenty of work to be done. Agriculture is not always an exact science. There are still soil fertility problems. Weeds are a constant battle. Insect pests and diseases are always present. Throughout the coming years, more will be reported on the successes and setbacks that are bound to occur.

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Instant Recordkeeping Book for Small Farmers

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Almost all small- to medium-sized farms are found in rural America. They are mostly operated by those characterized as "socially disadvantaged farmers." This group of farmers have limited resources (such as land and capital) and lack the assets needed as collateral for securing the financial assistance necessary to run profitable farming operations. Furthermore, they often lack the managerial skills required to operate a successful farming business.

Successful farm management requires the ability to make the right decisions. Decisionmaking involves the ability to identify problems, determine alternative courses of action, analyze the alternatives, select the best alternative, implement the decision, follow-up to measure success of adopted alternatives (Beierlein et al., 1995). These farmers lack management skils. This deficiency in managerial skills has been attributed to inadequate or improper managerial training combined with the inequities associated with Extension Service Programs (Brown et al., 1995). Good skills in farm management enhances the probability of operating a profitable enterprise.

Recordkeeping is a vital step in the decisionmaking process. It provides the farmer with the tool to plan his/her operation and make future projections regarding the profitability of his/her enterprise. Farm records also provides information for management decisions. These include production decisions, farm size decisions, farm organization decisions, preparation of legal documents, reporting to the Internal Revenue Service, reporting to the Farm Service Agency to apply for loan or settle an estate, and reporting to the Social Security Administration. Information required to make these informed decisions include past costs, returns, input use and production, present financial and physical condition, and future costs, returns, and production.

One of the objectives of every business, such as farming, is to maximize profits given sets of inputs, input prices, and some output constraints. The data needed by the farm operator to obtain estimates of the profitability of his/her operation can be gained from well kept record books. It cannot, therefore, be over emphasized that recordkeeping is very crucial in the success of every business enterprise. However, in most cases, the "socially disadvantaged farmer" lacks the time to devote to

extensive and complicated recordkeeping. The request by this category of farmers for a simpler record book has led to the production of an "Instant RecordKeeping Book for Farmers" by the Louisiana Family Farm Technical Assistance Project (LFFTAP) in the College of Agriculture, Family, and Consumer Sciences at Southern University and A&M College, Baton Rouge, Louisiana. The LFFTAP is one of the projects established by the government in most of the 1890 institutions to provide assistance to limited resource farmers who have been experiencing problems in their farming businesses.

The book comes in two volumes, one for expenditures and the other for sales. Spaces are provided for instant recording of all daily and monthly transactions throughout the year. Such prompt recordkeeping will enhance the quality of transactions and decisions made in farm management. The "Instant RecordKeeping Book" is intended to assist the farmer in collecting accurate and precise information for completing the Farm Service Agency (FSA) record book if the agency requires that only its record book be used. In that case, this record book will serve to complement and not to replace the FSA publications on recordkeeping. Otherwise, the relevant portions of the "Instant RecordKeeping Book" could be used in lieu of the FSA's record book. Apart from the sections of the book that deal with items of expenditures and sales, the operator will find other sections equally helpful. These include projected and actual cost and returns, budget statement, income statement, family living expenses, livestock record, and others. With the projected and actual cost and return table, the farmer is able to plan and project the current year's operation based on his performance the previous year. At the end of the year, he would record his actual activities. From this record, he would know how well he has done and decide whether or not adjustments and technical assistance are needed to achieve a better result the following year.

As stated previously, recordkeeping is recognized as one of the most important components of a successful farming operation. It enables the farmer to check the financial position of the family farm from year to year and analyze the performance of the farm operation. Other uses of farm records include filing income tax reports, dividing income on farms operated by partnerships, showing proof of ability to repay loans when processing loan applications, and making plans and budgets for future farming operations. Because of these essential services on farm accounts, it is imperative that every farmer, especially the category of farmers referred to above, be trained in the art of good recordkeeping. Starting with a simpler record book is motivational and rewarding.

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Developing A Small/Part Time Farmer Cooperative

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Frederick County, along with several other counties in Maryland, have experienced heavy urban growth during the last two decades. This has resulted in the loss of many traditional, full-time family farms, while the number of small and part-time farms has increased. 1982 and 1992 U.S. Census of Agriculture data show the impact of urban growth on agriculture for that decade. (Table 1). This trend is expected to continue into the foreseeable future as urbanization continues in this region.

Table 1. Percentage of Small Farms in the State of Maryland and Frederick County.

	Frederick 1982	Frederick 1992	State 1982	State 1992
Total Number of Farms	1,463	1,346	16,183	13,037
Farms <179 Acres	66%	71%	75%	75%
Cash Farm Receipts <$50K	67%	71%	65%	72%
Principal Occupation Not Farming	41%	56%	54%	54%
Operator's Who Work Off Farm	48%	50%	54%	58%

Source: 1982 and 1992 U. S. Census of Agriculture Statistics

Small farm operators experience problems of high costs for inputs, limited markets, and availability of field work services. They also suffer from a lack of basic agricultural knowledge, because many have little or previous farm experience. These operators have unique educational needs that Extension educators need to address. Many small farm operators are highly motivated, well-educated professionals, whose powerful voices are currently being lost in the public forum on behalf of agriculture.

Objective

The objective of this Small Farm Cooperative is to unify small farms so that the diversity and flexibility of their operations can be capitalized upon and their purchasing power united to reduce costs. By uniting, small farms will be able to better exploit the large Baltimore/Washington market. Other advantages are:

- Group purchasing will lower costs
- Group marketing will bring higher prices and allow contract marketing
- Marketing strategies will establish reliable markets
- Service contracts and barter agreements can develop relable farm work
- Educational program can be more easily developed and delivered
- Cooperative can be focused action group
- Niche markets can be quickly developed
- Newly identified markets can be rapidly explored
- Diversity of goods will be the strength of the cooperative
- Markets untapped by traditional producers can be reached

Action

The following professionals made up the steering committee to develop the cooperative:

Accountant
Banker
Computer Specialist
Economic Development
Engineer
Farm Bureau Representative
Farm Consultant
Grant Writer
Lawyer
Marketing

The assembly of talented professionals bring a wealth of experience and expertise to the committee. Their efforts have a plan towards a cooperative being formed.

Rutgers Farm Business Management/Marketing Training and Information Program

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Objective

Farmers need management, marketing, financial, and planning skills to survive in a highly competitive business environment. The Farm Business Management /Marketing Training and Information Program was developed to address these needs by providing in-depth training to enable farmers to gain the knowledge and skills to plan and meet their financial, business, and family goals. Thus keeping New Jersey's farm industries competitive, innovative, productive, and viable in today's and future global economy.

Background

For a second year, Rutgers' Cook/New Jersey Agricultural Extension Service(NJAES) received an Agricultural Economic Recovery Development Initiative (AERDI) grant from the New Jersey Department of Agriculture's (NJDA) Division of Rural Resources to continue teaching New Jersey farmers and producers progressive or innovative business management and marketing techniques. These were designed to improve, modernize, and keep agriculture in New Jersey viable and competitive.

The NJDA also gave Production Efficiency Grants (PEG) to 663 New Jersey farmers in 1995. PEG was given to farmers to invest in projects which:

1) improve farm management practices

2) make conservation and natural resource improvements

3) implement new technology

4) improve and expand farm marketing facilities and

5) profitability.

Although the 633 PEG recipients were required to take a minimum of three hours of farm business management and marketing from Cook/NJAES, over 1,240 farmers attended the 47 training sessions throughout the state. The training program was also open to all New Jersey farmers.

Developing these 47 farm business and marketing training sessions, required collaboration and coalition building with departments within Cook/NJAES, and 30

other agricultural and non-agricultural organizations. This effective utilization of resources and knowledge from the team enabled Rutgers' Cook/NJAES to effectively and successfully deliver a very informative, concise, and thought provoking farm business management and marketing training program to the farm industry.

Project

The AERDI grant, called the Rutgers Farm Business Management/Marketing Training and Information Program (the Training Program) directed by Dr. Robin Brumfield, consisted of two components: the Farm Business Management /Marketing Training Program; and On-Line Market Information Database, and Hot-line Information System.

Frances Adelaja, Program Associate in Farm Management, coordinated and implemented both the Farm Business Management/Marketing Training program and the On-Line and Hot-Line database Systems.

Two separate advisory committees were convened for each component of the Training Program. For the Farm Business Management/Marketing Training Program component, a farm training advisory committee consisting of representatives from Rutgers Cooperative Extension, the Rutgers New Jersey Agricultural Experiment Station, Farm Bureau, First Pioneer Farm Credit ACA, Farm Service Agency, Small Business Administrations, and other agricultural and non-agricultural organizations were organized to identify the subject area that would be immediately useful to farmers.

The committee recommended that training in farm business management should be concentrated in six core subject areas: Labor Management, Financial Management, Estate Planning, Owning and Using Property, Management, and Marketing. From these six core subject areas, came forty seven multiple training sessions that were offered during the 1995 to 1996 period.

The forty-seven multiple Farm Business Management/Marketing Training courses were held from the fall of 1995 through the spring of 1996 and resulted in nearly 4,900 contact hours with farmers. The training course included: Estate Planning; Computerized Recordkeeping Accounting Software (QuickBooks, Quicken, QuickPay), Strategic Planning, Identifying Farm & Family Goals, Pre-Retirement Planning, Managing Farm Record Finances (Balance Sheet & Income Statements), Financial Reporting and Analysis in Agriculture, Analyzing the Farm Operation Using Whole-Farm Budgeting and Partial Farm Budgeting, Labor Management, Agricultural On-Line Information, Computer Basics, Agricultural Marketing on the Internet, Supplementary Income Opportunities, Crop Insurance, Positioning Your Dairy For The Future, General Marketing, Horticultural Marketing, Grain Marketing with futures, and other programs tailored to specific commodities.

For the On-Line database services and Hot-Line information systems component of the Training Program, an advisory committee consisting of representatives from the NJDA, the USDA, Farm Bureau

farmers, and other professional organizations personnel was convened to identify information needed on both the database and hot-line information system.

The On-Line database, which can be accessed twenty-four hours a day, allows farmers, agents, specialists, NJDA/USDA personnel, and other agricultural information users direct computer access to commodity prices, at terminal markets, shipping points, future markets, and prices and volume information at the Vineland Auction.

The Hot-line information systems provide telephone access to RCE technical reports, technical information, marketing information, and crop information. The system allows a user to request information by pressing buttons on their touch-tone telephones as directed by a recorded voice. These documents are then sent via fax to the phone location requested. This Fax-On-Demand and fax broadcast operation is designed to improve communication between the agricultural community and Rutgers University.

IMPACT

The program has been very well received. Over 1,240 farmers participated in the 1995 Rutgers Farm Business Management/Marketing Training and Information Program held at Cook Campus, at Cook/NJAES off-campus research centers, at RCE county offices, at non-agricultural buildings, and in conjunction with commodity group meetings. Although PEG recipients were required to take only 3 hours of training, many of the farmers attended additional training sessions.

The following are a summary outcome of the Training Program:

Forty seven farm business management /marketing training sessions were held.

Over 1,240 farmers attended these training sessions. The training sessions resulted in 4,900 contact hours.

Fifty-four speakers conducted the 47 training sessions.

Over 30 agricultural & non-Agricultural agencies worked to deliver a very successful training program.

About 13,423 informational faxes were faxed directly to the farmer and agriculture support persons.

Approximately 1,959 agricultural constituents logged-in to the AERDI On-Line agricultural database. This figure does not cover the over 200 Rutgers' Cook College accounts (Agents, specialists, researchers, and administrators), or NJDA, and other Rutgers accounts that log onto the system.

Roughly 16,893 agricultural constituents phoned-in for agricultural news recordings.

An estimated 104 Kermit disks and instruction sheets were sent out to users.

Roughly 27 talks and demonstrations were given on the On-line and fax information systems.

Participants at the sessions also gave glowing evaluations of the Training Program. Most attendees rated the course good to excellent and would recommend the program to an associate. The following are some of the course comments from the formal evaluation sheet:

"Best seminar I have attended in my 20 years in the industry"

"More than I expected"

"One of the best classes I have ever attended"

"The program is a home run"

"Very well done and informative"

"I thought I already knew the information being presented - I was wrong"

"Keep up the good work"

"Worthwhile attending"

"Very good"

"Time went by in a friendly and relaxed environment"

"I enjoyed my three hours of class. Made me want to take more classes"

"Thanks"

"Inspiring, motivating, and useful information"

"Was highly informative"

"More classes"

"Great"

Most of the participants rated the speakers "excellent to good" and said the pace of the course was "about right."

Ways to Grow:
Alternatives for Small Farmers

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The Ways to Grow program has been one of North Carolina A&T State University Cooperative Extension's major outreaches to small scale farmers. The program's goal was to help North Carolina's small farmers increase farm profitability through the introduction of alternative agricultural enterprises such as specialty crops and innovative farm-based enterprises. These enterprises are the small-scale producer's hope for the future, in light of the competitive disadvantages they face if they compete directly in traditional markets. Ways to Grow successfully employed four strategies, described below, to bring alternative agriculture to small-scale producers in North Carolina.

Training: Small-scale producers throughout the state were invited to submit proposals for on-farm demonstrations of alternative enterprises. Those selected (25 in both 1991 and 1992) came to Greensboro for a 2 1/2 day Small Farm Institute. A member of the Extension staff from their county who had agreed to serve as a mentor for the demonstration project attended with each farmer. The farmers participated in highly interactive training sessions with production and marketing specialists, receiving advice on finances and record keeping from authorities and hearing the first hand experiences of other farmers already involved in alternative enterprises.

Advanced Technological Information Delivery: An hour and-a-half "Satellite Video-conference" was uplinked to kick off the Ways to Grow program which featured small farm experts from Cornell University, University of California-Davis, Successful Farming Magazine, the North Carolina governor's office and North Carolina A&T State University. A Ways to Grow videotape library (14 videos) was developed to assist with the delivery and transfer of production technology and marketing information about alternative agricultural enterprises.

Applied Research: Forty-eight (48) on-farm demonstrations were established on various alternative enterprises across the state. Forty-seven (47) of those demonstration sites became operational, sharing information about the production, adaptability, cultural practices and marketing of alternatives with other small and part- time farmers in their communities, counties and regions. Forty-four information fact sheets were developed based on the demonstrations and distributed to all 100 county Extension centers in North Carolina. The information sheets highlight the learning experiences and advice of the various

demonstrations to farmers about the production and marketing of alternative enterprises.

