

PLAN OF WORK

**ANNUAL REPORT
OF
ACCOMPLISHMENTS AND RESULTS**

**PURDUE UNIVERSITY
COOPERATIVE EXTENSION SERVICE**

**FEDERAL FISCAL YEAR
2004**

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Preface

The “Indiana Annual Report of Accomplishments and Results” which follows provides information about accomplishments resulting from work performed by faculty and staff of the Purdue University Cooperative Extension Service during FY 2004. The report is organized so as to correspond with the five national goals and our plan as submitted under those goals. The Annual Report includes six components: Planned Programs; Stakeholders’ Input Process; Program Review Process; Evaluation of the Success of Multi and Joint Activities; Multi-state Extension Activities; and Integrated Research and Extension Activities. This report indicates acceptable progress toward our overall goals.

Impact statements from Purdue's Colleges of Agriculture and Consumer and Family Sciences, the School of Veterinary Medicine, and the Cooperative Extension Service may be viewed at the following website: <http://www2.agriculture.purdue.edu/impact/>.

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GOAL ONE. AN AGRICULTURAL SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ECONOMY.

Through research and education, empower the agricultural system with knowledge that will improve competitiveness in domestic production, processing, and marketing.

Overview

The conversion of the Purdue University's College of Agriculture SAM reporting system to new software along with the transfer of the system from the College of Agriculture's server to the University-wide computer server caused a number of programmatic glitches and downtime during the period when staff were inputting their yearly accomplishment and contact reports. In all likelihood this has resulted in the under-reporting of 2003-04 days worked and contacts. While we feel that the days worked and contacts made by Issue Area and Goal are within the expected realm, they are probably lower than the true count.

Purdue Extension focused on several programs related to Goal One. For FY 2004, a total of 7,180 contact days were devoted to primarily three programs: Agricultural Competitiveness, Horticulture and Turf, and Alternative Agricultural Enterprises and Practices. Through state-wide and county based workshops, test plots, conferences, and educational materials, extension staff concentrated on crop and animal production systems, marketing, and risk management strategies that improves production efficiencies, makes producers more competitive, and adds value to Indiana agricultural products. Indiana's state population is 99% non-agricultural. Urban needs place a great demand on the state's natural resources as well as Purdue Extension's resources to meet these needs. The increased demand for home and consumer horticulture has caused us to reallocate resources to deliver programs and educational information to areas such as Master Gardeners, urban gardening, pond management, and urban forestry and wildlife preservation. These efforts resulted in a reported 160,842 people being contacted among these three programs. A fourth area of emphasis was in Agricultural Awareness and Understanding, targeting both youth and adults. These four programs will be discussed in greater detail below and in the Key Themes section of this report.

Educating the general public on agricultural animal and crop issues is important if producers are to remain competitive and have their products accepted. Both adults and youth were introduced to the various aspects of environmental issues that are everyday challenges to the farmer and to the new emerging technologies or adaptive tools that are available to him as a means to improve his competitiveness. This past year field and campus staff, combined with help from our state and federal conservation partnering agencies, devoted 1,804 days to programs that exposed 116,195 adults and school aged youth to an awareness and understanding of agricultural issues.

Indiana is experiencing a rapid growth in diversification of crop and livestock production opportunities. Producers in Indiana have faced a multifaceted farming shift over the past decade, whereby small to mid-size farmers of traditional corn, soybeans, and swine

production have had to take off-farm employment, and large producers have had to diversify their cropping system in order to stabilize their economic situation. Many traditional agronomic crop and livestock producers are adding horticultural crops to their mix of crops and are contracting with food processors for an increasing acreage of Indiana farmlands. This is a new but rapidly increasing area of outreach for the state, and Purdue Extension is building a local and statewide agency network to address this demand for transitioning to alternative opportunities. Last year Purdue Extension spent 277 days and made 3,628 direct contacts with citizens of the state who were exploring the feasibility of alternative agricultural opportunities, which ranged from home-based businesses to organic crop and livestock production to direct marketing of produce.

Purdue Extension works closely with the extension programs in other states on issues of agricultural competitiveness. Many of the campus Extension staff have research appointments. They use these appointments to address the outreach needs of Indiana crop and livestock producers. Ongoing research and extension programs, in collaboration with research and extension staff in other states, are addressing the issue of on-farm quality assurance of value-added grains and livestock production as well as working on the proper and legal use of animal manure as crop nutrients. Several examples on this collaboration will be given in the Key Themes section of this report.

Purdue Extension feels that the accomplishments we are making in the issue areas identified under Goal One are positive and are meeting the intended objectives and goals that the stakeholders identified as needs for the state. Short-term outcomes of awareness and knowledge gained are being accomplished in our Agricultural Awareness programs, while we are noticing intermediate and long-term outcomes of adoption of practices and technology changes with the other identified issues. Great strides have been made at improving the competitiveness of the beef cattle and small diversified producers of Indiana through the efforts of Purdue Extension programs.

Resources

Approximately \$ 1,675,668.60 and 51 FTEs have been invested in Goal 1. This is a best estimate and these are not presented as auditable numbers.

Key Theme: Adding Value to New and Old Agricultural Products

Soybean Feeds for Aquatic Animals -- the sulfur amino acid link

Aquacultural production is expanding at a rapid rate and is in immediate need of high-quality protein feedstuffs. Soybean meal is a logical source of crude protein in diets fed to fish, yet it contains low concentrations of the essential amino acid methionine. Methionine interacts with several other nutrients and a thorough understanding of those interactions would allow the utilization of high levels of soybean meal in diets fed to fish and crustaceans. In the past year, we have been exploring the need for several of the interacting nutrients in the methionine catabolic pathway of fish, which can be supplied from the soybean seed. Both nutrients promoted higher growth in fish. We have also

been exploring which of the anti-nutritional factors in soybean meal is limiting use in diets fed to trout and salmon. Lectins have been identified as one of the contributors to reduced response.

Impact: When fish was removed meal from diets and soybean meal incorporated, several key nutrients for fish are removed. If we are to successfully make this transition, we need to know what nutrients to add to the diets for optimum production efficiency and health of the targeted animal. These results are impacting fish producers in Indiana and around the world. Further, we can now interact with soybean processors and alert them to the characteristics we are looking for in soybean meal destined for the aquaculture market. Aquaculture producers need soybean meal and the soybean farmers should benefit from a new, rapidly growing global aquaculture market. We have been able to incorporate soybean meal into fish and crustacean diets at levels as high as 45-50%, which will facilitate further rapid expansion in aquaculture production, and expansion of the soybean meal market.

Source of Funding: Smith-Lever, State

Scope of Impact: National

Key Theme: Agricultural Competitiveness

CystX Soybean Varieties Increase Financial Return to Farmers

Over 60,000,000 acres in the U.S. are infested with soybean cyst nematode (SCN), which is best managed by planting resistant varieties of soybeans. Researchers at Purdue and Indiana Crop Improvement Association (ICIA), with partial support from the Indiana Soybean Board (ISB), discovered and developed the PUSCN14 germ plasm, which has complete and broad-based resistance to SCN and can be incorporated into high-yielding soybean lines with no yield drag. Access Plant Technology licensed and is marketing the patented new technology to soybean development companies under their registered logo, CystX.