Networking: Ways to Grow united governmental agencies and nonprofit groups working to assist small-scale producers, including groups such as the North Carolina Department of Agriculture and the Carolina Farm Stewardship Association. Top-level Extension administrators from North Carolina A&T State and North Carolina State Universities participated. Project directors worked closely with the state-level heads of all United States Department of Agriculture agencies to promote and insure support of the goals and objectives of the program.

Conclusion:

Although sustainable agriculture was not a primary focus of Ways to Grow, many of its principles and practices were incorporated into the various on-farm demonstrations.

Program participants were asked to think about their situations and advised to use their incentive grants in ways that would ensure them long term success; sustainability and profitability. Because of the costs associated with high chemical inputs and the program's intent of increasing farm profitability, much of the information and technology transferred to the farmers, supported the basic concept of sustainable agriculture.

Ways to Grow has greatly increased public awareness of the sociological and economic adversity confronting small-scale agriculture. It has also brought to public attention, implications for the future which clearly illustrate the need for revitalizing small-scale agriculture and the necessity of public support for programs aimed at revitalization. The program has become both an information resource and a communication conduit for small-scale farmers and agencies working to assist them. With its commitment to alternative agricultural enterprises and program development, Ways to Grow serves to offer a solution to the issues it brings to light.

An Innovative Means for Providing Information to Small Farmers in Nash County, North Carolina

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The goal of the North Carolina Cooperative Extension Service is to provide educational programs for small and part-time farmers as well as large commercial farmers. The cost of modernization and demands on time has caused the number of small and part-time farmers to decrease in some areas and at the same time has caused the numbers to increase where small farmers have taken off-farm weekends. Through many years of direct observation of attendance at peanut educational meetings, it was clear that peanut farmers with small acreage did not attend ongoing Extension programs. There are a fairly large number of small peanut farmers in Nash County, which led to obvious questions as to where these farmers were getting their production information and how we can reach them with updated information on insect and disease control recommendations in order that they can get maximum results from materials being used.

Peanut farmers with small acreage were selected. A pretest and post test were developed to evaluate the effectiveness of improving program delivery.

The pretest also contained demographic and other program preference information of the respondents. The pretest found that many small and part-time farmers often indicate little interest in attending meetings or other time consuming events such as tours and workshops in order to receive needed farming information. Another observation indicated that Extension's meeting schedule was not convenient for them due to work schedules and time off. Often, they either remain uninformed or dependent on sources of information that may or may not be reliable.

In analyzing the list of farmers who farm a small number of acres of peanuts, several similar characteristics were found. These included, but were not limited to the following: poor to no attendance at ongoing Extension activities; small acres of peanuts, off-farm employment; other crops and/or activities deemed more important such as spraying for insects and diseases.

As a means for potentially reaching this audience effectively, a self-contained learning module was developed on "The Peanut Leafspot Advisory."

The "Advisory" is a specially integrated system for electronically measuring humidity and temperatures during the growing season to predict the potential infection levels of peanut leafspot fungi disease.

The learning module contained information which discussed the leafspot advisory in detail, plus provided information on the other major peanut diseases in Nash County. Early peanut leafspot is the major foliar disease of peanuts in North Carolina and requires a number of fungicide applications for control. By following the "Leafspot Advisory," a grower can save one or more sprayings per year. Being able to save one or more applications of a chemical helps the environment as well as provides a significant cost savings to the farmer.

The learning module consisted of a notebook, which was divided into five subsections.

Section one consists of a video script which was revised to be used as reinforcement of a video cassette presentation or as a stand-alone discussion of the peanut leafspot advisory. The script discussed the advisory and the leafsopt fungus in detail and the effect of humidity and temperature has on the fungus. Knowing the humidity and temperature tells how favorable it is for leafspot development and when it is time to spray.

Section two consists of the major peanut diseases in Nash County with photos and a brief description of each disease. This material was used by the farmers to identify the disease that may be causing peanuts to die. The first step in controlling any disease is identification. Many of the diseases look alike, therefore the photos plus the description provided the farmers with the necessary information for positive identification.

Section three contains a Plant Pathology Information Note on Peanut Disease Control by Dr. Jack Bailey, Extension Plant Pathologist, North Carolina State University. Once the disease is identified, the farmer can then turn to section three for control measures including chemical recommendations with recommended rates. These information notes are updated as new chemicals are labeled or as recommendations change.

Section Four contains the publication "Scouting Peanuts in North Carolina," Publication AG-461, by a number of specialists at North Carolina State University. This publication aids the farmer in identification and then helps in deciding on when to spray. For example, research has shown that there is no need to spray when you see only one spot. The threshold for spraying peanuts for leafspot, when not the advisory, is when 20 percent of the leaflets have spots.

Section five contains the video cassette entitled "Peanut Early Leafspot Advisory." The video is an indepth discussion of the "Early Leafsopt Advisory" and how it works. The video shows how temperature and humidity affect the development of the leafspot fungus and when to spray in order to get the maximum benefit from the use of chemicals. Video and audio cassettes are becoming a major method of delivering programs and were considered very useful by participants in the small and part-time farmer project.

A novelty item was also included, which was a magnetized refrigerator stick-on, with disease control information and the Extension office telephone number for follow-up information if desired.

Initially, six farmers were selected to receive the learning module. Response to this self-directed means of information was highly positive. In a follow-up study, which included 10 additional farmers, all but 2 were highly receptive to this means of Extension program delivery. One cited time to review the information, and the other indicated little motivation for self-study materials.

Those who used the learning modules described this means of providing information to them as highly worthwhile, and an excellent means of receiving information.

One farmer stated that he saved two sprayings at a savings of $18 per acre per spraying. This resulted in a direct monetary savings of over $800. An indicator of acceptance of the self-contained learning module was that most of the participants indicated a willingness to pay for similar types of information should they need to in order to have such user-friendly information at their disposal.

Appropriate packaging of information in a well-ordered, concise manner that is fully self-contained is clearly a viable and effective means for reaching small and part-time farmers, and should be utilized as a key information delivery method. The self-contained learning module is an efficient and successful method of educating farmers at their convenience.

What Tasks are Appropriate for Farm Kids?

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Agriculture is an important industry in the United States, usually involving the entire family. On farms, youth are put to work at very young ages for a variety of reasons: economic necessity, lack of childcare options or to instill a work ethic. The real dangers lie in the assignment of farm tasks to youth who do not have the physical, mental or emotional ability to perform the assignment. As reported by the National Safety Council (1994), the statistics are startling. Approximately 300 children die and more than 27,000 sustain serious injuries on U.S. farms each year. A National Safety Council survey found children ages 5 to 14 were two-thirds more likely to suffer a farm work accident than adults ages 45 to 64.

In most farm-chore related accidents, the supervising adult's expectation exceed the child's developmental stage (Clark 1994). A common assumption is made that when a child looks large enough to reach the pedals, operate the equipment, or handle the livestock, he or she is ready to perform that particular chore. While some children are physically larger than others, it is false to assume that physical appearance equates with mental and emotional competence. Children develop at different rates (Gabbard, 1992). Instead of body size, chores should be assigned in respect to developmental stage. This type of assignment is more logical than traditional family practices, but it requires analysis of a child's physical, cognitive and psychosocial development. Using this three-fold approach assures that a child is physically, mentally, and emotionally comfortable with his or her assignment.

Physical Development

Physical growth varies during the first 20 years of life (Gabbard, 1992). A very rapid growth rate takes place from birth to age 4. During this time, children are just developing their motor skills. These children experience balance problems and clumsiness, making coordination virtually impossible. Preschool children generally have slower reaction times than older children. It is difficult for them to determine speed, weight, force, acceleration, distance or location accurately (Keogh and Sugden, 1985).

Between preschool and puberty (ages 6 to 11) , there is a period of steady growth. During these ages, children try to master more complex tasks requiring eye-hand coordination. However, development of these skills is usually slow and improves with practice. By age eight, a child can begin to deal with issues like location, distance, weight, force, speed, and acceleration (Keogh and Sugden, 1985). They develop directionally (north, south, east, west) around age 12 (Long and

Looft, 1972). Between ages 9 and 11, the child begins to accurately judge the flight of a moving object and their ability to distinguish objects in motion slowly improves (Williams, 1983).

At puberty there is a disproportionate growth of various body parts; usually the arms, legs and feet will grow and change so rapidly as to disrupt the body's ability to keep up with coordination skills (Lloyd, 1995). For most children at this age, they have mastered kinesthetics, speed, and direction of moving objects (Keogh and Sugden, 1985).

Around 15 years of age there is a deceleration of growth (Gabbard, 1992). By this time most awkwardness has been overcome and the mastery of small and large muscles is complete (Clark, 1994). These individuals look more like adults than children.

Cognitive Development

Preschool aged children use preoperational thought (Piaget, 1971). They are in the process of learning language and basic problem-solving techniques. It is very difficult for them to remember rules and their attention span is less than 10 minutes.

Children between the ages of 6 and 11 operate on concrete facts (Piaget, 1971). They must be able to see, taste, hear, smell and feel the job at hand before they can understand the concept. They are not capable of dealing with abstract ideas and their attention span is approximately 12 to14 minutes. Due to the limitations in their cognitive development, oral instructions do not work well. Demonstrations of how to do the task are necessary (Clark, 1994).

Children begin thinking abstractly around 12 to14 years of age (Piaget, 1971). They can understand instructions without seeing the task and can generalize past tasks to new experiences. However, they have trouble generalizing tragic experience to themselves. They have a strong feeling of immortality and believe that accidents only happen to others.

From ages 15 to18, abstract thinking has been accomplished, allowing for oral instructions, generalization of skills from one task to another, and making projections into the future (Clark, 1994). However, they still think that accidents will not happen to them and that they possess the size and strength to overcome any problem.

Preschool Development

Preschool children have a high level of curiosity and will act on impulse. However, they lack the control and judgment to stop and think before they act. Even at this early age, they exhibit a strong will and determination to do things for themselves (Clark, 1994).

Children between the ages 6 and 11 do not take responsibility for their actions, usually blaming others or the situation for any downfall. They label tasks as being "interesting" or "boring," and rarely follow them through to completion (Clark, 1994). Since they are still developing their small muscles and eye-hand coordination skills, tasks are not done with any precision or accuracy.

During puberty, children are pre-occupied with themselves and their own problems. They tend to be risk-takers and rebellious towards authority figures. Parents' ready-made solutions may be rejected in place of their own ideas and solutions (Clark, 1994).

The rebellious, risk-taking and aggressive stage continues on through adolescents. As more activities compete for their time, interest for the farm often takes the back seat, and haste in completing chores often leads to accidents (Clark, 1994). Although they may have mastered their physical and cognitive development, their maturity level fluctuates between the very childish to the sophisticated.

Implications for Parents

Accidents occur to children because they have slower reaction times; lack the experience, knowledge, and physical ability to perform most farm tasks; and exhibit no fear or respect for the dangers involved with the task. Children want to test their skills and try new things. They will not admit they lack the ability to perform the assigned chore.

Children of any age tend to believe they possess greater strength than they actually have (Clark, 1994).

The majority of farm accidents occur to children while they are accompanying adults to the workplace. However for the most part, the worksite is the homesite for farm children and the hazards are abound.

Supervision is necessary at any age of development; the level of supervision is dependent upon the age and developmental stage of the child in respect to the assigned task.

Summary

Choosing age-appropriate tasks for kids working in agriculture is an important adult responsibility. However, entrusting adults to understand youth development issues merely because they are adults, is a fallacy. The future of agriculture safety programs involves adult education in childhood development stages.

Teaching adults about the common risks that youth take at different ages of their lives and protective measures for each age level is a key concept in safety education.

Learning how to downsize farm chores is an obligation that every parent, grandparent, or supervisor should recognize.

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A Computer for the Small Farm

SYREX INC

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Syracuse, New York 13214

The "desk top PC" (or "IBM PC") is in widespread and increasing use as a powerful tool for management on medium sized and larger farms (say 200-head or larger dairy farms) in the USA, in Canada and elsewhere -- where sufficient staff, office space, time and capital exist to make full use of the many farm programs available. Unfortunately, small-medium farms often find these same computers too costly, in money, time, etc., to be practical.

Consequently, the small farms need a computer that meets their special criteria, small, low cost, user specific, portable, durable, etc. These criteria can be realized in the handheld computer. Unfortunately, of the many businesses that sell "PCs", not many sell the handheld computer. But this is about to change drastically. Phenomenal growth is expected in handheld computers (a COMPOUND growth of 42.2% in 1995-99).

This Aghand/Psion project has been prepared with agricultural colleges and universities under the aegis of a 1993 letter from the Secretary of Agriculture, Washington, DC. Aghand was also technically validated at the New York State Department of Ag and Markets, Albany, New York with the admonition to "get this in the hands of the farmers".

- The new helper for small-medium farms
- Very low cost and small farm affordable
- Helps control farm costs and finances, day-to-day and yearly
- Helps with farm accounting and reports
- Answers farm questions and helps to plan ahead
- Portable, pocket size.
  Fits hip-pouch.
- Durable-long-life, Dust-proof, Moisture-proof, Shock resistant
- For small-medium farmer use, USA and abroad
- For small-medium farmer-education-training sites
- Prepared with agricultural colleges and universities
- Farm tested (on-the-farm) and approved
- Technically validated in Albany, New York, Dept. of Ag and Markets

We invite comments, suggestions, and equity partners: Please contact:

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Response of Small and Mid-Size Ohio Farmers to Computerized Farm Recordkeeping

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Ohio State University Extension agents and farm management specialists have been teaching computerized recordkeeping workshops since 1990 reaching over 1,000 people. . Objectives of these workshops are 1) to give participants hands-on experience using computerized records, 2) to demonstrate how low-cost software, such as the Quicken program, could be adapted to farm recordkeeping, and 3) to demonstrate how a computerized record system could generate the kind of reports and information needed to manage a modern farm business. A follow-up survey of 286 randomly selected participants was conducted during 1995 to determine what impact these educational efforts had. One hundred and eighty-six responses were received for a response rate of 65%.

Of the 186 responses, 160 or 86% reported farming activities. For this analysis, those participants having annual gross farm sales of $100,000 or less are considered to be small and mid-sized farms. Fifty-five percent of those reporting agricultural activities fall into this category. Twenty-nine percent of the farming participants reported annual farm sales of $100,000 to $200,000 while 16 percent reported sales greater than $200,000.

Those surveyed were asked, "Are you presently using the Quicken program?" Seventy-two percent of the small and mid-size farmers responding indicated that they were using Quicken for their recordkeeping. For those who had not adopted Quicken, the reasons given included preference for a manual system (31%), the computer records program was no useful (21%), no computer (17 %), computer compatibility problems (14%), using another computer records (7%), and other reasons (10%).

The value of any recordkeeping system is dependent on how often entries are made. Overall, the adopters reported frequent program usage with 95% using the program at least once a month. Thirty-six percent said they used the program more than once a week, 16 % at least once a week, 21% every two weeks, and 21% once a month. Another 5 % of the respondents said they use the program every six months.

Those who adopted the Quicken program were asked, "Have computerized records with Quicken improved your management decisions?" Eighty-seven percent said their management decisions had improved as a result of using computer-ized records. These improved decisions resulted from the following factors and were rated on a scale of one (not at all) to five (very much):

1) improved accuracy (average score 4.2),

2) improved accessibility (4.4),

3) more complete information (4.3),

4) ease of recordkeeping (4.3)

5) flexibility of retrieving and reporting information (4.2).

It appears that computer records can lead to more informed decisions not only because of the records being kept up to date, but also due to the ease with which financial data can be manipulated and retrieved.

Although the workshops focused on learning how to use a computer recordkeeping program, the need for good recordkeeping skills was also stressed. The survey asked the participants to rate their recordkeeping skills on a scale of one (no skills) to five (excellent skills) before and after the workshop. Of the small and mid-size farmer participants, 56% rated their recordkeeping skills as poor to fair before the workshop, while 18% rated their skills after the workshop as poor to fair. Before the workshop, 41% of the small and mid-size participants rated their skills as good to excellent, but after the workshop 82% said their recordkeeping skills were good to excellent. The average recordkeeping skill level of the small and mid-size farmers improved from 3.3 before the workshop to 4.0 after the workshop, statistically significant at the 1% level.

Participant comments about the most important things learned and suggestions for improvement of the workshops help keep future workshops relevant and useful. The most frequently mentioned item was to emphasize how to use the computer records program and how it can be applied to the participant's situation. Other items mentioned or suggestions made were to emphasize proper recordkeeping techniques using computers, to use a computer lab to help those attending improve their computer skills and knowledge, and to have assistance available after the workshop to answer questions about using the computer records program.

In conclusion, teaching computerized recordkeeping workshops has resulted in adoption of the technology, improved management decisions and better recordkeeping skills. From our experience in Ohio, it also appears that computerized recordkeeping is a size neutral technology since the results of the analysis of small and mid-size farmers were not significantly different from all farmers in the survey.

Expanding Marketing Opportunities for Small Farms in Athens County, Ohio

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Athens County is a rural county in the Appalachian foothills of Southeast Ohio. The 1992 population was 60,061. This included the population of Ohio University with enrollment of over 17,000 students. The poverty rate for Athens County for 1992 was 32% (Crawford & Bentley, 1994). With a high poverty rate and 530 farms (Ohio Agricultural Statistics, 1994) averaging 162.3 acres, there is a tremendous opportunity for local residents to utilize and develop markets at the local and regional levels.

Expanding and improving markets is a high priority for the farmers of Athens County. The majority of farms are considered small in size, with 73.4% (Crawford & Bentley, 1994) of the farms being under 180 acres generating an average of $4907/year.

Methodology

A local sustainable agriculture committee with input from local agencies (Rural Action, Community Food Initiatives and Ohio State University (OSU) Extension formed a marketing sub-committee which developed a descriptive questionnaire to evaluate the marketing, production and processing needs of farmers in the area. The questionaire was mailed to 90% (N=509) of the farmers in the county and 23.5% (N=120) responded. The questionaire included sections on: farming status, needs and interests, services farmers can provide, and processing and marketing opportunities.

Results

The greatest interest was to find improved markets for cattle (N=29) (cows & calves account for 28% of agricultural receipts in Athens County). Vegetable (N=17) and hay (N=17) producers also had interests for improved markets. There was also interest for information and programs on managed rotational grazing (N=32), extending the grazing season (N=27), and laws and regulations on food processing and marketing (N=29).

Implications

As a result, direct markets have been developed for cattle and hay. Direct

markets now exist to market feeder calves to feedlots in Northern Ohio (in the corn producing region of the state). Also, local and regional markets for excess hay are developing for farmers.

In addition to a successfully established farmers' market, a retail store for marketing local fruits, vegetables, plants, meats and dairy products has been established as a result of the study. This new market provides an additional outlet on a year round basis providing a *value added* market for farmers and locally raised vegetables, fruit, meat and dairy products for consumers.

Additional educational programs for marketing livestock and horticultural programs have been provided and are planned. A grazing council conducts monthly meetings and tours to learn more about managed intensive grazing and extending the grazing season. Specific programs such as developing a dairy goat operation and creating a market for the milk have been provided by OSU Extension.

Programs on *value added* feeder calf production and extending the grazing season have been provided. Gardening, and marketing vegetables and fruit programs have been provided by OSU Extension. Rural Action has developed a directory of local fruit and vegetable producers for consumers in the area to purchase fresh produce direct from the farm. Finally, the instrument used to collect data is being revised for use in an adjoining county.

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Sustainable Use of Goats as a Vegetation Management Tool

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In this paper, the use of goats as a sustainable vegetation management tool will be discussed using data from four demonstration trials. Since 1990, Langston University has implemented a series of demonstration projects to evaluate the use of goats in managing unwanted vegetation. At the invitation of several federal agencies such as the Forest Service, goat specialists have planned and conducted several demonstration trials taking into account the invading species, land topography, weather and experimental site. Considering these factors helped in determining the number of goats per acre that are necessary for effective vegetation management.

As the general public and the academic community become aware of the adverse effects that inappropriate herbicide use represents, there is more demand for information about alternative methods for management of unwanted vegetation. With adequate management, goats will utilize unwanted vegetation for production and at the same time the vegetation will be maintained at a desired density.

The demonstration projects are intricate because there are uncontrollable factors and unpredictable incidents. Also, researchers are not encouraged to conduct this kind of project because of their complexity and limited opportunities of publication to date.

The main objective of the projects is to find a balance between vegetation management and goat production. Goats are efficient in controlling invasive vegetation, opening the coverture and allowing growth of grasses and other plants. In the first example, 51 Alpine and/or Angora goats were used for three years at the Ouachita National Forest (Jesseville, Arkansas) in new pine plantations.

The objective, in this case, was to remove hardwood species which competed with the pine seedlings for sunlight and nutrients. The percentage average cover of the hardwoods was 4 %, 1% and 4% for goats, herbicide and control, respectively at the end of the first year; 8%, 3% and 12% at the end of the second year and 17%, 9% and 24% at the end of the third year. The goats (average initial weight 27 to 52 kg) increased body weight by 4% to 11% of initial body weight during the demonstration period. In the second example, goats were used in the Blue Ridge Mountains (NC and TN). Several species of wild plants invaded and threatened the trails used by hikers and

tourists. The use of herbicides was not favorable due to the constant presence of people and wildlife. Machinery was ineffective because of the mountainous terrain. Eighty goats were transported to manage wild cherry (Prounus serotina) and wild blackberries (Rubus sp.) which invade as dense thorny vines. Preliminary observations indicated a high control percentage of Prunus serotina and Rubus sp. The plants have disappeared from trails and paths permitting the free transit of hikers. Botanic inventories will be taken in the Summer of 1996. The third example, the use of goats on the slope dam which is the water reservoir for the city of Guthrie, Oklahoma. For two consecutive years, goats have ben used to maintain the dam at Liberty Lake free of shrubs and small trees, mainly black locus (Robinia pseudoacacia). The growing shrubs did not allow regular inspections and tended to weaken the dam. In the last example, goats were used to manage shinnery oak (Quercus havardii) in Cheyene, Oklahoma. Goat grazing for three years at the Black Kettle National Grassland, increased native grass frequency from 5% to 50%. Soil samples also revealed an increase in soil nutrients (N,P and K) from 1, 5 and 120 to 21, 23 and 314 kg/Ha, respectively. In conclusion, different types and species of invading and unwanted vegetation can be managed using goats, thus permitting a rational and sustainable use of land and other resources.

Perceptions and Attitudes of Small Farmers in Tennessee Towards Sustainable Agriculture and Some Survival Strategies

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Definition of Sustainable Agriculture

There are numerous definitions of sustainable agriculture that include a range of environmental, economic, and social characteristics. For example, the American Society of Agronomy defines sustainable agriculture as one that, over the long term: (1) enhances environmental quality and the resource base on which agriculture depends, (2) provides for basic human food and fiber needs, (3) is economically viable, and (4) enhances the quality of life for farmers and society as a whole.

The objective of this paper is to show changes in the structure of small farms in Tennessee in comparison to the United States between 1982-1992, assess their perceptions and attitudes towards sustainable agriculture, farming practices they have adopted and problems they face. A random survey of small farmers in West and Middle Tennessee was conducted in the Spring and Summer of 1996 using a mail questionnaire and face to face interviews. A descriptive method used to analyze the information shows that most farmers in Tennessee have used cover crops, crop rotation and no till practices in the last five years to improve the overall sustainability of their farm operations. It also indicated that farmers believe sustainable agriculture is not a passing phenomenon and is good for society in general and rural communities in particular.

Introduction

Issues relating to structure of agriculture, the environment and sustainable development have emerged as important contemporary areas of debate within and outside of agriculture. A discussion of these issues is likely to receive increasing attention by agriculture and natural resource related professions well into the 21st century.

Methods

A random survey of small farmers in West and Middle Tennessee was conducted in the Spring and Summer of 1996 using a mail questionnaire. Issues used in this

conventional-transitional-sustainable continuum, types of problem(s) they face, new practices they have adopted and their perceptions, beliefs and attitudes towards sustainable agriculture. Fifty-seven completed questionnaires are used to derive results reported in this poster.

Discussion of Results

Despite the decline in the number of small farms, an overwhelming majority, (91%). of all farms in Tennessee, are still small. The majority of respondents describe Sustainable Agriculture (SA) as "environmentally Sound Practices" followed by "Conservation Tillage," "Profitable Agriculture," and "Diversified Farming Practices." Only 10% described it as "Socially Acceptable" and 14% as "Organic Farming." Only 10% of respondents consider themselves and "Sustainable Farmers" but 25% considered themselves as moving in that direction.

This may be encouraging. Most farmers (86%) ranked economic problems as most important or important, whereas 55% ranked environmental or natural resource problems as most or important. It is important to note that almost 40% ranked these problems as least important. Most farmers (27%) indicated cover crop, crop rotation, and no tillage as practices they have adopted in the last five years to improve the over all sustainability of their farming operations.

It is encouraging to note that large number of farmers agree with the belief that Sustainable Agriculture is good for society and agriculture is essential for rural communities as indicated by higher mean scores.

Some Survival Strategies

Be dynamic, get informed and explore new opportunities

Utilize family talents

Adopt new and appropriate technologies

Pursue greater diversification and better land use

Reduce use of purchased inputs and consider utilizing on farm inputs

Manage soil erosion, diseases, etc., using all available means

Participate in community life including farmers group

Improve management skills and be realistic

Accentuate the benefits of small operations

Share local concerns with public officials at various levels, establish national leadership to achieve an end

Explore niche markets and marketing strategies before starting to produce a new product.

Using Computers to Manage the Modern Farm: A Series of Computerized Recordkeeping Workshops

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As personal computers and financial recordkeeping programs became more affordable and user friendly, more producers started adapting personal computers into their farming operations. Along with these changes in farm financial recordkeeping came questions about how to efficiently use these computers and select the best recordkeeping software. It then became a goal of the University of Tennessee Agricultural Extension Service's Management and Marketing priority team to answer these questions and educate Tennessee's producers about computerized recordkeeping. With this goal in mind, Dr. Delton Gerloff and the Area Specialists in Farm Management developed "Using Computers to Manage the Modern Farm."

Using Computers to Manage the Modern Farm workshops is a series of computerized financial recordkeeping workshops that teach producers how to efficiently use a computer and Quicken for Windows, a financial recordkeeping program. Each workshop is also customized to reflect the different types of agricultural enterprises for the area in which it is taught. There are three series of workshops utilized. Series one is the Basic workshop. Series two is the Advanced workshop, and series three is the Financial Management workshop. Each workshop is a "hands on" experience with instructions through a portable computer lab.

Series one, "Basic Using the Computer to Manage the Modern Farm" workshop, teaches producers the basic skills needed to utilize a computer and financial recordkeeping program Quicken for Windows. These skills include basic mouse skills, setting up the initial files and accounts, entering the bank statement and printing reports. After attending this workshop the producer can maintain a set of computerized records for farm and financial management and tax purposes. Series two, "Advanced Using Computers to Manage the Modern Farm" workshop, teaches producers how to keep a more

detailed set of records using Quicken. Records such as detailed asset inventories, liability lists and repayment schedules, asset depreciation, payroll, and other advanced recordkeeping features. After attending the advanced workshop, producers are able to generate accurate balance sheets, income statements, and current detailed asset inventory values.

As of May 1, 1996, 50 workshops have been conducted by the Area Specialist in Farm Management in 46 counties. Overall the workshops have been attended by 552 participants. The reaction and evaluations of these workshops have been superb. When participants were asked to rank the workshop and its material, the instructor and their knowledge, and the amount of time given for instruction on a scale from 1 to 10, all were ranked with an average score above 9 except for the amount of time." It was ranked with an average score of 8.6. Participants were also asked to answer five questions "yes" or "no." The following are those questions and the percentage of yes answers.

Questions	%Yes
Has this workshop changed your ideas about recordkeeping?	79.97
Would you encourage a friend to attend this workshop?	99.75
Would you consider changing your recordkeeping system?	90.17
Has this workshop been worth your time?	99.27
Would you attend an advanced workshop?	95.16

Comments from the workshops have also been encouraging. Some participants were quoted as saying "This workshop made recordkeeping seem simple" and "I have realized the potential for using computers for recordkeeping and management."