Impact: Farmer yield reports for CystX varieties are now available from several states with heavy SCN infestations, including Indiana, Illinois, Missouri, Arkansas, and Iowa. These farmers report production increases from 3 bu/A to 18 bu/A for CystX varieties as compared with the best SCN resistant varieties previously available. At a soybean price of \$5/bu, these yield increases equal \$15 - \$90/A. The number of seed companies that are commercializing CystX varieties will double from three to six in 2005. About 90% of the CystX varieties currently available are stacked with the RoundUp Ready gene that allows the soybean plants to be treated with this herbicide.

Source of Funding: Smith-Lever, Hatch, State

Scope of Impact: National

Evaluation of Conservation Tillage Options

Soil erosion and movement of soil into ditches and the watershed continues to be a local concern that results in significant ditch maintenance expense. Many producers have indicated that they would reduce or eliminate tillage if they could do so without negatively impacting yields. Very little local data is available that compares strip tillage to no-till and conventional till in corn and soybean production. The White County Educator along with the local SWCD, and commercial agricultural product companies coordinated the development of Conservation Tillage Test plots to be used to evaluate the following tillage/planting systems: for corn following corn and corn following soybean (no-till, conventional till, and strip till); for soybean following corn (no-till, conventional till, and stale seedbed). Various fertility and pest management applications were incorporated into the study. A Conservation Tillage Field Day was held in late June that attracted over 100 farmers and crop production specialists. Participants were able to view all plots and presented information on a variety of tillage, fertility, and pest management studies. A survey was used to evaluate the field day and yield data will be collected from the site this fall.

Impact: Survey results from the White County Conservation Tillage Field Day, indicated that 85% felt that the overall format of the Field Day was above average to outstanding. Results also showed that 64% of attendees felt that the 7 stops offered at the field day will result in significant economic impact for their farming operation or their farm advisor management procedures. An additional 28% felt the offerings would provide some economic impact to their farming operation. If additional field days were held, 85% of attendees would attend.

Source of Funding: Smith-Lever, State

Scope of Impact: IN, IL, MI

Key Theme: Agricultural Profitability

Tax Professionals Learn about Tax Changes from Purdue Income Tax School Program

Congress enacted the Jobs and Growth Tax Relief Reconciliation Act of 2003 which impacted individuals, families and businesses. This legislation accelerated a number of provisions of earlier enacted tax laws and changed the periods for which they are effective. These almost annual legislative changes, together with procedural changes, have added much greater complexity to the income and self-employment tax laws and regulations. Thus, it has become more difficult for individuals and businesses to comply adequately with the tax laws. Purdue Extension, in cooperation with Land Grant University Tax Education Foundation, Inc. (LGUTEF Inc.) prepared the 768 page "2003 National Income Tax Workbook." Purdue, with cooperation with the Internal Revenue Service and the Indiana Department of Revenue designed a program using the "National

Income Tax Workbook" to update tax professionals on the new law, regulations and procedures. In addition to information enabling taxpayers to comply with the law, educational materials were designed to help individuals understand and evaluate their tax management options. Two-day programs were held in 11 locations in Indiana. In addition, four-hour programs at three locations focused on agricultural tax issues. A two-hour program intended for producers was presented via distance educational delivery.

Impact: Purdue Extension, together with the Internal Revenue Service and the Indiana Department of Revenue taught nearly 1,150 tax professionals about tax law changes. These tax professionals prepare about 29,400 farm returns, 278,020 federal non-farm returns and 300,570 state tax returns in 2004. The three four-hour programs were attended by about 110 individuals filing about 100 farm returns each. Overall, this represents over one-half of the farm returns filed in Indiana. Nearly 80 percent of the respondents rate the programs as "very good" or "excellent."

Source of Funding: Smith-Lever, State

Scope of Impact: State, National

Workshop Targets Development of Managers for the Next Generation

As farms continue to grow in size, the management team also increases in size. In many cases, the management team becomes multi-generational as a daughter or son elects to join the family business. Adding an additional member to the management team requires careful planning. Research indicates that only 42% of small business owners develop a business plan. Of those using a plan, 69% say it is a major contributor to their success. As the farm operators that are members of the "baby boom" generation begin to retire, the importance of developing the next generation of management is increasing.

What you have done Purdue University agricultural economists conduct a Farming Together Workshop. This workshop provides information and work time to develop answers for many of issues involved with bringing a new manager into the farm business. The workshop provides an opportunity for the current managers to work with a daughter, son, or unrelated partner to develop a plan together for the future of the farming business. The workshop presents information on communications, financial management, the characteristics of various types of legal business structures, and explores answers to legal questions. The workshop challenges participants to 1) develop a plan for effective business communication, 2) create a shared vision for the future of the business, 3) determine if resources are adequate, 4) define the role of each management team member, and 5) identify the steps that will be the management succession plan.

Comments such as the following indicate the impact of the workshop.

Impact: Comments from the workshop include: "I have really enjoyed the workshop, especially since I do not typically take time to attend these types of things. However, this issue is of such importance, we could not pass up the opportunity to come. My father and I tend to be more "managers" than "visionaries," so it has been a valuable experience to learn how to "think outside of the box" and learn the importance of strategic long-term

planning. I would recommend this workshop to other farm families, and greatly appreciate the time and effort involved.” “This is one of the most useful conferences that I have attended. I plan to use this with our own farming business and will also use the information with my clients in the accounting business. I feel it gives us a lot of items to help us talk about and work through issues that arise through the transfer and later on during the operation of the business. I’m glad that you stressed the value of communication and gave us the opportunity to work through the information.”

Source of Funding: Smith-Lever, State

Scope of Impact: IN, IL, IA, OH

Key Theme: Animal Production Efficiency

Determining Non-Laying Hens

In the United States, there are nearly 300 million layer hens, the ones which produce table eggs. On average, approximately 216 million layers producing eggs (72%) or put another way, 28% which equals nearly 84 million layers did not produce an egg. Purdue research is focused on how to identify these “non-layers or low-producing hens”. A Purdue Extension Specialist has devised a non-invasive way via feed additives to correctly identify non-laying or low-producing hens. By correctly identifying these hens, producers could save money on feed cost, disposal of the birds, and improve the environment by directly reducing the amount of manure discharge when these birds are removed. In addition, there is now a technique to enhance yolk appearance in eggs. This may provide value to producers through niche markets.

Impact: Through our method of selection, producers can effectively reduce 1-5% of the non-layers in a layer flock, which in turn increases the overall profitability of a layer operation; that is, when the layers are removed, the direct cost of feed will be reduced proportionally and thus producers will realize a greater profit margin on the remaining birds as well as a reduction in manure discharge.

Source of Funding: Smith-Lever, State

Scope of Impact: National

Genetics of Pork Quality and Swine Lean Growth

Ractopamine (Paylean), a feed additive, increases lean growth and carcass lean percentage. The response to Paylean decreases with duration of feeding. Pigs outside the pork processors optimal carcass weight range are heavily discounted. For this reason, many pork processors sell 20-30 % of their fastest growing pigs prior to the start of Paylean feeding. The economic benefits of Paylean feeding can be increased if the duration of the response could be increased another one to two weeks. A research trial

was completed comparing a Paylean step-up program to a control treatment. The data was used to refine the lysine requirements for pigs fed the increased concentration of Paylean. The research results validated the model predictions of that lysine essential amino acid requirements are higher for Paylean fed pigs than control pigs and the lysine requirement does not drop as in the case of control pigs or pigs fed diets containing a constant dietary concentration of Paylean. The data indicated Paylean step-up programs can extend the duration of the Paylean response.

Impact: Currently, 50% of all market pigs (50 million) are being fed Paylean. Step-up programs can increase returns from \$0.80 to \$1.10 per pig over pigs fed constant levels of Paylean. Currently 20% of the producers using Paylean have switched to using a step-up program. The feeding of Paylean increases carcass lean growth and increases carcass lean mass by 7 to 10 percent improving pork processing efficiency. Pork producers need guidance in the optimal use of Paylean for their specific economic and marketing situation. The results of the stochastic pig growth model have been used to demonstrate how dietary lysine concentrations and marketing strategies change with the feed of Paylean.

Source of Funding: Smith-Lever, State

Scope of Impact: National

Key Theme: Biotechnology

Using the Genomic Analogy Model for Educators (GAME) for Teaching Biotechnology with High School Students

Research in biotechnology is rapidly advancing; every day new and exciting discoveries are made, but this new technology also brings with it many safety and ethical questions as well as the need for education. Many people feel that alternative teaching methods will help to increase students' understanding of difficult concepts in all aspects of schooling, including basic science, genetics, and biotechnology. The Genomic Analogy Model for Educators (GAME) is a teaching tool currently under development that uses simple analogies of easily understandable concepts to explain the technical and scientific aspects of modern genomics. It is made up of three different pieces: a CD Rom, a website and hands on laboratory exercises. Presently, GAME is made up of modules that focus on different topics. The first module is the Lego© lesson which focuses on DNA sequencing. Effectiveness of the first module, using Legos, of the GAME program was measured with high school students at several Indiana high schools. Students were also surveyed on their attitudes about biotechnology. The Lego© lesson was presented along with the accompanying laboratory exercise. It was followed with the use of the CD-Rom to reinforce that same lesson.

Impact: Research in biotechnology is rapidly advancing, and this new technology presents a need for new educational tools. Results from the evaluation of a new teaching

tool for biotechnology education, the GAME program, indicated that students participating in the Lego® lesson learned the biotechnology and genetics information as presented to them in the new tool. Students did approximately 3 points better (17%) on the posttest than they did on the pretest, demonstrating that there was an overall gain in genomics and biotechnology knowledge in the participants. Knowledge gained in genetics and biotechnology would allow students to have more information in order to understand basic genetic and biotechnology principles. This can translate to a better understanding of the scientific and technologic advancements made in these fields. Once students are able to understand these issues, they are more likely to be able to make concrete arguments, which can lead to more productive discussions and make informed decisions. Teachers in the participating classrooms noted that the Lego® lesson corresponded to the curricula in their classrooms, was easy to use, and was appropriate for high school students. In addition, teachers stated that the Lego® lesson gave their students a clearer understanding of genetics and the different concepts involved in genetics, as well as the impact of biotechnology in their daily lives.

Source of Funding: Smith-Lever, State

Scope of Impact: National

Food Biotechnology: Dreams from the fields

An April 2003 survey by the International Food Information Council (IFIC) found that only 36% of American consumers were aware that foods from biotech crops were sold in supermarkets. Current estimates are that 80% of all processed foods contain ingredients from genetically-modified plants. The lack of understanding by American consumers about food technology may result in the same lack of confidence that has been expressed by European consumers and grocers. Providing American consumers with science-based information will allow them to make informed decisions regarding the acceptability of these products. Department of Foods and Nutrition Cooperative Extension faculty have developed and delivered a training program to provide science-based information to physicians (3,800), registered dietitians and nutritionists (105), food technologists (323), k-12 science teachers (114), cooperative extension educators and specialists (184), producers and producer groups (597), college students (3,503), toxicologists (100), biotech industry personnel (29), miscellaneous professionals (40), food service workers (100) and consumers (1,103). Through a program entitled 'Food Biotechnology: Dreams from the fields', we have provided 79 presentations to over 10,000 participants in five countries (USA, Philippines, Mexico, Honduras, and Holland) with 1,353 of these participants completing an assessment survey including over 826 that completed pre- and post-training surveys to determine the outcome of training on participants knowledge and attitudes.

Impact: Consumers are more accepting of food biotechnology when provided with balanced, science-based information. Following training, 98-99% correctly indicated that fruits and vegetables contain chromosomes and that food from biotech crops are currently sold in grocery stores. Prior to training, only 31% felt that these crops were properly

regulated by federal agencies and only 25% were confident that bioengineering was unlikely to make an existing food allergenic. Following training, 83% felt that these crops were properly regulated and 63% believed that biotechnology was unlikely to add new allergens to our food supply. In addition, 90% of those trained would eat or serve genetically-modified foods to their family and 90% believed that they or their family would benefit from genetically-modified foods within the next 5-years. When provided sound, science-based information, participants are more accepting of this technology and the regulatory process.

Source of Funding: Smith-Lever, State

Scope of Impact: National

Key Theme: Bioterrorism

The Role of the Plant & Pest Diagnostic Lab in Countering Agricultural Bioterrorism

As a result of the 9-11 terrorist attacks on the World Trade Centers and The Pentagon, Congress created a new U.S. Department of Homeland Security. This, in turn, raised the level of concern for bioterrorism with plant pathogens directed at the U.S. Food and Agricultural System. One of the outcomes was an effort funded by the USDA-CSREES to develop a national plant disease diagnostic network (NPDN), whereby the land grant plant diagnostic laboratories are the backbone of the system. Each lab has been assigned to one of five possible regions: Western, Great Plains, North Central, Northeastern and Southern, with one clinic within each region having been designated as the Regional Center. The North Central Region includes Indiana, Illinois, Iowa, Ohio, Michigan, Missouri, Minnesota and Wisconsin. Purdue's Plant and Pest Diagnostic Lab (P&PDL) has been charged by the Cooperative State Research, Education, and Extension Service (CSREES) to function within the National Plant Diagnostic Network (NPDN), as a member of the North Central Plant Diagnostic Network (NCPDN), to work with fellow diagnostic labs at other land grant institutions to prepare against plant diseases and pests that might pose a threat to American agriculture. Homeland security funding for the NPDN has allowed the P&PDL to upgrade computer, camera and diagnostics equipment, as well as resource materials necessary for accurate plant and pest identification. The P&PDL is partnering with 28 other diagnostic clinics in the NCPDN, Great Plains Diagnostic Network (GPDN) and the Northeast Plant Diagnostic Network (NEPDN) in the adoption of a web-based database known as the Plant Diagnostic Information System (PDIS), currently under development at Kansas State University. The PDIS will allow for real-time diagnostic cooperation between clinics, management of sample tracking and reporting, access to a full-scale image library, secure advisory system, and data collection for the NAPIS database housed at Purdue University. The P&PDL was chosen to become one of three diagnostic labs in the North Central Region to offer PCR diagnostic confirmation of Soybean Rust, a devastating disease of soybeans not yet endemic in the continental United States, but expected to arrive via air-blown spores within the next several years. Part of the P&PDL's response to this challenge is to establish training

protocols for threat pathogens for the “first detectors”. First detectors typically include individuals such as county extension educators, growers, crop consultants and regulatory field inspectors.