Overall these workshops have been a huge success and should continue to be a success in the future The University of Tennessee Agricultural Extension Service is making great strides to keep current with new technologies and programs to ensure that we offer the best possible programs to the producers of Tennessee.

The Sex Life of Codling Moth (Lepidoptera: Tortricidae) in Rural Utah Pome Fruit Orchards

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Based on results from five small, rural pome orchards during two years of study, codling moth fruit injury can be maintained below 5% (acceptable upper tolerance for rural orchardists) when border effects are minimized. Prominent border effects were found in orchards with upwind, adjacent open areas that likely served as "mating sites" for moths. A "mega" (10 mg codlemone lure trap did detect higher numbers of male moths than a standard 1 mg lure trap in mating disruption sites, but its usefulness to predict expected fruit injury is limited in small (1-3 acre) orchards with prominent border effects.

Major Objective

To determine if sex pheromone-based mating disruption (MD) for codling moth (CM) can provide "satisfactory" control in small (1-3 acre), isolated pome fruit orchards in rural Utah.

The MD approach for CM control is generally not appropriate for most commercial pome fruit acreage in Utah because of high CM pressure (50-200 moths/trap/season in insecticide-treated orchards) and close proximity to untreated hosts (e.g., backyard trees, abandoned orchards). However, strong interest by small, rural orchardists in soft to organic programs for CM prompted interest in this study.

Methods

MD experiments were conducted in 5 small, rural orchards in 1992 and 1993 (Table 1). All orchards were isolated by at least 180 m from outside CM sources. In 1992, NM was tried in small urban orchard that was not isolated from immigrating CM (Kaysville site).

All MD orchards received a first cover spray of Guthion or Imidan timed at approximately 250 Degree-days (DD) after biofix. Shin-etsu pheromone dispensers supplied by Pacific Biocontrol Corp. were applied at 400 dispensers/acre on interior trees and at 800 dispensers/acre on border trees. Capitol Reef sites received two applications of dispensers/season and Draper and Kaysville sites received a single application per season.

Pherocon 1C traps were baited with either a red septa loaded with 1 mg or 10 mg codlemone dose. Because of small orchard size, only one trap of each dose was placed in each trial block.

Traps were hung at 2-2.5 m high on the north side of tree canopies. Lures were replaced every 3 weeks. Percent fruit injury was determined at harvest by cutting open 2,000-4,0000 fruit per site.

Results

1). Can fruit injury be maintained below approximately 5%?

At harvest fruit injury ranged from 0.2-29.2% (Table 2). Injury was maintained at 5.5% or below in all rural orchards except one in 1992 (Capitol Reef C). Injury in the non-isolated, urban orchard (Kaysville) was 11.1% in 1992.

2). How strong are the border effects?

Border effects were strong in the Capitol Reef C orchard, the Draper B orchard, and the Kaysville orchard in both years. Strong border effects caused overall fruit injury to be the greatest in these orchards (Table 2).

Direction of the prevailing wind and presence of an adjacent open area may have caused greater border effects in 2 of the 5 orchards. The presence of trees and shrubs and nonhost orchard tree on the upwind side of the other 3 orchards may have reduced border effects. No moths were caught in pheromone traps (1 mg lure) placed in adjacent vegetation during 1992 and 1993.

3). Can fruit injury be predicted from moth catch in a 10 mg lure trap?

Cumulative moth catch in traps baited with 10 mg lures was greater than in 1 mg traps in MD orchards. Moth catch in nearby insecticide-treated orchards was less or the same in 10 mg trap as compared to 1 mg traps. Regression of percent fruit injury at harvest on total moth catch for the season in 10 mg traps showed no relationship when all sites were included.

Table 1. Orchard site descriptions.

Orchard	Crop	Size	CM Biofix Date
Capitol Reef A	Apple	1.5 acres	April 29
B		1.2 acres	
C		1.0 acres	
Draper A	Apple	1.5 acres	April 15
B	Asian pear	3.0 acres	
Kaysville	Apple	2.0 acres	April 13

Table 2. CM trap catch with I mg lure and % fruit injury at harvest.

	# moths/trap/season*		
Orchard	Insecticide	MD	% fruit injury at harvest
1992			
Capitol Reef A	12	4	0.2
B		12	4.4
C		14	29.2
Draper A	168	2	1.1
B		10	5.5
Kaysville	63	2	11.1
1993			
Capitol Reef A	21	0	1.0
B		0	0.8
C		0	5.3
Draper A	177	0	0.3
B		3	5.4

*Trap catch in nearby insecticide treated orchard and in MD orchards.

Vegetable Farmers and Sustainable Agriculture: Attitudes, Practices, and Needs

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Traditional extension efforts do not meet the needs of the small farmers who make up a significant portion of the Utah Vegetable Industry. Progressive (large, influential, full-time) farmers have relatively larger holdings, and have experienced success in controlling their environment. Therefore, they are eager for information, and they demand assistance, complain if neglected, and have the economic stability to take the risks necessary when adopting new technology. Progressive farmers are regularly serviced by Extension and willing to adopt the changes necessary to remain competitive.

At the same time, Extension needs to balance traditional programs with new initiatives for small farmers if they are to be truly sustainable. The strategy we suggest is not to reject the progressive farmer as an approach to planned change. Rather, we suggest that efforts are needed to meet the needs of the progressive and small part-time farmer. The effectiveness of diffusion when targeted to homogeneous categories of farmers will serve small part-time farmers as well as the progressive farmer. The objectives for this study were to establish baseline descriptors and categories of farmers and begin the process of establishing a collaborative research agenda for the vegetable farmers in Utah.

We used telephone and mail surveys to gain information about the cultural practices used by these growers. Seventy producers (72%) responded to our telephone survey and 50 (50%) returned the follow-up mail survey.
A perceptual index was used to assess a farmer's knowledge and attitude toward conservation practices. This index was developed in the hope that a short questionnaire would act as a proxy for a more detailed assessment of individual growers practices.

A farming index representing the cultural practices used by each respondent was also formulated. The farming index, together with the actual practices will serve as baseline data and help determine if Extension and research efforts are being used by vegetable growers.

Utah's vegetable growers farm an average of 45 acres in their primary (anchor) vegetable crops (range 1 to 600).

Nearly 30% reported an anchor crop between 1 and 9 acres with 10% farming over 100 acres. Fifty-four percent of the growers owned 50% or more of their crop acreage while 46% rented half or more. A typical Utah vegetable crop producer is 51 years old, male (96%), has farmed for 33 years, and has a high school education (97%), or bachelors degree or better (30%). Thirty-four percent reported earning 24% or less of their income from vegetable production.

Development and use of a perceptual index measuring farmer attitude towards adoption and use of conservation (sustainable) practices was only partially successful. It has provided a partial identification of farmers who are good candidates for collaborative research and extension from vegetable crop producers who have not previously used extension resources. However, the perception index was not a good proxy for sustainable practices being used by the individual farmer though it did provide a description of their attitude toward conservation farming.

The farming index measured the practices used by farmers in growing a crop and indicated that most do not use conservation practices. The vegetable producers surveyed made from 1 to 12 machinery passes (average 4 but 31% made between 6 and 12 passes in the field prior to planting their crop). In our judgment, this makes many growers good candidates for extension efforts to reduce tillage. On the average, 3 sprays are applied for insect control, 2 for weed control and less than 1 for disease control. Most vegetable growers use some form of crop rotation and many use alternative nutrient source like animal or green manure and alfalfa plowdown. However, few growers credit the nutrient composition of these nutrient sources when figuring their fertilizer needs. Soil and tissue nutrient testing and field fertilizer were not generally used by vegetable growers. Many do not understand the relationship between water and fertilizer and few of the growers questioned could tell how much water they applied to grow their crops. Most respondents had heard of IPM and none were found to use a completely integrated system of pest control.

Since different vegetables have unique cultural practices, research and extension efforts need to be directed to address the specific concerns of each crop. This was evident in the differences in the use of conservation tillage and IPM practices or effective use of nutrients by onion or sweet corn growers. IPM practices were widely used by sweet corn growers but not by onion growers. Onion producers were more likely to rotate fields as compared to sweet corn producers. Differences in farming practices were also noted between land owners and renters, less and more educated farmers and those farmers who earn a greater portion of their income on (progressive farmer) or off (part-time farmer) the farm.

Through a group process coordinated by the Vegetable Specialist, farmers have begun the process of identifying their research priorities. These needs and priorities are being used to modify existing research and extension programs. The next step will be to begin a collaborative effort to provide a unified research agenda supported by farmers, extension, and researchers.

In summary, there are two predominant groups of vegetable farmers in Utah, the small, part-time and large, full-time (progressive) farmer. Continuing to work primarily with progressive farmers with the expectation that diffusion will result in adoption of best practices by small farmers matches the continuing decrease in Extension budgets. This approach, however fails to meet the needs of smaller, part-time vegetable farmers as indicated by the evidence collected in our study.

The Women's Agricultural Network: Multiple Strategies for Evaluating Program Impact

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Today's funding resources require specific and understandable evaluation methods to measure the impact of an extension program for a particular audience. Often the goals of a project can be measured by the number of participants involved and lessons leamed. These measures are commonly used by traditional educational programs. Extension focuses on behavioral change as a desirable outcome of education. Government funded programs must succinctly state how they have made a difference in client behavior that goes beyond knowledge or attitudinal changes. To be accountable ***and*** test new methods of evaluation, the Women's Agricultural Network uses an eclectic, yet highly planned, approach to monitoring program impact. The approach clearly identifies the program objectives, indicators of effectiveness, and targeted goals for a period of five years.

The goal of the Women's Agricultural Network (WagN) is to enable more women to own/operate profitable farms and agriculturally related enterprises. In order to achieve this goal, we proposed: (1) education and guidance to develop a comprehensive business plan; (2) assistance in obtaining the necessary funding to grow and develop an agricultural business; (3) follow-up technical support to nuture the business; and (4) integration into the existing agricultural system. We proposed the following objectives:

Objective I

To increase the number of women engaged in agricultural endeavors the Network will provide the necessary information and education for participants to assess their personal level of commitment to the enterprise and to evaluate the agricultural alternatives available to them.

Objective II

The Network will provide education on economically feasible and environmentally sound management practices that encourage sustainable agriculture and lead to increased productivity and profitability.

Objective III

The Network will provide specific audiences with intensive education in business management in order to improve overall productivity. Participation will be limited and emphasis will be placed on individual assistance with management and production problems of individual operations.

Objective IV

The Network will build an effective network of federal, state and local partners that will provide women with a comprehensive continuum of services including but not limited to education, financial and technical assistance, and peer support.

Objective V

The Network will develop a replicable model of outreach and assistance for other states to implement with various audiences.

Objective VI

The Network will strive to develop a long-term funding strategy that will enable it to continue on after the initial implementation period.

From these objectives, indicators of effectiveness were developed including: (1) numbers of individuals identified and contacted, (2) numbers of applicants for each program, (3) numbers of participants attending various program, (4) hours of technical assistance provided, (5) numbers of participants who have made business decisions based on information learned, and (6) number of women starting/expanding a business after accessing the Network. Thus, traditional measures such as contact numbers, program participation, and value (monetary and time) are made and reported.

Relevance of educational content to practice, skill development, fulfillment of educational needs and program objectives are also assessed. For example, year one impact measures included:

"Three hundred and fifty individuals will learn about the program opportunities through Orientation. One hundred individuals will attend "Getting Serious." Thirty individuals will participate in "Growing Places." WagN will provide 30 partial scholarships to Start Up for individuals starting agricultural related businesses. It is expected that 12 participants will begin/expand their businesses this year."

To capture the overall value of the program, a three pronged approach is used which involves constant revision of all analyses, traditional and non-traditional. Evaluation involves all potential players at monthly staff meetings, quarterly advisory council meetings and yearly retreats. Priority outcomes are believed to be best developed through processes that include at least three groups: (1) recipients of the resource, in this case network users, workshop/course attendees, and technical assistance clients,
(2) coordinators and providers of the resource, in this case program employees and partners from other institutions and

agencies, and (3) the larger context or community, including funders, citizens, legislators and regulators. For our complex systems' based project, the assistance to an individual is seen in the context of the participant's needs and its effect in the communities of location (geography), professional relationships (networking) and politics.

Preliminary program evaluation outcomes in this report focus on the traditional assessments. Recipient receptivity to and change generated by program activities include assessment of participants' backgrounds, information resources and aspirations and detailed course evaluations from two cycles of the course "Growing Places" are reported. Marketing efforts and advisory council development are also reported in quarterly performance reports. Further, the yearly evaluation of staff performance reviews includes individual and group goal assessments to generate further understanding of and commitment to evolving program goals.

In addition, case study strategies to follow the path of certain "bellwether" participants through an array of program resources are undergoing preliminary testing.

We have reached several conclusions based on the year-one results:
(1) Determine consistent high priority outcomes. Outcomes must be part of the design and program efforts should be proportional to the priority level of a specific outcome. Ongoing evaluation may revise the order of priority for different outcomes. We recognize that the "desirability" of an outcome is a value judgement. (2) Identify relevant criteria to judge and measure impact. (3) Focus efforts on multifactorial analyses, including participation level, immediate measures, measures over time, case studies and anecdotes. (4) Gather external information to make a case for "value added" results, including bench marking across programs.

Developing Programs for Start Up Farmers: Programs Targeting Women

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The Women's Agricultural Network (WagN) is a collaborative effort of the University of Vermont (UVM) Extension System, the Women' Small Business Program of Trinity College, and the UVM Center for Sustainable Agriculture. Our mission is to provide education and technical assistance to women exploring farm start ups or expansions. Funding for the Women's Agricultural Network is provided by USDA Farm Service Agency through the Outreach and Assistance Grants for Socially Disadvantaged Farmers and Ranchers (Small Farmer Outreach Training and Technical Assistance Program).

Based on a year of program planning and first year program delivery results, we have identified four major levels of need that women pass through in the development of their new farm businesses. These stages range from self-assessment to long-range planning. In order to truly support these entrepreneurs it is necessary to provide the appropriate information at each point along the continuum and to develop teaching strategies for each of these stages. The result of this needs-appropriate education is that participants have the opportunity to develop effective decision-making skills that will help promote successful business enterprises.

Stage I: Pre-Planning

The focus question of this stage is, "What do I really want?" At the heart of this stage is a personal assessment of values, skills, resources, talent and interests. Throughout this stage the individual is developing a strong sense of self that will be critical in the goal development stage. Having a coach to guide the individuals through this stage is important. One very successful methodology for this self-assessment is the facilitated small group. Trained facilitators are essential, however, and group size should be limited to no more than 15 (ideal size appears to be 8-10).