Impact: Real-time communication between diagnostic labs via newly established wireless networks and the PDIS will allow diagnosticians to practice 'real-time' diagnosis and improve communication necessary for promoting awareness to potential acts of agricultural bioterrorism. Training programs in anticipation of the introduction of non-endemic plant diseases, such as soybean rust, improve the diagnostic capabilities of first detectors for more accurate plant pathogen detection and provide them with the proper protocols for sample submission to the P&PDL. Once trained, they will be on the look out for unusual or new diseases to submit to the diagnostic laboratories. This will greatly reduce the time between introduction, and detection, and subsequent remediation.

Source of Funding: Smith-Lever, State, DHS

Scope of Impact: National

Key Theme: Diversified/Alternative Agriculture

2004 Hoosier Agritourism Conference Series

Farmers are seeking additional income through alternative enterprises. Tourism brings six billion dollars to Indiana's economy each year. Many travelers find the opportunity to experience some aspect of life in the country both refreshing and educational. The potential of offering a quality rural experience to visitors to the state could be one way to generate additional income to the farm in a none "extractive" manner. Farmers interested in this form of alternative enterprise need additional information about the possibilities, liability, resources, partners and marketing. The education committee of the Indiana Agritourism Working Group developed the concept of a statewide series offered on a regional basis to provide information to those with an interest in agritourism in the state and to help facilitate the networking of interested farmers with agencies with whom they could partner. Five regional programs were developed and offered in the months of February and March 2004 around Indiana.

Impact: Between 300 and 350 participants attended the five workshop sites. Farmers, non-farm rural residents, tourism /convention and visitor bureau, local government and university staff attended each of these sessions and began the process of developing the connections necessary to develop this growing industry within the state. Over one half of those participants responding to a survey indicated that they felt Agritourism had many potential benefits and well over one third of those responding felt that educating the public about modern agriculture was one of those benefits. Ninety four percent felt that there would be benefit to marketing collectively and nearly half felt that there would be a benefit to working cooperatively with adjacent states in a regional effort. More than 2/3 of the participants felt they were better prepared to start an agritourism business; over

80% were more aware of potential liability and how to address it, were more aware of the importance of marketing their product and had become more familiar with others involved in agritourism in Indiana.

Source of Funding: Smith-Lever, State, DHS

Scope of Impact: IN, OH, KY

Outreach Efforts Aid Aquaculture Producers, Boost Budgets

Prospective aquaculture producers need the latest information on aquaculture production methods, loans and markets in order to enter the industry and be competitive. Sea Grant has a team of 11 Extension Educators in Illinois and Indiana who regularly attend workshops and training sessions in order to be prepared for the transfer of information to current and prospective producers. Through workshops and one-on-one conversations, the educators engaged in nearly 2,300 contacts during the past year, providing guidance to its aquaculture audience. Illinois-Indiana Sea Grant also works closely with the aquaculture associations in both states to conduct continuing education workshops at annual producer meetings. Sea Grant developed Getting Started in Freshwater Aquaculture, a CD-ROM and workbook that introduces biology, water quality, production systems, marketing, and business planning to new fish farmers and aquaculture instructors. Over 500 of these have been distributed to guide producers as they get their business off the ground. Through the years, Sea Grant has worked closely with policy makers, agencies, and the industry. This collaboration has led to the construction of a processing facility in Illinois, providing producers increased access to marketing outlets, the creation of the Illinois Fish Farmers Cooperative to help stabilize market prices, and the adoption of formal education and assistance in complying with Hazard Analysis at Critical Control Points (HACCP).

Impact: Sea Grant's Extension program has had a substantial impact on the aquaculture industry in Illinois and Indiana. Gross sales of aquaculture products grew from \$2 million in 1989 to \$6 million in 1998. Between the years 1999 and 2001, at least 10 producers have received loans totaling \$3 million as a result of improved business plans, prepared with the assistance of IISG's aquaculture outreach program.

Source of Funding: Smith-Lever, State, DOC/NOAA

Scope of Impact: IN, IL

Purdue University Wine Grape Team

The wine industry in Indiana is a dynamic industry constantly facing challenges. The Purdue Wine Grape Team works to keep the industry competitive. The Purdue Wine Grape Team has conducted research in viticulture and enology for the betterment of the industry. The marketing and promotion activities have significantly improved exposure

of the industry. A course is taught in Wine Appreciation to nearly 800 students each year, making it one of the most popular courses at the university.

Impact: Grape acreage and wine production has increased over 5-fold in Indiana while wine sales have increased at a rate of about 15% each year. The grape and wine Program at Purdue Extension has had a significant impact on the grape and wine industry in Indiana and surrounding states. Wine grape production in Indiana is expanding rapidly with an increase from 55 acres to about 300 acres over the past five years, with more acres planned, and many new growers. The wine industry has grown from 11 wineries in 1991 to 31 wineries in 2004 with several more in the planning stages. Wine production has increased 560% since the grape and wine program began in 1990, from 39,000 gallons to over 340,000 gallons in 2003, which has created a strong demand for grapes in the state. The Indiana wine industry is seen as one of the most dynamic both regionally and nationally, and the Indiana Wine Grape Council team has become a model that other states are emulating. Research and Extension programs to develop new technologies and disseminate information to the industry have been successful. Most new plantings are being made with cultivars identified in research plots as having the best potential for excellent wine quality. Fewer problems with weeds, diseases, and loss of production from cold injury have occurred, leading to more consistent production and improved fruit quality. The Indiana wine industry is developing a regional recognition for production of high quality, award-winning wines.

Source of Funding: Smith-Lever, State,

Scope of Impact: IN, IL, IA, KS, MI, MO, NE

Key Theme: Home Lawn and Gardening

Consumer Horticulture Online Resources

The demand for information and education regarding plants in the home, garden, and landscape far exceeds staff availability to respond one on one. Surveys conducted for the National Gardening Association indicate that in 2001, 80% of American households were engaged in one or more types of indoor and outdoor lawn and garden activities, with the highest participation being in the Midwest. Extrapolating this percentage to Indiana, over 1,800,000 households are engaged in home horticulture. There are 92 counties in Indiana with at least one Agriculture Educator, who in 1998 reported that 27% of their time is spent in the area of home horticulture. The Purdue Consumer Horticulture web site serves as an educational resource for citizens engaged in home horticulture as well as professionals and para-professionals who provide education and information to them. The site's home page has several categories to select from, including downloadable Extension bulletins, current and archived yard and garden news releases, calendar of gardening events, information on the Master Gardener program, and links to many related resources both at Purdue and beyond. The Purdue Consumer Horticulture web site offers a diverse array of information for the home horticulturist, and is accessible 24 hours/day, 7

days/week and even on holidays! This resource offers an efficient method of reaching the huge home horticulture audience to our mutual benefit.

Impact; The Purdue Consumer Horticulture Web site received 1,575,806 requests for pages from October 1, 2002 - September 30, 2003, a 30% increase over last year. The most popular resource was our extension bulletins, where 274,596 copies of over 100 bulletins were accessed, a 7% increase from last year. Next in popularity was the archive of gardening articles where 136,368 copies of 138 gardening articles were requested. There were 5455 visits to the home page for Plant ID, up 14% from last year. The flowers section was the most popular, with 28,565 visits, followed by woody ornamentals (23,458), fruits (8,040), and vegetables (4,273). The internet is a cost-effective method to deliver publications on demand at the consumer's convenience while avoiding printing and postage expenses. In addition, the level of email inquiries coming directly from the web site remains fairly low (approx 10 per week), indicating that we can provide much information and education without unduly increasing the demand for one-on-one help.

Source of Funding: Smith-Lever, State,

Scope of Impact: State Wide

Purdue Master Gardener Program: Helping Others Grow

The demand for gardening information by the general public far exceeds available staff time. Participants are recruited from the general public and participate in a local Master Gardener Training Program organized by CES ANR Educator with support from the State Coordinator. Participants undergo several weeks of training covering a range of topics including plant science and nutrition, soil science, pesticide safety, plant problem diagnosis, gardening and landscape maintenance techniques and yard waste management. Participants are required to pass a final comprehensive exam in order to remain active as Master Gardener Interns. Upon completion of required volunteer service, Interns become certified Purdue Master Gardeners, volunteers of Purdue University. Training of volunteers allows for the extension of research-based information to more people. This "ripple effect" is a beneficial way for Purdue University to meet some of the demands by the general public for yard and garden information.

Impact: In the past year, nearly 230 Master Gardeners and Interns staffed the Master Gardener informational booths at the Indiana Flower and Patio Show and the Indiana State Fair. The total volunteer service from these participants during these two events is estimated to be 690 hours, which is equivalent to \$11,4112.60 at \$16.54 per hour. An estimated 4825 yard and garden questions were addressed. This monetary value of Master Gardener volunteers is only for two events in the state. This value does not account for the vast number of hours that Master Gardeners volunteers locally within their counties.

Source of Funding: Smith-Lever, State,

Scope of Impact: State Wide

Key Theme: Organic Agriculture

Growing Organic Apples

More commercial apple growers are looking to grow organic apples. The Food Quality Protection Act is likely to severely reduce the availability of pesticides that are essential to conventional apple growers. Investigating organic methods may provide us with non-chemical alternatives that could be used by conventional growers. Also, there is a lot of interest in growing organic apples, but no one really knows how to do it well. Because of the many disease and insect pests that attack apples it is imperative to use disease and insect resistant apple varieties; unfortunately, there are no apple varieties that resist all diseases or all insects. Growers must therefore use a combination of plant resistance and environmentally friendly pesticides to produce organic apples. Research at Purdue University will provide the best of such combinations. This past year research and extension specialists continued to monitor for disease occurrence and severity on those cultivars within our apple scab resistant plots. Previous and current year data indicate that major disease problems for organically grown apples in Indiana will be apple scab, fire blight and sooty blotch and flyspeck. In addition, field trials using new 'organic' products for the control of apple scab and sooty blotch and flyspeck were incorporated into the ongoing organic fungicide program in which the fungicide, Sovran, is used as the standard. This research data will help determine how commercial Indiana apple growers can produce the highest quality organic apples with the least amount of pesticides.

Impact: Current research is making the goal of growing organic apples more attainable for Midwest growers. Research continues to look at new 'organic' products to control some of the more common insect and disease problems encountered in Indiana and other Midwestern states. By using a combination of minimal sprays along with safer 'organic' products we are closer to our goal of growing organic apples.

Source of Funding: Smith-Lever, State,

Scope of Impact: North Central States

Biocontrol Workshops, Web Site Reduce Pesticide Use in Home Gardens

Home gardens in Indiana and throughout the United States receive more pesticides per acre than many crops. Loss of pesticides registrations for many home garden uses has left homeowners in need of alternatives. Unfamiliarity with many non-pesticide tactics presents a major barrier to their use by the general public. Purdue professors in the Department of Entomology developed a Web site to help gardeners learn about biological control of insect pests in home gardens. Between 1998 and 2003, more than 700 Master Gardeners in Indiana, Illinois, Ohio and Kentucky were taught alternatives to the use of insecticides in workshops using the Web site. Gardeners also learned to conduct experiments in their backyards and were encouraged to participate in a summer research program that tested specific control methods. Workshop participants were surveyed

before the workshop, and in two successive growing seasons to measure changes in their pest management practices. The program was so popular among Master Gardeners that the professors developed a shortened course designed to teach the material in a three-hour session. This mini version has been given to over 200 individuals in seven workshops, including the 2003 International Master Gardener Conference.

Impact: In the last six years, more than 700 Master Gardeners in Indiana, Illinois, Ohio and Kentucky attended workshops that used the site. Extension educators in 20 states downloaded training materials. Follow-up surveys showed that more than 20 percent of workshop participants stopped applying insecticides, herbicides, and fungicides for up to two growing seasons. The Web site was also featured in HGTV.COM as a useful resource for finding alternatives to managing garden pests. Gardeners who voluntarily participated in biological control research more often adopted biological control practices. More than 30 percent of this group reduced or eliminated pesticide use in their gardens.

Source of Funding: Smith-Lever, State, NCR-IPM

Scope of Impact: National

Key Theme: Ornamental/Green Agriculture

Fungicide Sensitivity Profiles for Indiana Golf Courses

Dollar spot is a problem on every golf course in the state (actually the entire NE quarter of the country). Although the disease does not kill the grass plants, it results in a poor appearance, reduces playability and predisposes turf to contamination by weeds. The disease is active from May through October, and is aggravated by more intensive turf management practices. Because nearly half of the pesticide budget is used for dollar spot control, superintendents are interested in the sensitivity of dollar spot strains on their golf courses to common fungicides for disease control. The Purdue turf pathology group in the department of Botany and Plant Pathology conducts assays to determine the fungicide sensitivity of the dollar spot pathogen population on Indiana golf courses. The initial survey included isolates of the dollar spot fungus from seventeen courses. To date, more than 300 isolates have been collected representing 40 - 50 courses. Each participating golf course was provided a fungicide sensitivity profile which described expected disease control efficacies for three common fungicides.

Impact: With these fungicide sensitivity profiles, superintendents gain awareness of the dollar spot threat on their own golf courses and often change their management practices accordingly. As a result, they are likely to apply less fungicide while maintaining an attractive high quality playing surface. Benefits include reduced fungicide expenditures, less pesticide added to the environment, and a greater likelihood of applying the most appropriate fungicide to control disease. More than 75% of the respondents to a follow up survey indicated that the results of our work increased their awareness of fungicide

resistance issues. More than half of the respondents indicated that they will change their management practices based on this new information. More than 80% indicated that the information will help them develop improved long term strategies for resistance management.