Challenges for the beginning entrepreneur include: learning to rechannel the initial degree of urgency ("I need to do this right now!") into

planning and research; learning to share ideas in a positive, open style; and keeping the focus on the individual(s) rather than on the business. Challenges for the educator/coach include: being good facilitators; learning to coach effectively; and learning not to overload individuals with too much "expert" advice and information.

Stage II: Goal-Setting

The focus question of this stage is, "What does success mean to me?" A comprehensive goal statement is the desired outcome at this stage. Good results have been achieved by using the Holistic Management model combined with some basic communication and consensus building. Needs are diverse at this stage. Participants need to learn how to write a goal, the purpose of a goal, and how to use a goal in making decisions. Technical information needs include: resource evaluation; market research; production and business management; and financial projections. There is also a tremendous need to understand who the various resources are, what service(s) they provide, and how to gain access to them.

Challenges for the entrepreneurs include: lack of "buy-in" on the part of family and friends; keeping the focus on the goal rather than on the details; learning to cope with conflicting information; confusion regarding agency roles, regulatory requirements, and available resources; and information overload. Challenges for the educator/coach include: providing education on complex subjects in a user-friendly style; including farmers that represent the audience in the process; and understanding and honoring the cultural and gender differences in learning styles.

Stage III: Testing the Plan

The focus question for this stage is: "How can I achieve my goal?" The conclusion of this stage is the completion of a business plan that accurately reflects the values and goal of the owner(s), is viable from a financial and production standpoint, and fits comfortably into the community environment. Needs at this stage include guidance on the technical aspects of writing a business plan; accurate production estimates; one-on-one counseling; and critiques of the plan's content. It is also beneficial to the entrepreneur to receive some coaching on effective presentation skills.

Challenges for the entrepreneur include: lack of good information in "non-traditional" production areas; making accurate projections; finding the time to do the research, writing and revision; and working out details without losing sight of the goal. Challenges for the educator/coach include: finding the necessary resources to provide individual technical assistance; establishing teams of knowledgeable, experienced individuals to critique business plans and conduct mock interviews; coaching the entrepreneur through the process without taking over the process; learning to criticize constructively; being open to some very innovative, non-traditional ideas; and letting the entrepreneur determine their own risk level.

Stage IV: Growing the Business

The focus question of this stage is, "Am I on the right track?" The final stage in this continuum is the implementation of the business plan. It is a skill building stage where subject specific workshops, conferences, journals and technology all become meaningful and useful. At this stage the participant is encouraged to become more integrated into established networks. Participants should be taking leadership roles. Needs at this stage include skill building and long-range planning. The development of "what-if" models are valuable in selecting from alternative methods. This is also the stage when leadership skills should be encouraged and when the transition from student to teacher begins. Individuals need encouragement when reality does not meet the expectations of the plan. Technical assistance becomes increasingly important in the first years of the business. Information needs become more sophisticated.

Challenges for the entrepreneur include: inadequate resources; failure to plan for the right contingencies; inexperience; lack of mentors and role models; and difficulty in separating problems from symptoms. Challenges for the educator/coach include: providing the right level of technical assistance; building networks of mentors and role models; encouraging entrepreneurs to assume leadership roles; facilitating farmer discussion groups; finding resources to support on-going research and education; and continuing to evaluate and adjust programs to meet the needs of beginning farmers.

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POSTER ABSTRACTS

#1

COST-EFFECTIVENESS OF SUBSTITUTING POULTRY LITTER FOR UREA IN COTTON PRODUCTION IN ALABAMA

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The fast growing Alabama poultry industry produces an enormous amount of poultry litter annually that needs to be disposed of in a timely and environmentally safe manner. One method of dealing with this problem is to use the mineralogically rich poultry litter to grow row crops such as cotton. The purpose of this study is to determine whether poultry litter is a cost effective substitute for urea in cotton production in Alabama. Linear programming is used for the analysis and sensitivity analysis is performed to determine the level of stability of the results in the basic models of the scenarios.

The results of this study indicate that cotton fertilized with free fresh litter with a maximum of 100 miles transportation cost and purchased fresh litter with a maximum of 25 miles transportation cost had a higher income above variable cost (IAVC) than urea, hence a profitable substitute for urea in cotton production in Alabama. On the other hand, cotton fertilized with composted poultry litter had a lower IAVC at all levels than urea, hence not a profitable substitute for urea in cotton production. The optimal level of fresh litter, application that maximized the IAVC, is fresh litter providing 80 pounds of nitrogen per acre.

#2

EARLY REARING OF CHANNEL CATFISH FRY IN ABOVE GROUND RACEWAYS AND ITS IMPACT ON FRY SURVIVAL IN THE FARM FINGERLING PRODUCTION IN WEST ALABAMA

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Scarcity of groundwater supply prevents most catfish farmers in West Alabama from using the time-honored methods employed by catfish fingerling producers in the Delta regions of Arkansas and Mississippi. Fry were raised from swim-up stage in raceways until 3 to 5 cm size before stocking into rearing ponds on a West Alabama catfish farm and at the Southeastern Fish Cultural Laboratory (SFCL).

Survival of fry raised in this manner was compared with that of swim-up fry stocked directly from the hatchery into rearing ponds. Swim-up fry stocked into raceways at a density of 1,000 fry/cubic foot attained 3 to 5 cm TL within a 24 to 27 day period with an average survival of over 95%. Nearly one million fry were reared on the commercial farm in two 1,000 gallon raceways during the 1996 spawning season. When raceway-reared fry were stocked into ponds at SFCL for further growth, 86.4% survived to 5-inch fingerling size. Other ponds stocked with swim-up fry yielded 82.7% survival. These results indicate that stocking larger fry may help assure higher, more consistent survival from ponds that typically yield poor survival.

#3

THE IMPACT OF SOCIO-ECONOMIC FACTORS ON SUSTAINABILITY OF AGRICULTURE IN THE ALABAMA BLACK BELT

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The purpose of this study is to assess the impact of socioeconomic factors on sustainability of agriculture in the Alabama Black Belt. The counties under study are: Barbour, Bullock, Dallas, Greene, Hale, Lowndes, Macon, Marengo, Montgomery, Perry, Sumter, and Wilcox.

Variables affecting the economic sustainability of limited resource farmers in the Alabama Black Belt were collected through a survey. These variables were then used to develop the following model:

ES = F(ED,AG,VA,SP,OF) where,
ES is the index of economic survivability, ED is the education level of the operator and his/her immediate family members, AG is the age of the farm operator, VA is the income generated as a result of on-farm processing or product differentiation, SP is the degree to which the farm operator participates in social, civic, and professional organizations, OF is the income received from all sources aside from farm operations.

It is expected that this analysis will show that education, value added enterprises, social participation and off-farm income, have a significant positive effect on sustainability/survival of farming in the Alabama Black Belt while age has a negative effect on sustainability.

#4

RECORD KEEPING STATUS FOR SMALL FARMERS AFTER THEIR ASSOCIATION WITH FARMERS' ORGANIZATIONS OR TECHNICAL ASSISTANCE PROGRAM

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The study was designed to determine the record keeping status of small farmers after their association with Farmers' organizations or technical assistance programs. The population for the study consisted of 791 small farmers in 12 Black Belt Counties of Alabama (n=100). Usable data were collected from 84 farmers.

The findings show that 65 percent of the farmers indicated that they kept various kinds of pre-production and post-production records prior to joining a farmer's organization or becoming a part of a technical assistance project. Seventy-eight percent kept records after their association with farmers organizations or technical assistance programs.

Regarding the type of record keeping systems used, 21 percent of the farmers reported that they kept their records in a personal notebook; 20.2 percent were using the same type as they did before their association with farmers' organizations or technical assistance projects. The findings also revealed that 76 percent of the farmers were pleased with the type of record keeping system that they were using.

#5

ASSISTANCE TO SMALL FARMERS: THE TUSKEGEE SMALL FARMER OUTREACH TRAINING AND TECHNICAL ASSISTANCE PROJECT

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Since the publication of the U.S. Civil Rights Commission Report, "The Decline of Black Farming in America," USDA has placed increased emphasis on the delivery of technical assistance and information to limited resource and socially disadvantaged farmers. The goal of this project is to train and deliver technical assistance to socially disadvantaged and limited resource farmers and outreach to potential borrowers.

The following are addressed based on one-on-one approach to information dissemination and technical assistance:

- Preparation of farm ownership loan and operating loan applications
- Financial management, budgeting, and record keeping
- Marketing
- Business management skills
- Assistance with production techniques
- Development of alternative enterprises

The SFOTTAP at Tuskegee University is an example of a federal program involving an agency-1890 Land grant partnership achieving its goals, and at the same time exceeding them for the benefit of the clients the program is charged to serve.

#6

DEVELOPING AQUACULTURE BUSINESSES AMONG UNDER REPRESENTED GROUPS IN RURAL COMMUNITIES

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The Mississippi Delta region is characterized by a high percentage of socially disadvantaged, limited-resource farmers. With small plots of land and little capital, there is a lack of viable agricultural business alternatives for these farmers. Research and demonstration have shown that direct retail marketing can bring the farmer a higher price than sales to processors. Operating a small-scale aquaculture business profitability requires production and niche marketing efforts to be carefully integrated into one comprehensive management strategy. To accomplish this, however, requires a level of management of both production and marketing phases that is not commonly held by limited-resource farmers.

We are implementing an Extension education program designed specifically to overcome financial and informational constraints to participation in catfish production on the part of socially disadvantaged limited-resource farmers.

The first phase in providing management assistance was to locate or develop program resources. A series of small-scale catfish production fact sheets were developed. The second phase began with workshops on alternative small farm aquaculture enterprises. The third phase is to demonstrate small-scale production and marketing operations.

#7

SPECIALTY CROPS DEVELOP-MENT FOR THE SAN JOAQUIN VALLEY OF CALIFORNIA

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Small scale farmers must be innovative and flexible to meet the marketing challenges that will allow them not only to survive but thrive within the most competitive world market ever. Due to the nature of "economy of scale", small scale farmers have found that it is impractical to grow traditional crops competitively with large scale farmers. Therefore, it is essential that they identify niche markets. The niche may be a non-traditional (specialty crop) or it may be a traditional crop harvested out of season, or developed into an added value product.

An example of on-going crop research is the evaluation of annual artichoke production in the San Joaquin Valley of California. Historically, artichoke has been grown in the central coast of California where the climate is cool and moist. Attempts to grow artichokes in the central San Joaquin Valley had always failed because of the extreme dry hot weather. The innovative work to grow artichokes in desert conditions by farm advisors, Wayne Schader and Keith Mayberry of San Diego and Imperial counties respectively, opened the door for small scale farmers in Tulare county.

Farm advisors Manuel Jimenez and Richard Molinar have successfully grown the annual artichoke in the valley and have introduced the crop to growers. The first commercial planting of annual artichokes were planted in 1995.

#8

DEMONSTRATION OF POLACRYLAMIDE (PAM) TO REDUCE EROSION ON ONIONS IN THE ARKANSAS RIVER VALLEY OF COLORADO

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Soil loss due to erosion can be high when onions are furrow-irrigated from 7 to 15 times during the growing season in the Arkansas River Valley of Colorado. Polyacrylamide (PAM) treated irrigation water was applied to onions on three dates in 1995 to reduce soil loss and improve quality of return flow to the river. On the first date, soil loss was reduced by 83%, from 477 pounds per acre on the untreated areas to 80 pounds per acre on the PAM-treated areas. This reduction in soil loss was obtained even though the flow rate was increased from 16.5 GPM per furrow on the untreated areas to 29.0 GPM per furrow on PAM-treated areas. On the two other dates, applying 16.5 GPM per furrow on all areas , PAM reduced soil loss 29% and 77%, respectively. Reduction in soil loss on the 1,400 foot long field of silty clay loam soil averaged 58.5% on five irrigations indicating a carryover effect of PAM when untreated irrigation water was used on all areas.

Total runoff was reduced from 3.7 on the untreated areas to 2.5 inches per acre on the PAM-treated areas indicating a greater lateral movement and/or a higher infiltration rate due to the PAM. Similar onion yields of 628 and 611 sacks (50 pounds) per acre were produced on the untreated and PAM-treated areas.

#9

ENVIRONMENTAL ISSUES FOR SMALL AND MODERATE SIZED FARMS

Joe Julian
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Douglas County, Colorado is located in the "Front Range" of Colorado. Its borders are within thirty minutes of Denver to the North and twenty-five minutes from Colorado Springs to the South. The current population of Douglas County is 100,000 which includes approximately 2,130 Agricultural properties of which 1,500-2,000 are individually-owned. According to USA Today, Douglas County, Colorado is the fastest growing county in the nation and has experienced the highest percentage gain in population the last five years.

The influx of population to Douglas County is bringing with it a segment who desire to combine the best of two worlds into their new home, that is, proximity to urban life and country living. The way many people do this is by living on small acreage or "ranchettes" ranging in size from five to thirty-five acres.

The small acreage is subject to the same climate and environmental attributes and challenges as the large ranches. The key to successful management is knowledge. The Small Acreage Management Seminar has targeted educational talks/programs to cover such topics as weed control, pesticide safety and use, soil erosion, fencing, water management, livestock production and other pertinent topics.

#10

LIVING ON A FEW ACRES IN THE WEST

Scott Cotton
Colorado State University; Joe Hiller, University of Wyoming, and Corrine Buffington, Pueblo County Extension Office, County Courthouse, 215 West 10th, Pueblo, Colorado 81003

Recent population movements into western states has resulted in the development and sales of many homes on small acreage from five to forty acres. The fragile nature of the environment in conjunction with immigrants' unfamiliarity to the area has created some adverse results on these homesteads.

To address the need for environmental quality management, responsible land use planning, and better understanding of management practices by new residents, the Cooperative Extension Service has developed and distributed to residents in several states similar to "Living On a Few Acres in Wyoming", "Small Farm and Ranch Management in Montana", and a publication currently under development in Colorado.

These publications which address water management, soil management, livestock health, homestead planning, weed management, wildlife management, grazing, restrictions, references for inform-ation such as utilities, wells and fencing are written for some public audiences with no formal training.

The goal of the program(s) is to provide information which will allow landowners address certain agricultural problems as they arise.