Source of Funding: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Rangeland/Pasture Management

Heart of America Grazing Conference

Much of Southwest Indiana has Highly Erodible Land (HEL) acres. These HEL acres are best suited for forages. Southwest Indiana is also rated one of the top areas in Beef Cow/Calf production to consume the forages. These important HEL acres will not sustain constant cropping, so, forages are a natural crop to plant in these acres. Erosion is a very important practice on these HEL acres. Most HEL acres presently planted to forage crops are under-utilized. Thus, the production off of these HEL acres is reduced. Therefore, profit is reduced. Heart of America Grazing Conference was hosted by Indiana and Purdue Extension. The conference had attendees from 9 states. Participants learned about growing increased forages per acre and proper utilization of these forages through livestock. Attendee also learned about the connection between productive forages and productive livestock. This leads to increased profit per acre. The biggest expense for livestock operations is feed expense and if forages can provide cheaper feed input costs, then the producer has the opportunity to generate increased profits.

Impact: A majority of the participants indicated that their knowledge about grazing and grazing systems increased after attending the conference.

Of those responding to a survey, 98% indicated they felt very good (the highest rating available) or good that the time and cost necessary to participate in the conference was worth the educational experience. Most participants indicated that the attending the conference would enhance their understanding of basic forage utilization and help their operations operate at a higher profit level. The attendees learned about selecting proper animals, low stress handling, maximizing dry matter intake, economics of grazing, and extending the grazing season with forages. Participants also attended sessions dealing with Beef, Dairy, Horse, or Small Ruminants. The beef sessions focused on proper use of tall fescue and "Raising Beef and Making It Work!" The dairy sessions focused on "Genetics of Dairy Grazing" and increased profit potential through grazing dairy animals. The horse sessions addressed "Overworked Pastures Need Rest and TLC" and how to make an unproductive dry lot a productive pasture. Small ruminant sessions focused on pastures for goats and "Grazing Sheep for Profit".

Source of Funding: Smith-Lever, State

Scope of Impact: National

Key Theme: Urban Gardening

City Gardener Program Helps Inexperienced Gardeners

No comprehensive educational program addressed the needs of inexperienced urban gardeners. The local Extension board recognized this and suggested that action be taken. The City Gardener Program was developed when 94 percent of the respondents of a survey indicated they were interested in a beginning gardening class. The City Gardener Program was developed for new or inexperienced gardeners in urban areas. It was previously held as a series of evening meetings. A Purdue Horticulture Educator and Horticulture Specialist redeveloped the City Gardener Program to include “hands on” teaching in a local public garden on two Saturdays in August. The 12-hours of training included lecture and “hands on” learning at White River Gardens. The topics were chosen according to survey results and contacts with local gardeners. They included: How a Plant Grows, Soil & Fertilizers, Pests & Pest Management, Tree & Shrub Selection & Care, Weed Identification & Control, Lawn Care, Vegetable Gardening, Animal Damage Management, and Annual & Perennial Flowers. Each participant received a reference notebook containing outlines of each presentation and supporting publications for the \$30 registration fee. Pre and post tests and an evaluation survey were developed to help measure impact.

Impact: The new format of the City Gardener Program was a success. Because the class sessions were held on Saturday, participants received more “hands on” learning. Program evaluations indicated that 97 percent of the participants said the “hands on” outside activities were very important for them to learn. Out of 33 people who attended the 2004 City Gardener Program, 32 participants completed the program and took the final exam. The average score for the pretest was 48 percent and the average post test score was 82. This represents an average increase in knowledge of 41 percent. Results of the post test showed that 81 percent received a score of 70 or more. The evaluations also indicated that 100 percent of the participants felt they became a better gardener as a result of the program and would change a gardening practice as a result of completing the program.

Source of Funding: Smith-Lever, State, County

Scope of Impact: Marion County

Urban Gardening

Purdue University - Marion County Extension/Urban Gardens joined in a cooperative effort with partners throughout the city of Indianapolis to win a national contest called 'America in Bloom'. The organizations involved are committed to the importance of environment, beautification, tidiness, community involvement, heritage and urban forestry in all sectors throughout the city of Indianapolis. Entering a national contest provided the opportunity to showcase what Indianapolis has done and continues to do enhance the quality of life for the residents, environment and the future. The need to highlight Indianapolis' efforts was done by entering the national 'America in Bloom'

contest. The 'America in Bloom' contest is designed on the same criteria as the very successful Canadian program 'Communities in Bloom'. Both are friendly competitions designed to encourage involvement and co-ordinates action by citizens of all ages, municipal governments, local organizations and businesses. Specially trained judges travel across the country evaluating communities in the public, private and commercial sectors on 8 specific criteria: Floral, Landscape, Urban Forestry, Environment, Tidiness, Community Involvement, Turf & Groundcover and Heritage. The judges are required to also see 80% of the city during their 2 1/2 day stay. Our committee met twice a month for three months and mapped out a very extensive tour of Indianapolis that would meet the criteria of the contest. Some examples of what the judges saw are commercial parks that have developed green spaces and/or kept the historical component of their buildings, many parks, community gardens, historical landmarks, blighted neighborhoods that are being built back up, street cleaning initiations, city-wide recycling, outdoor classrooms at schools, innovative landfill operations, tree plantings, volunteer activities, watershed and flooding projects, and much more. They were met at many places by the groups involved to hear firsthand about the project.

Impact: Indianapolis won the 'America In Bloom' contest. In the process of preparing for the judging, a very detailed tour of the city was developed that highlights efforts to improve the health and quality of life for the citizens of Indianapolis. Purdue University - Marion County Extension/Urban Gardens had many projects included in the tour. These included 3 community gardens, outdoor classrooms at schools, and neighborhood beautification project that were established under our guidance. The national America In Bloom committee was so impressed with Indianapolis that we were asked to hold the annual America In Bloom conference this year. It was held in early October with record attendance. People attending the conference included mayors, city and county councilmen, city planners, and park managers and designers from around the country. The 3-day conference had educational sessions in the morning and tours of the city each afternoon. The Urban Garden projects included in the original tour were also included in these tours. One surprising and important outcome of the contest was the development of some very strong partnerships with other organizations in the city whose interests and intents are very similar to Purdue University - Marion County Extension/Urban Garden program. A better understanding of each organization and their goals has already been beneficial in the collaboration on other projects such as community beautification and tree plantings.

Source of Funding: Smith-Lever, State, County

Scope of Impact: Marion County

GOAL TWO. A SAFE AND SECURE FOOD AND FIBER SYSTEM.

To ensure an adequate food and fiber supply and food safety through improved science-based detection, surveillance, prevention, and education.

Overview

Food safety and quality education provided by Purdue Extension continues to focus on all stages of the food handling system—production, processing, distribution, preparation, and consumption. Consumers expect a safe and wholesome food supply. The maintenance of that safe and wholesome food supply requires constant education of those that produce food, those that process and distribute it, those who prepare food and, ultimately, all consumers. The emphasis that Purdue Extension puts on this important issue is reflected by the 1,394 days of effort reported on this topic by campus and field staff, and the 63,427 direct contacts made with educational programming.