#11

AGRICULTURAL INSURANCE NEEDS OF SMALL FULL-TIME FARMS

Robert Dismukes, Joy Harwood, and Robert A. Hoppe, USDA-Economic Research Service, 1301 New York Avenue, NW, 8th Floor, Room 832, Washington, DC 20005

This poster presents characteristics of small farms related to risk management and agricultural insurance programs. For example, small farms are more likely than all farms to obtain most of their farm sales from livestock, not crops, and are less likely to harvest cash grains.

The contribution of farm income to household income varies greatly across small farm households. Although many have substantial off-farm income, some small farm households have low off-farm income, as well as low farm income and farm asset values.

Small farms account for large shares of farms operated by socially disadvantaged farmers (women, blacks, American Indians, Asian/Pacific Islanders, and Hispanics). For example, about 80 percent of farms operated by females, blacks, and American Indians have less than $25,000 in agricultural sales.

Differences between small farms and all U.S. farms suggest the need for different extension methods and risk management products. One-on-one assistance and outreach may be especially useful. Expansion of crop insurance to include more fruit and vegetable crops and to include whole-farm revenue insurance, covering both livestock and crop revenue, would provide products suited to the enterprise mix on many small farms.

#12

BUSINESS AND DEMOGRAPHIC CHARACTERISTICS OF FARMS WITH SALES LESS THAN $20,000

Janet Perry and Cheryl Steele USDA-Economic Research Service, 1301 New York Avenue, NW Room 937, Washington, DC 20005

We examine attitudes of farmers operating small farms to determine their management styles, the use of technology and information, decision-making process and subjective measurements of success. Almost three-quarters of all farms, 1.15 million, are small, non-commercial farms with gross sales under $50,000.

Characteristics of small farms and their operators are very different from those of commercial-sized farms. Operators of small farms tend to be older, and fewer have attended college. Farming is not their major occupation, and on the average, they lose money farming. These farmers tend to say they have the same or more conservative management styles as other farmers, and they are the most likely to say they have no particular management style at all.

In contrast to commercial farmers who share decision making with a variety of equity-providers, small farm operators tend to make all the farm management decisions themselves. They measure success by ways other than financial, and almost two-thirds indicate that the rural life-style is very important. Only 14 percent wanted to increase their acreage. About half thought it was important that the farm survive adverse market or weather conditions and less than that wanted to increase gross sales. In contrast, almost 90 percent of commercial farmers wanted their farms to succeed financially and three-quarters wanted to expand. We conclude that many small farms are small because they fit the expectations and goals of the operators.

#13

OVERVIEW OF SMALL FARM PROGRAMS AT THE LAND GRANT COLLEGES AND UNIVERSITIES

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The Cooperative Extension System in partnership with USDA-Cooperative State Research, Education, and Extension Service, other public and private sectors, delivers programs and services to small farm families throughout the United States and the territories. All the land grant schools do not have programs specifically targeted at small scale farms, however, these schools do have a wide range of programs and services that benefit small farms.

At the State, county, and local levels, State Program Leaders, Researchers, Extension Educators, Scientists, and para-professionals provide leadership for small farm activities. Continued support of this program will assist the small farmer in meeting major needs in areas such as recordkeeping, farm management, and marketing strategies. Although the viability and survival of small farms is a rural issue in most states, there is still substantial disagreement on the definition of a small farm.

USDA's working definition of a small farm as found in the 1981 Farm Bill (Public Law 97-98) is as follows: **"Small farm means any farm: (1)** producing family net income from all sources (farm and non-farm) below the median non-metropolitan income of the State; **(2)** operated by a family dependent on farming for a significant though not necessarily a majority of its income; **(3)** on which family members provide most of the labor and management."

#14

EFFECTS OF ORGANIC AND CONVENTIONAL FARM PRACTICES ON SOIL QUALITY

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Effects of organic and conventional farm management regimes on soils were studied on two Florida farms during a two-year period. There are two goals of the project: (1) to determine the effects of different farm management systems on soil quality and (2) to relate the ratio of product output and and energy input to the efficiency of the management systems. The two farms were selected because each has Typic Quartzipsamments and a cropping regime of watermelons and peanuts.

Long term cover crop of bahia grass was utilized for its high lignin content, slow decomposition rate, and for control of annual weed populations. this cover cropping system equally affects soils of both the organic and conventional farms.

Physical, chemical, and biological properties were used to quantify soil quality. Respectfully, these properties were represented by moisture holding capacity, organic carbon content, and microbial carbon. In the short term, improvement of soil properties with conventional practices were indicated by the results. The question of sustainability of soil quality and farm production is addressed through energy analysis of each farming system in terms of output product to energy input. In conclusion, the quality and quantity of agricultural inputs used to sustain Florida soil quality are suggested.

#15

EXOTIC MEAT MARKETING

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Despite differences in regulatory status, exotic meats (and other relatively unknown specialty products) share a need for a particular strategy or approach to marketing and market development. Several stages or steps must be taken in order to complete the strategy. Patience is needed and the time required for each step varies by individual marketer as well as product.

In order to exploit market opportunities, markets must be identified and some pre market entry activities conducted. Some of the pre market entry activities, such as evaluation of the farm's resource base, are oriented towards the business, while others, such as an evaluation of general price trends, are oriented towards outside factors. Market entry strategies that directly address potential clients and consumers should be performed upon completion of the pre market activities. After markets are entered, the markets must be penetrated and finally the markets must be maintained. Pricing strategies and customer service come into play here. The producer must give the customer more than he or she expects and look beyond consumer preferences in order to successfully maintain markets.

Quality of service and product are the primary ways to more than meet expectations while innovation is the way to effectively look beyond consumer preferences. Despite differences in regulatory status, exotic meats (and other relatively unknown specialty products) share a need for a particular strategy or approach to marketing and market development. Several stages or steps must be taken in order to complete the strategy.

#16

PIGEON PEA (CAJANUS CAJAN L.): AN ALTERNATIVE SUSTAINABLE CROP FOR THE SOUTHERN UNITED STATES

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The pigeon pea is an important grain legume crop in many parts of the world including India, Asia, Africa and the Caribbean including Latin America. Migrants from these regions who reside in the United States, still favor this pulse in their diet. Except for Hawaii and Puerto Rico, the pigeon pea is not commercially grown in the USA. Although a tropical crop, growth of adapted pigeon pea is possible in the lower regions of the United States. The pigeon pea is cold susceptible and will be killed by the onset of freezing temperatures in the fall each year. Three of the more promising lines: 76W, 99W and DO, were selected for regional (within Florida) evaluation. At the University of Florida, dried grain yields of the lines ranged from 336 kg ha^{-1} to 3,360 kg ha^{-1}.

In November 1993, the grains produced by all three accessions were damaged by an early killing frost, just before making mature green stage. Consequently, yield data was not obtained. In 1994, grain yield of the accessions when harvested at the mature green and dried stages, were 76W, 3,219 and 1,180 kg ha^{-1}, 99W, 2,643 and 1,471 kg ha^{-1} and DO, 2,270 and 1,039 kg ha^{-1}, respectively. Further studies are being continued in order to select additional pigeon pea lines as well as determine management practices for specific locations.

#17

RABBIT PRODUCTION: AN ALTERNATIVE ENTERPRISE FOR SMALL FARMERS

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A majority of farmers in Hernando County, Florida are classified as small farm operators. These farmers need to identify alternative agricultural enterprises to increase farm income. Rabbit production was singled out as an alternative because of the relatively small capital investment and land requirement of a rabbitry.

The Hernando County Cooperative Extension Service developed a comprehensive rabbit related educational program during FY 95-96. This poster paper will highlight the following major activities:

- A 12-minute video entitled: "Rabbit Production - A Possible Money Making Idea for Small Farmers."
- A Rabbit Production Conference which provided 179 participants wth up-to-date production and marketing information.
- Fact sheets written on a variety of topics:
  - Example Fryer Rabbit Budget
  - Obtaining A Farm Loan
  - Raising Rabbits
  - An Alternative Enterprise
- A booklet listing 12 easy and quick rabbit recipes
- Efforts to organize area rabbit producers into a growers' association to facilitate the marketing of your fryers

#18

ON-FARM FARMER-CONDUCTED RESEARCH: SOUTHERN REGION SARE PRODUCER GRANT FUNDED PROJECTS

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American farmers are faced with the dual challenges of making a living from the land and also protecting the ecosystems of which their farms are a part of, and are dependent upon. The Southern Region Sustainable Agricultural Research and Education/Agriculture in Concert with the Environment (SARE/ACE) Producer Grant program is designed to help reconcile these conflicting challenges.

Producer Grants help farmers or farm organizations who want to solve on-farm problems by conducting their own research or by developing technologies in sustainable agriculture. Producer Grant funded projects are developed, coordinated and conducted by farmers or farm organizations. Furthermore, farmers put together project teams of people whose skills complement their own. These people can be extension agents, or other farmers, and they can help with experimental design, marketing, and dissemination of results, etc.

On-farm farmer-designed research is more likely to provide the types of information that farmers are looking for, than will conventional researcher-designed research. This is because farmers tend to design their research to solve problems that include biological, edaphic, economic, and sometimes cultural components all in one project. The funding of on-farm research: (1) encourages farmer innovation, (2) facilitates on-farm problem solving, and (3) demonstrates the utility of on-farm research results to other farmers.

#19

AG OPTIONS NETWORK: FARM CLUBS IN ACTION

Larry J. Smith, S. O. Guy, and S. Wuest, University of Idaho and Washington State University, Nancy Taylor, Palouse-Clearwater Environmental Institute, and Richard Grant, Culdesac, Idaho farmer, Nez Perce County Office, 1239 Idaho Street, Lewiston, Idaho 83501

Club concept brings farmers together to address long-term sustainable agriculture problems. One farm test addressed the issue of "Nutrient Return and Wheat Response of Plowed vs. Spray Killed Green Manure."

Red clover (Trifolium pratense L.) can be used as a green manure crop in sustainable farming systems. Plowing or herbicide are treatment options for killing green manure prior to the next crop that were evaluated in an on-farm near Culdesac, Idaho. Red clover green manure established in 1992 with a spring barley crop produced 300kg ha^{-1} dry matter before being killed in June 1993 by plowing or three glyphosate + 2,4-D applications. Both treatments were tilled for weed control later in the summer. Soil N level in the fall of 1993 was 235 kg ha^{-1} higher with plowing than with chemical kill. Water infiltration was four times greater with plowing. Winter wheat was established for evaluation of crop response to green manure management. Spring soil sampling in the wheat crop showed 47 kg ha^{-1} more N following plowing than after chemical kill. On-farm testing of green manure management allows evaluation under practical conditions that can be adopted directly by growers.

#20

A PROGRAM FOR THE RETENTION AND EXPANSION OF THE AQUACULTURE INDUSTRY IN THE NORTHERN MISSISSIPPI DELTA REGION

S. T. Kohler, Office of Economic and Regional Development; C. C. Kohler, Fisheries Research Laboratory; and R. Beck, Department of Agri-Business Economics; Southern Illinois University, Carbondale, Illinois 62901

Aquaculture is positioned to expand in the northern Mississippi Delta region due to such factors as abundance of water resources, prevalence of clay soils ideal for pond construction, availability of large tracts of land at relatively reasonable prices, proximity to large markets, and local presence of university research, demonstration and outreach programs.

The goal of the program is to promote and facilitate the retention and expansion of the aquaculture industry in the northern Mississippi Delta region.

The objectives of the program are to assess the status of existing aquaculture business, develop strategies to increase profitability, determine financial implications of species and/or technology diversification, and provide technical and business support for individuals considering aquaculture as a business. Sensitivity analyses of price and production factors will determine which factors affect profits the most, and summarize their effects on profit potential. To provide technical and business support for individuals considering aquaculture as a new business, a curriculum will be developed and a workshop presented on "Starting an Aquaculture Business."

#21

THE USE OF U.S. BUREAU OF THE CENSUS DATA AS A MARKETING STRATEGY TO TARGET CONSUMERS FOR AQUACULTURE PRODUCTS,

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Marketing skills and strategies are essential for success in the aquaculture industry. Many aquaculturists, particularly small-scale producers, start with expertise in production but either lack expertise in marketing or cannot afford a marketing staff. Marketing involves research on what the changing consumer desires, not just what aquaculturists can or want to produce. The changing demographic characteristics of the U.S. population, particularly lifestyles and economic factors, have important implications for the food industry. People from different cultural backgrounds and demographics often express their differences through the food they eat. Collecting market research data on consumer lifestyles and economic factors is crucial, but can be expensive.

An affordable way to keep up-to-date on the consumer is to access the data base of the U.S. Census Bureau. These data can be used to target where people live by age, race, sex, income, living conditions, and many other population characteristics to develop marketing strategies. The Bureau of the Census maintains 12 regional offices in the U.S. and numerous state locations to access these data, which are available for state, counties, municipalities, etc.

#22

ADDRESSING ORGANIC SUSTAINABLE FARMERS' NEEDS

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Organic production of vegetable and fruit crops in Kentucky is gaining ground. Acreage and grower numbers are increasing. Health concerns and certain economic advantages for the grower are the impetus for use in organic production. There is a need to collate cultural practice information and present it in a usable form for Kentucky. Work is being done to consolidate information on cultural practices, current research, and marketing opportunities. To address these concerns, older Extension horticultural publications are being amended as well as new bulletins being written. To accomplish this, grower meetings, farm visits, scouting for problems in crops, conducting research, and literature searches, are some of the steps being taken.

The greater implementation of cultural practices such as rotations, cover crops, green manures, living mulches, and minimum tillage are replacing dependance on chemical sprays, chemical fertilizers, and soil destroying practices. Through this liaison, we are bringing together a new group of agricultural producers with interdepartmental specialists within the university and new insights and partnerships are being forged.

#23

HOW TO REACH THE HARD-TO-REACH AUDIENCES

Edwin W. Chavous, Terry Hutchens, Michael Duckworth, Terry Gibson, Thomas Raglin, Marion Simon, Louie Rivers, Jr., and Gary Cline, Kentucky State University, and the University of Kentucky Cooperative Extension Services,
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The Kentucky State University (KSU) Cooperative Extension Program's Small Farmer Outreach and Technical Assistance Project is designed to provide assistance to small and limited resource farmers via frequent one-on-one farm visits by trained agents and paraprofessionals.

The steps to reaching the hard-to-reach farm audiences must include the following: Listening, Leadership, Training, and Caring.

Step 1 - The educator must first be a good listener when working with the hard-to-reach farm audience. This allows time to to assess the farmer's situation.

Step 2 - Then, the educator must prepare leadership to the farmer. For example, the educator makes recommendations to the farmer during face-to-face communication through farm visits.

Step 3 - The educator encourages the farmer to attend Extension educational programs, field days, and other farm demonstrations in the community.

Step 4 - In conjunction with one-on-one farm visits, the educator calls the farmer on the phone to check on his/her progress. This shows the farmer that the educator cares about his/her situation.

#24

REVERSING FARM LOSS IN KENTUCKY WITH ALTERNATIVE CROPS AND USES

Nolita Orr, Community Research Service, Kentucky State University, Frankfort, Kentucky 40601

Large scale use of technology, farm consolidation, and economic constraints have been responsible for significant reductions in farm numbers during the past several decades. Circumstances facing farmers are further complicated by increasing demands for U.S. agriculture to compete on a global scale. The decreased market for traditional agricultural products has prompted interest in finding new uses for traditional crops and expanding the variety of existing crops grown for an increasingly diverse and health oriented U.S. population. Farmers are searching for new and better ways to produce and utilize agricultural commodities, with the aim of becoming more diverse producers of food, fuels, medicines, and industrial products for the future.

The implimentation of alternative production measures is an important factor in the continued survival of the farm sector. Although crops for food consumption are a basic use of agricultural products, nontraditional use of crops represent new and innovative options. One of the most promising new uses for agriculture is converting crops and waste materials into biofuels. Advances in conversion technology has increased the economic feasibility of replacing gasoline and diesel fuel with biofuels from corn and soybeans.

#25

INSTANT RECORD-KEEPING FOR SMALL FARMERS

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One of the objectives of every business, such as farming, is to maximize its profit given sets of inputs, input prices, and some output constraints. The data needed by the operator to obtain estimates of the profitability of his operation can be gleaned from well kept record books. It cannot therefore, be over emphasized that record-keeping is very crucial in the success of every business enterprise. However, in most cases the small farmer lacks the time to devote to extensive and complicated record-keeping. Their request for a simpler record book has led to the production of an "instant record-keeping book" by the Louisiana Family Farm Technical Assistance Project at Southern University and A&M College, Baton Rouge, Louisiana, under Dr. Bobby R. Phylls, Dean and Research Director.

The book comes in two volumes, one for expenditures and the other for sales. Spaces are provided for instant recording of all daily and monthly transactions throughout the year. Such prompt record-keeping will enhance the quality of transactions made in farm management. The record book is intended to help farmers collect accurate information for completing the Farm Service Agency (FSA) record book. It is meant to complement and not replace FSA publications.

#26

THE ALTERNATIVE FARMING SYSTEMS INFORMATION CENTER: A SMALL FARM INFORMATION RESOURCE FOR EDUCATORS, RESEARCHERS AND FARMERS

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The Alternative Farming Systems' Information Center (AFSIC) is one of ten information centers at the National Agricultural Library (NAL) located in Beltsville, Maryland.

The Center specializes in locating, collecting, and providing information about sustainable and alternative agricultural systems, new and industrial crops, and alternative crops. Current popular topics of inquiry include: Community Supported Agriculture (CSA), organic farming, exotic livestock production, whole-farm sustainable systems, and industrial fiber crops.

Resources at the Center range from local to international in scope and include popular as well as scientific and technical materials. In an increasingly electronically connected world, AFSIC collects and provides access to many materials in electronic format. There are also the traditional print resources, videocassettes, and audio cassettes, slides and other media.

Typical users of the Center include: agricultural researchers, extension agents, farmers, marketing specialists, educators, environmental organizations, other libraries and information centers, and the general public. On request, information specialists will answer questions directly; provide detailed references to books, technical reports, etc.

#27

SUSTAINABLE AGRICULTURE NETWORK

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The Sustainable Agriculture Network (SAN) is a cooperative effort of university, government, farm, business and non-profit organizations dedicated to the exchange of scientific and practical information on sustainable agricultural systems.

SAN aims to reach a broad range of audiences with its products and services. Researchers trying to determine the most appropriate cover crops for specific regions and certain crops might consult Managing Cover Crops Profitably. Extensionists seeking to answer farmers' questions about the pros and cons of rotational grazing may identify pertinent research projects in the Folio database of projects funded by the SARE grant program.

Teachers trying to impart the concept of farming in partnership with nature might refer to the Showcase of Educational Materials, a compilation of free or low-cost publications, videos and other materials that focus on the practical aspects of farming sustainably. The publications and services of the Sustainable Agriculture Network are invaluable to these and many other users.

#28

DEVELOPING A SMALL/PART-TIME FARMER COOPERATIVE

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Situation

Frederick County, along with several other counties in the State of Maryland are experiencing heavy urban growth. This growth has increased the number of small/part-time farms.

Small farms experience problems with purchasing, marketing, and farm field work. They are also a powerful voice currently lost in the public forum on behalf of agriculture, since most small/part-time farmers do not belong to farm organizations.

Objective

The objective of the cooperative is to improve the profitability of small/part-time farms. The disadvantages of being a small, isolated farm can be overcome in a cooperative formed around commodity groups. At the same time, the advantages of being a small, more flexible farm operation can also be utilized in this cooperative.

- Group purchasing will lower costs
- Group marketing will bring higher prices
- Marketing strategies will establish reliable markets
- Service contracts and barter agreements can develop reliable farm work
- Educational program can more easily be developed and delivered
- Cooperative can be a focused action group
- Niche markets can be quickly developed
- Newly identified markets can be rapidly explored

#29

ASSISTING PEOPLE THROUGH SUSTAINABLE AGRICULTURE AWARDS

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This presentation will document the results of a state funded Sustainable Agriculture Demonstration Awards Program in Missouri as they relate to small and moderate sized farms.

The Missouri Legislature is providing Missouri farmers sustainable agriculture demonstraton awards of up to $3,000. Legislation mandates these awards will support the development of demonstration projects on the lands of individual farmers which demonstrate agricultural technologies and farm management strategies, carried out under actual farming conditions, that will reduce reliance on nonrenewable inputs. Funds totaling $69,000 per year are authorized to support a minimum of 23 new demonstrations.

Up to $3,000 is available to support individual demonstrations. To date 46 projects have been approved. The initial legislation provided funds for three years. Recently approved legislaton has extended this effort for an additional 5 years.

Funds are to be used for demonstrations to be conducted by farmers, on their land, under their conditions. Farmers can implement technologies or strategies without bearing all costs, thereby reducing risks. Farmer and local resource people such as agricultural agencies, educators, farm groups, and others jointly plan and conduct each demonstration.

#30

REACHING ACREAGE/SMALL FARM AUDIENCES

David L. Varner
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Acreage and Small Farm Owners constitute a rapidly growing population nationwide. This is a working, mobile, non-traditional Extension audience. They are demanding convenient access to information, 7 days a week, 24 hours a day that will improve their quality of life. This trend demands changes in the way Extension's information is presented and made available to this growing audience.

University of Nebraska Cooperative Extension's goal is to be a nationally recognized, unbiased educational information resource center for acreage and small farm owners. We have launched four new outreach effort in the past year targeting the acreage and small farm owner audiences. These efforts include a World Wide Web (WWW) Internet page, the NUFACTS Information Center, and an educational videotape series titled "Part-time Farming."

A WWW Internet page has been developed to meet this need. The "Acreage and Small Insights" WWW page offers Internet users the opportunity to access land-grant university publications, interact with faculty via e-mail and link to other appropriate information resources. In the near future, audio, video and home-study course materials will be added to this WWW site.

#31

RUTGERS FARM BUSINESS MANAGEMENT/MARKETING TRAINING AND INFORMATION PROGRAM

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The Rutgers Farm Business Management/Marketing Training and Information Program (The Program) provided 5 months of intensive training on farm business, marketing and computer on-line information. The program resulted in 4,900 contact hours from 47 sessions throughout New Jersey. The program was designed to enable farmers meet new market challenges and opportunities, improve management and marketing skills, improve earning potential, enhance and maintain their viability in the agricultural industry. The target audiences were: (1) existing farmers, (2) cooperatives, (3) first generation farmers, and (4) potential farmers.

Developing these 47 farm business and marketing training sessions required collaboration and coalition building with departments within Rutgers University, and 30 other agricultural and non-agricultural organizations. Effective utilization of resources and knowledge from the team enabled Rutgers to efficiently and successfully deliver a very informative, concise, and thought provoking farm business management and market training program to the farm industry.

#32

FARM SAFETY AND HEALTH INTERVENTION AMONG LIMITED RESOURCE FARMERS IN NORTH CAROLINA

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Farm Safety and Health Intervention are vital issues in the United States. Agriculture is one of the most dangerous occupations and the nature of farming creates an environment conducive to accidents and illnesses.

Farmers receive little formal safety training and most training is learned on the job largely by trial and error or through word of mouth from the farm equipment and supply dealers. Therefore, educational programs can play a greater role towards enhancing the farmers' knowledge and skills in farm safety practices.

Intervention strategies and research findings are essential for improving farm safety among limited resource farmers. Farm safety education programs are most effective when educators (both extension and institutional), researchers, family members, farm workers, manufacturers, farm safety specialists are involved in program development.

#33

ALTERNATIVE EDUCATIONAL DELIVERY OPPORTUNITIES FOR SMALL AND PART-TIME FARMERS IN NORTH CAROLINA

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The objectives of this project were to determine responsiveness of small and/or part-time farmers to selected program delivery methods, and to determine if selected non person-to-person program delivery methods are effective for providing needed information to small and part-time farmers.

RESULTS:

The project was implemented in six North Carolina counties representing all regions of the state. Subject matter was insect scouting in two counties, strawberry production in two others, beef production practices in another, and peanut disease control in the other.

Part-time and small farmers were randomly selected in each of the participating counties. Six individuals in each county received the designated information via person-to-person delivery methods, which included meetings, personal visits, and telephone calls. Six others in each county received the information via non person-to-person methods. The methods included: audiocassettes, fact sheets, miniature booklets, photographs, notebooks, posters, and videocassettes.

#34

WAYS TO GROW: ALTERNATIVES FOR SMALL FARMERS

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The Ways to Grow program has been one of Cooperative Extension's major outreaches to small-scale farmers. The program's goal is to help North Carolina's small farmers increase farm profitability through the production of alternative agriculture: specialty crops and innovative farm-based enterprises. Such specialty crops and (or) innovative farm-based enterprises are small-scale producers' hope for the future, in view of the competitive disadvantages they face going head-to-head with large commercial farms.

Ways to Grow successfully employed four strategies to bring alternative agriculture to small-scale producers in North Carolina. Those strategies being: Training (Small Farm Institutes), Advanced Technological Information Delivery (Video Productions), Applied Research (Farm Demonstrations) and Networking (Collaboration with Government Agencies and Non Governmental Organizations). Although sustainable agriculture was not a primary focus, many of its basic concepts, principles and practices were incorporated into the various (47) on-farm demonstrations.

Ways to Grow has brought to public attention, implications for the future which clearly illustrates the need for revitalizing small-scale agriculture, and the necessity of public support for programs aimed at revitalization.

#35

AN INNOVATIVE MEANS FOR PROVIDING INFORMATION TO SMALL FARMERS IN NASH COUNTY, NORTH CAROLINA

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Many small and part-time farmers often indicate little interest in attending meetings or other time consuming events such as tours and workshops in order to receive needed farming information. Often, they either remain uninformed, or depend on sources of information that may or may not be reliable. Based on personal experience and anecdotal input from other Extension agents across North Carolina, a similar pattern seems to exist regardless of the location in the state. Therefore, in order to effectively reach these small farmers, it became obvious that newer and innovative means for delivering information would need to be attempted.

In order to provide disease control information to a targeted audience of peanut farmers with low acreages, a self-contained learning module was developed. The learning module consisted of a notebook, factsheets, photographs, pamphlets, and a videocassette. A novelty item was also included, which was a magnetized refrigerator stick-on, with disease control information and the Extension office telephone number for follow-up information, if desired.

Initially, six farmers were selected to receive the learning module. Response to this self-directed means of information was highly positive. In a follow-up study, which included ten additional farmers, all but two were highly receptive to this means of Extension program delivery.

#36

WHAT TASKS ARE APPROPRIATE FOR FARM KIDS?

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Agriculture is an important industry in the United States, usually involving the entire family. On farms, youth are put to work at very young ages for a variety of reasons: economic necessity, lack of childcare options, or to instill work ethic. The real dangers lie in the assignment of farm tasks to youth who do not have the physical, mental, or emotional ability to perform the assignment. The statistics are startling: approximately 300 children die and more than 27,000 sustain serious injuries on U.S. farms each year. A National Safety Council survey found children ages 5 to 14 were two-thirds more likely to suffer a farm work accident than adults ages 45 to 64. In most farm-chore related accidents, the supervising adult's expectation exceeded the child's developmental stage. A common assumption is made that when a child looks large enough to reach the pedal, operate the equipment, or handle the livestock, then he or she is ready to perform that particular chore. Choosing age-appropriate tasks for kids working in agriculture is an important adult responsibility. However, entrusting adults to understand youth development issues merely because they are adults, is a fallacy.

The future of agricultural safety programs involves adult education in childhood development stages. Teaching adults about the common risks that youth take at different stages of their lives and protective measures for each age level is a key concept in safety education. Learning how to downsize farm chores is an obligation that every parent, grandparent, or supervisor should recognize.

#37

RESPONSE OF SMALL OHIO PRODUCERS TO COMPUTERIZED FARM RECORD KEEPING

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Since 1990, there has been increased interest among Ohio farmers, large and small, in computerized financial record keeping utilizing low-cost software. Ohio State University extension agents and farm management specialists have been teaching computerized record keeping workshops since 1990. Objectives of these workshops are: (1) to give participants hands-on experience using computerized records, (2) to demonstrate how low-cost software, such as the Quicken program, could be adapted to farm record keeping and (3) to demonstrate how a computerized record system could generate the kinds of reports and information needed to manage a farm business. A follow-up survey of participants attending workshops during 1990-1994 was conducted to determine how well the state objectives have been met.