Specific programmatic focus relates to the food service industry and to general consumers. Programs emphasized in the FY 2004 program year focused on food service-related industry. Programs include *Food Safety Day*, the National Restaurant Association program *ServSafe*, and the Purdue University Program *Essentials of Food Safety* and *SuperSafeMark*. These programs teach food safety sanitation to food service workers and provide the certification examination. Twenty-eight counties reported conducting the *ServSafe* program in 2004, of which three counties offered it in Spanish. Eight counties offered *SuperSafeMark*, four counties offered *Essentials of Food Safety*, and twelve counties offered *Food Safety Day*.

Purdue Extension food safety programs reach general consumers with research-based food safety basics. Curricula used encourage discussion, questions, participation, and involvement of the general public to help them learn basic concepts that can decrease the incidence of food-borne illness in this country. Food safety education is emphasized in both the Expanded Food and Nutrition Education Program and the Food Stamp Nutrition Education Program targeting low-income families. Other programs conducted in FY 2004 were *Professor Popcorn: Hooked on Health* and *The Mystery of the Poisoned Panther Picnic* that teach basic food safety concepts with games, music, and videotapes, and *Food Irradiation*.

Food Biotechnology: Dreams from the Fields provides balanced, science-based information and has helped consumers become more accepting of food biotechnology. Seventy-nine presentations have been delivered to over 10,000 participants in five countries, with 1,353 participants completing an assessment survey. This program is taught directly to both consumers and to professionals (high school teachers, dietitians, nurses, and staff of departments of health).

Resources

Approximately \$ 755,693.70 and 23 FTEs have been invested in Goal 2. This is a best estimate and these are not presented as auditable numbers.

Key Theme: Food Safety

Food Safety Day

“Food Safety Day” is a two-hour retail food safety program intended for retail food workers and managers. The project goal was to develop a curriculum that emphasized safe food handling practices that focus on the most significant food handling problems, including time and temperature abuse, cross contamination, poor personal hygiene, and sanitation. The program fulfills a need and has been developed into four learning modules: Understanding Foodborne Illness, Good Personal Hygiene, Preventing Cross Contamination, and Avoiding Temperature Abuse. The instructor kit that was developed contains hands-on demonstrations for each module packaged with 58 slides, an instructor’s and a student’s guide. After 30 trained instructors led the one-day event held in Indianapolis, the curriculum was distributed to each Extension and health department office in Indiana. Extension educators and health departments were then trained via a train-the-trainer program so training could be extended to the county level. The initial audience for this program is health department personnel and Extension educators in a train-the-trainer program. The ultimate audience for this program, delivered by trained trainers, is retail food managers and retail food workers. The curriculum is available in Spanish and English as a hard-copy curriculum (slides or color overhead transparencies) and is now available for download on the World Wide Web (<http://www.foodsci.purdue.edu/publications/foodsafetyday/>).

Impact: To date, over 32,000 people have been educated using this program since development in 1996. Pre- and post-test data indicates that participants have learned better ($p < 0.05$) food safety handling practices related to time and temperature control, good personal hygiene, and cross contamination control. The largest positive change ($p < 0.05$) has resulted in better personal hygiene practices. The program has grown from a statewide program to a national and international program. We know that “Food Safety Day” has been used in 19 other U.S. states and is used extensively in Central America and South America. Maryland has recently incorporated “Food Safety Day” as part of their mandatory retail food handler training requirements. This retail food safety curriculum provides an important training need for retail food workers and managers. The training has been shown to improve food handling practices and, in turn, should reduce the risk and likelihood of foodborne illness associated with retail food establishments.

Source of Funds: Smith-Lever, State

Scope of Impact: IN

Improving Food Safety and Sanitation Practices of Child Care Providers

Foodborne illness infects 3.5 million people a year with a cost of over \$6.9 billion. Children are a significant part of that cost. About one-third of all the cost of the

foodborne illnesses comes from children under 10 years of age. Infants and children under 10 are at the highest risk of becoming ill by some of the bacteria which cause foodborne illnesses. Children spend a significant time in child care settings. Child care workers prepare, handle, and serve food to the children. They must be aware of safe food handling practices to eliminate the risk of children becoming ill as a result of bacteria in food. Purdue Cooperative Extension partnered with Community Coordinated Child Care to present the program Food Safety and Sanitation in Child Care at the yearly child care provider's conference. Over 200 providers from six counties attended the training.

Impact: Based on the results of the pre- and post-tests, participants showed a significant increase in knowing what procedures will cause cross-contamination of foods. They also have a better understanding of the differences between disinfecting and sanitizing surfaces. And they have a better understanding of what are acceptable practices for serving children family-style meals. There are also several practices that the participants will begin doing as a result of attending the workshop. These include: 26 percent will begin cleaning and disinfecting garbage cans at least once a week; 21 percent will begin washing their hands at the start of the day; 16 percent will begin keeping leftover food separated from freshly-made food; and 16 percent will always reheat cooked leftovers to an inside temperature of 165° F before serving. Twenty percent of the participants identified three or more areas in which they will improve their current food safety practices. The 190 child care providers who attended the training "Food Safety and Sanitation in Child Care" taught by Purdue Cooperative Extension increased their knowledge of food safety issues and reported three or more areas in which they will improve their current food safety practices

Source of Funds: Smith-Lever, State

Scope of Impact: IN

Retail Food Manager's Certification Programs

One of the important keys to prevent foodborne illness is effective education and training for retail food establishment employees. Many states, including Indiana, have considered and implemented mandatory food safety training and/or certification examination programs. Indiana now requires at least one retail food manager from each retail food establishment be certified in retail food safety and pass a nationally recognized exam. Our focus is to prepare retail food managers for this requirement and teach sound food handling procedures. Three programs are offered in Indiana to address these needs. The "Essentials of Food Safety and Sanitation" and "SuperSafeMark" programs were each developed as nationally recognized curriculums and certification programs for retail food handlers. The "Essentials of Food Safety and Sanitation" program is intended mainly for supermarkets and foodservice, and the "SuperSafeMark" program has been customized for supermarket and convenience store operations. Each program is designed as an 8-hour or 16-hour program for retail food managers and is linked with a retail food certification exam developed with the National Registry of Food Safety Professionals. The targeted audience includes retail food managers and retail food workers. The

program is also offered to corporate trainers and academic trainers that serve the retail food industry. We also offer the National Restaurant's "ServSafe" program that is targeted for restaurants.

Impact: Within Indiana, the program is offered through the Retail Food Grocers Association, the Indiana Restaurant and Hospitality Association, and Purdue University. The Food Marketing Institute has endorsed "SuperSafeMark" as the food safety training program for the supermarket industry. The three leading U.S. supermarket chains (Kroger, Albertson's, and Safeway) have adopted the program to train and certify their employees. Indiana's largest supermarket chain, Marsh Supermarkets, has also adopted this program. Within Indiana, over 3,500 people are certified each year using one of these three programs. These figures are expected to rise significantly prior to January 2005 when the mandatory certification rule comes into effect. Nationally, the "Essentials of Food Safety and Sanitation" program ranks as the second most popular retail food safety program, and the "SuperSafeMark" program is the number-one ranked retail food safety program for supermarkets.