The proposed poster session will report and elaborate on the responses of small producers to the adoption of computer technology for farm record keeping. Specific poster panels will include: major impacts of the workshops, rates of adoption, reasons for non-adoption, frequency of program usage, improvement in record keeping skills and types of farming enterprises.

Selected panels will also explore the participants' perception of improved management decisions and what factors have played roles in their improved decisions.

#38

NATURAL RESOURCES INCOME OPPORTUNITY SEMINAR

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During 1995 and 1996, Ohio State University Extension Agents and Specialists in the East District have conducted educational programs entitled: *Natural Resources Income Opportunity Seminar.* The objective of these seminars is to provide landowners with information and resources to help develop their available natural resources into potential income opportunities.

The target audience for this program has been landowners who own rural property, but are not considered full-time farmers. The typical participant is employed off the farm or is an absentee landowner.

More than 100 individuals participate in a typical seminar. Participants have come from all across Ohio and parts of Pennsylvania, Michigan and West Virginia to attend this day-long program. A typical seminar begins with an opening session on various management topics, followed by a series of break-out sessions and a closing session. A variety of topics, including purchasing rural property, aquaculture, fruit production, Llama, ostrich production, dried flowers, grazing, timber marketing and resources for starting a small business, have been offered.

Evaluations and attendance figures have indicated a positive response to this seminar. As a result of this effort, more in-depth programs in the areas of starting a horticultural business and purchasing rural property are now being planned.

#39

IMPROVING PROFITABILITY FOR SMALL FARM RUMINANT LIVESTOCK PRODUCERS WITH TURNIPS

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For small farms to be profitable raising ruminant livestock, stored feed costs must be greatly reduced. A recent study (Fowler & Stout, 1990) indicated that up to 75 percent of the cost of maintaining a cow-calf herd is related to stored feed. One way to reduce this cost is to extend the grazing season by the use of alternative crops. Turnips and other brassicas can be high yielding, high quality and fast growing forages to extend the grazing season. Since 1989, Ohio State University Extension has conducted a series of trials for utilizing brassicas (Penrose and Bartholomew, 1996) .

To demonstrate how brassicas can reduce stored feed costs, a cooperator in Washington County, Ohio was selected in 1994 for a project to show the savings that can be achieved by the use of brassicas. On August 3, 1994, 4.3 acres of pasture were seeded to purple top turnips at the rate of 2.0 lbs/ac with a no-till drill following sod suppression. Thirty days after seeding, 200 lbs/ac of 34-0-0 were broadcasted to stimulate growth. All other fertility levels were adequate and no additional fertilization was required.

Samples taken on October 26 (84 days after planting) showed a yield of 10,306 lbs of dry matter/ac (50% tops, 50% bulbs) which was consistent with previous studies (Jung, 1983). Previous studies suggest that maximum quality and quantity for turnips can be achieved 70-150 days after seeding, depending on species.

#40

EXPANDING MARKETING OPPORTUNITIES FOR SMALL FARMS IN ATHENS COUNTY, OHIO

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Introduction: Athens County is a rural county in the Appalachian foothills of Southeast Ohio. The 1992 population was 60,061. This included the population of Ohio University with student enrollment of over 17,000 students. The poverty rate for Athens County for 1992 was 32% (Crawford & Bentley, 1994). With a high poverty rate and 530 farms (Ohio Agricultural Statistics, 1994) averaging 162.3 acres, there is a tremendous opportunity for local residents to utilize and develop markets at the local and regional levels.

Expanding and improving markets is a high priority for farmers in Athens County. The majority of farms are considered small in size, with 73.4% (Crawford & Bentley, 1994) of the farms being under 180 acres generating an average of $4,907 per year.

Methodology: A descriptive questionnaire was developed to evaluate the marketing, production, and processing needs of farmers in the area.

Results: The greatest interest was to find improved markets for cattle (N=29) (cows and calves account for 28% of agricultural receipts in Athens County). Vegetable (N=17) and hay (N=17), producers also had interests for improved markets. There was also interest for information and programs on managed rotational grazing (N=32).

#41

SUSTAINABLE USE OF GOATS AS A VEGETATION MANAGEMENT TOOL

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In this paper, the use of goats as a sustainable vegetation management tool will be discussed using data from four demonstration trials. At the invitation of several federal agencies such as the Forest Service, goat specialists have planned and conducted several demonstration trials taking into account the invading species, land topography, weather and experimental sites. Considering those factors helped in determining the number of goats per area that are necessary for effective vegetation management.

As the general public and the academic community become aware of the adverse effects that inappropriate herbicide use represents, there is more demand for information about alternative methods for management of unwanted vegetation. With adequate management, goats will utilize unwanted vegetation for production and at the same time the vegetation will be maintained at desired density.

The main objective of the projects is to find a balance between vegetation management and goat production. Goats are efficient in controlling invasive vegetation, opening the coverture and allowing growth of grasses and other plants. In one instance, 51 Alpine and/or Angora goats were used for three years at the Ouachita National Forest (Jesseville, Arkansas) in new pine plantations. The objective, in this case, was to remove hardwood species which competed with the pine seedlings for sunlight and nutrients.

#42

USING COMPUTERS TO MANAGE THE MODERN FARM: A SERIES OF COMPUTERIZED RECORD KEEPING WORKSHOPS

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As personal computers and financial record keeping programs became more affordable and user friendly, more producers started to adopt computers into their operations. With these changes, a need for educational workshops was evident. From this need, "Using Computers to Manage the Modern Farm" workshops were developed.

These workshops are taught in three stages. Each of the following allows participants a "hands on" experience with instructions through a portable computer laboratory. The first stage, "Basic Use of Computers to Manage the Modern Farm" workshop, teaches producers the basic skills needed to utilize financial record keeping software. The second stage "Advanced Using Computers to Manage the Modern Farm" workshop, teaches producers how to keep detailed asset inventories, liability lists, payroll, and advanced record keeping features. After this workshop the producer can produce accurate balance sheets, income statements, and asset inventory values. The third stage "Financial Management of the Modern Farm teaches producers methods of using records for financial analysis of their operation.

#43

SURVIVAL STRATEGIES OF SMALL, PART-TIME FARMERS AND SUSTAINABLE DEVELOPMENT

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Structural changes in U.S. Agriculture continues to result in fewer but larger farms producing most of the country's marketed food supplies. Using a conventional definition of a small farm as one that grosses up to $40,000 in annual sales, almost 7 in 10 U. S. farms together account for only 10% of gross sales, they account for a third of the value of all farm assets. Gross cash income of small farms in the aggregate is negative and in steep decline. The trend toward greater concentration in agriculture will obviously cause a great deal of uncertainty about the future survival of small farms as viable economic units and as a "way of life" for many farm residents.

Researchers have identified that a major goal of small farm operators is to increase the "security and income of their families while retaining their independence as owners and operators of farm enterprises."

The purpose of this paper is twofold. First, the paper discusses some of the strategies that small farmers may apply to increase their incomes to remain as viable economic units. Secondly, the paper reports knowledge of and attitudes, perception of small farm operators towards sustainable agriculture, and how small farm operators may benefit from increasing interest in sustainable agriculture and sustainable development.

#44

DELIVERING EFFECTIVE EDUCATIONAL INFORMATION TO IMPROVE WATER QUALITY

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There is growing concern about public health and other environmental effects arising from non-point pollution to which agricultural activities contribute through use and transport of pesticides, fertilizers, and animal waste run-off that affect ground, surface and drinking water supplies.

Farm operators differ in terms of enterprises they manage, fertilizer and pesticide use practices as well as other characteristics. Given such differences, their contribution to water quality problem would not be the same. Despite this, experience shows that they have in general been treated as a homogeneous group rather than as diverse entities in designing information delivery programs. Such an approach would not be effective and should be replaced by a focused one that differentiates between operators based on their relative contribution to the problem.

The major objectives of using a focused approach in delivering educational information on water quality are: (1) to ensure that farm operators with the greatest contribution to the problem are reached first, (2) such operators acquire the necessary knowledge which they can put to use in managing their operations and help reduce the problem of water quality and (3) to allocate limited resources in the priority areas.

#45

INTERNET MARKETING OPPORTUNITIES FOR SMALL FARMERS

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One of the most pressing problems facing small farmers is how to effectively and efficiently market their produce. Small farmers have traditionally depended on farmers' markets, roadside stands, pick-your-own and other channels to market their products. This paper will examine the advertising and marketing opportunities available to small farms on the Internet. Small farmers who raise new and unique crops can benefit from Internet advertising where traditional channels may have failed allowing small farmers (individually or collectively) to directly advertise their products to potential customers on the World Wide Web.

Farmers, with help from technology experts and extension service workers, can set up home pages to advertise their products. A well-designed and adequately updated home page will attract potential buyers through effective advertising. The Internet can give small farmers capability to acquire information on new products, advertise and sell to potential customers worldwide. To accomplish the objective of this paper, a survey of selected small farmers will be conducted to assess their attitudes towards the new technology. Results of the survey and review of available Internet information will be used to discuss alternatives for small farmers.

#46

THE SEX LIFE OF CODLING MOTH (LEPIDOPTERA: TORTRICIDAE) IN RURAL UTAH POME FRUIT ORCHARDS

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To determine if sex pheromone-based mating disruption (MD) for codling moth can provide satisfactory control in small (1-3 acre), isolated pome fruit orchards in rural Utah. Based on results from five small, rural pome orchards during two years of study, fruit injury can be maintained below 5% (acceptable upper tolerance for rural orchardists) when border effects are minimized. Prominent border effects were found in orchards with upwind, adjacent open areas that likely served as "mating sites" for moths. A "mega" (10 mg) lure trap did detect higher numbers of codling moth males than a standard 1 mg lure trap in MD sites, but its usefulness is limited in small (1-3 acre) orchards with prominent border effects.

#47

VEGETABLE FARMERS AND SUSTAINABLE AGRICULTURE: ATTITUDES AND PRACTICES IN UTAH

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Land management practices used by and attitudes toward sustainable practices by Utah vegetable farmers are described. Traditional extension efforts do not meet the needs of the small farmers who make up a significant portion of the UtahVegetable Industry. A phone survey and follow-up questionnaire was used to assess the growers cultural practices and attitudes toward sustainable agriculture. Despite the apparent benefit of sustainable practices, interest in land stewardship and use of IPM techniques, vegetable farmers continue to practice traditional agriculture. Land owners and renters have different attitudes towards sustainable agriculture.

Without a greater effort by Cooperative Extension, sustainable agriculture practices may not be adopted by Utah vegetable growers. It is believed that extra effort is needed to focus on specific groups of vegetable farmers to help transfer information about sustainable farming practices.

In summary, there are two predominant groups of vegetable farmers in Utah, the small, part-time and large, full-time (progressive) farmer. Continuing to work primarily with progressive farmers with the expectation that diffusion will result in the adoption of best of best practices by small farmers matches the continuing decrease in extension budgets. This approach fails to meet the needs of smaller, part-time vegetable farmers as indicated in our study.

#48

THE WOMEN'S AGRICULTURAL NETWORK: MULTIPLE STRATEGIES FOR EVALUATING PROGRAM IMPACT

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Today's funding resources require specific and understandable intentions of evaluation strategies that result in measurable impact for a particular audience. Often the projected goals of the project relate to numbers involved and lessons learned as per the traditional educational "course work" measurements. Extension has adopted a philosophy that behavioral change is a desirable outcome of applied education. Government funded programs are challenged to succinctly state how they have made a difference in client behavior that goes beyond knowledge of attitudinal changes.

In an effort to be accountable to our goals and proactively test new methods of evaluation, the Women's Agricultural Network uses an eclectic yet highly planned approach to monitor program impact. Traditional measures such as contact number, program participation, and value (monetary and time) are made and reported. Relevance of educational content to practice, skill development, fulfillment of educational needs, and program objectives are assessed. In addition, case study strategies to follow the path of certain "bellwether" participants through an array of program resources are being tested.

This poster will share our linear achievements of the projected objectives, in so far as known in the early phase in the program (end year 1 of a 5 year effort). It will present the techniques (records and forms) for assessing and recording all types of impacts.

#49

DEVELOPING PROGRAMS FOR START UP FARMERS

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The Women's Agricultural Network (WAGN) is a collaborative effort of the University of Vermont (UVM) Extension System, the Women's Small Business Project of Trinity College, and the UVM Center for Sustainable Agriculture. Our mission is to provide education and technical assistance to women exploring a farm start up or expansion. Funding for the Women's Agricultural Network is provided by the USDA Farm Service Agency through the Outreach and Assistance Grants for Socially Disadvantaged Farmers and Ranchers (i.e., Small Farm Outreach Training and Technical Assistance Program).

Based on a year of program planning investigation and first year program delivery results, we have identified four major levels of need that a woman passes through in the development of their new farm business. These stages range from self-assessment to long-range planning. In order to truly support these entrepreneurs it is necessary to provide the appropriate information at each point along the continuum and to develop teaching strategies to accommodate each of these stages. The result of this needs-appropriate education is that participants have the opportunity to develop effective decision-making skills which will help promote successful business enterprises.

This paper: (a) highlights the 4 major stages along the continuum; (b) illustrates the education and support needs of individuals in these stages; (c) identifies the major barriers to movement along the continuum; (d) proposes critical roles for Extension and other major partners.

#50

ON-FARM RESEARCH: A CASE STUDY - INTERCROPPING IN CARROTS FOR RUST FLY CONTROL

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On-farm research is a means of involving growers in all stages of a research issue. Growers identify a problem, decide on a strategy to be tested, work with the researcher to implement the experiment, participate in data collection, and evaluate the results. Growers appear more willing to adjust some farming practices to accommodate a new technique when they have been involved in development of the technique. Additionally, neighboring growers are exposed to a single on-farm research project and are more likely to try the technique themselves if it is effective in their eyes.

Carrot rust fly *(Psila rosae)* is a devastating pest of carrots in South West Washington state. In 1995, an organic CSA grower near Olympia, Washington, identified carrot rust fly as having the greatest negative impact on her small, diversified vegetable farm.

The Agricultural Extension Agent conducted a literature search via the internet, and identified several management strategies to the grower. One technique, intercropping with harbinger strand medic (Medicago litoralis), had been tested in Sweden with mixed results. In collaboration, the Agent and the grower designed a randomized complete block experiment with four replications and three planting dates. In 1995, the intercrop reduced non-marketable carrot yields by 50 percent, 45 percent, and 20 percent at the three planting dates, respectively.

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