Source of Funds: Smith-Lever, State

Scope of Impact: IN, National

Key Theme: Food Quality

AnglingIndiana™

Fish is an important part of a healthy diet because it is a good source of protein, contains essential minerals and vitamins, and can be a good source of long-chain omega-3 fatty acids. Long-chain omega-3 fatty acids are important for brain and retinal development in the very young and may play a role in the prevention of cardiovascular disease later in life. Unfortunately, fish may also be a primary contributor to harmful chemicals in the diet. Therefore, it is important that populations that are most sensitive to harmful chemical contaminants make informed decisions when selecting fish to consume. The objective was to survey Indiana women of childbearing age participating in the Expanded Food and Nutrition Education Program (EFNEP) in their childbearing years to assess fish consumption practices and to determine the impact of a fish safety training program. Four hundred fifty-eight women, of which 36 percent were pregnant and six percent were nursing, between the ages of 10 and 49 were surveyed and then provided a short face-to-face presentation on fish safety by EFNEP staff. Following training, participants were again asked to complete a short survey. From survey responses, participants were divided into four groups based upon fish consumption habits. Three percent reported eating only recreationally caught fish in the past year. Forty-five percent reported eating only commercial fish in the past year. Seven percent reported eating both recreational and commercial fish in the past year. Forty-five percent reported that they had not eaten fish in the past year. Slightly more than two percent had taken a fish oil supplement in the past month. Sixteen percent ate fish that is moderately high in mercury (i.e., tuna steaks, shark, swordfish, and mackerel).

Impact: The “AnglingIndiana™” training program is intended to help pregnant and nursing women to make informed decisions regarding fish consumption. First, we hope to encourage women to eat fish. Our surveys results suggest that 58 percent of women from limited-resource families are not eating fish. Second, we hope women will consult the Indiana Fish Consumption Advisory before eating recreationally caught fish or serving it to their family. Third, we hope women will reduce their intake of commercial fish that has been shown to be high in mercury residues. If Hoosier women follow each of these steps, they will increase their intake of healthy fats and reduce their intake of environmental pollutants that may harm their health or the health of their babies. Prior to training, only 48 percent felt that pregnant or nursing women and children should eat fish; 18 percent indicated knowledge that omega-3 fatty acids in fish are nutritious for the unborn child or nursing infant; 48 percent knew that there are commercial fish species that should be avoided by sensitive populations; and 19 percent consulted the Indiana Fish Consumption Advisory before eating recreationally caught fish. Following training, 58 percent felt that pregnant or nursing women and children should eat fish; 66 percent indicated that omega-3 fatty acids in fish are nutritious for the unborn child or nursing infant; 58 percent knew that there are commercial fish species that should be avoided by sensitive populations; and 67 percent intend to consult the Indiana Fish Consumption Advisory before eating recreationally caught fish.

Source of Funds: Smith-Lever, IL-IN Sea Grant Program, State

Scope of Impact: IN

Pesticide Risk

Many citizens in Indiana are concerned about pesticides in their food and are unsure about the safety of the food supply. Information and education were needed in the areas of chemical food hazards and risk assessment and communication for all stages of food handling, from the farm to the plate. A videotaped report of the USDA and FDA findings of pesticide tests on food was needed. The Indiana Extension Homemakers Association provided the funds for a video leader lesson to be distributed to each Purdue county Extension office, with lessons to be taught by CFS educators to individuals/groups in their county. Evaluations were collected and summarized.

Impact: By viewing the food-safety educational video program, consumers improved their awareness of food-safety issues and were able to more effectively assess food-safety risks. Out of 132 evaluations, three percent of participants were male and 97 percent were female. Eighty-eight percent rated the “Pesticide Risk” program as helpful. Thirty-four percent reported that organic foods are no safer than foods not grown organically and have as many pesticides as other food. Twenty-four percent stated that they would wash their food more before eating.

Purdue Extension is helping consumers make more informed decisions about the safety of the food supply by taking the lessons to them in a convenient format. “Pesticide Risk”

was presented by Consumer and Family Sciences Extension educators by utilizing a 10-minute videotaped lesson with activities.

Source of Funds: Smith-Lever, Indiana Extension Homemakers Assoc.®, State

Scope of Impact: IN, National

GOAL THREE. A HEALTHY, WELL-NOURISHED POPULATION.

Through research and education on nutrition and development of more nutritious foods, enable people to make health-promoting choices.

Overview

The association between many chronic diseases and nutrition is becoming clearer. Careful nutritional choices can lead to decreased risks of certain cancers, coronary artery disease, diabetes, obesity, and osteoporosis. Nutrition education for adults and youth is essential to help form healthful dietary practices to support longer, healthier, and happier lives. Early educational interventions are critical, as it is easier to prevent the development of unhealthy eating and exercise habits than to change established habits. By increasing the knowledge base, especially of those who are educationally and economically at risk, healthy nutrition habits in children can be established early for higher quality of life. Purdue Extension emphasizes nutrition education across the state, devoting 4,154 days to nutrition education programming and making direct contact with 105,368 individuals.

The Dietary Guidelines for Americans continues to be the backbone of nutrition education in Indiana. Coupled with the Food Guide Pyramid and the Food Label, consumers can make informed dietary choices using basic nutrition information. Specific programs and settings vary throughout the state, but the Dietary Guidelines for Americans are included in all nutrition education programming.

Nutrition education for youth audiences focuses on building better food habits and maintaining healthy weight. The “Exploring the Food Pyramid with Professor Popcorn Hooked on Health” curriculum reaches elementary school children across Indiana in school classrooms and in after-school programs. The program helps children learn about nutrition in a fun and innovative way to help them make wise food choices.

The Expanded food and Nutrition Education Program (EFNEP) and the Family Nutrition Program (FNP) are two nutrition education programs specifically targeted at limited-resource families. Indiana has both these programs in counties across the state as indicated by need and program budget. Both programs address wise nutrition choices, careful meal planning, and sound food budgeting information for Food Stamp-eligible clients. This information assists limited-resource families to stretch their food resources, while still maintaining high-quality nutrition and a balanced diet.

Chronic disease is not the only health parameter affected by sound nutrition. Pregnancy outcome is affected by nutrition and lifestyle choices. The “Have a Healthy Baby” program continues to reach at-risk pregnant women across the state with information on adequate weight-gain expectations, lifestyle habits for best pregnancy outcome, and good nutrition information. In FY 2004, 889 at-risk pregnant women were reached with the “Have a Healthy Baby” program. Results of this program continue to show lower rates of low birthweight infants in women participating in the program compared to state averages.

Resources

Approximately \$ 1,511,387.40 and 46 FTEs have been invested in Goal 3. This is a best estimate and these are not presented as auditable numbers.

Key Theme: Human Nutrition

EFNEP Education Improves Quality of Life for Participants

Limited-resource families in both rural and urban settings require practical knowledge and skills to start them on the path to self-sufficiency. Changed food and nutrition-related skills are often the first step on this path. Collaborations and partnerships with local agencies strengthen this community effort.

In March 2004, the Expanded Food and Nutrition Education Program (EFNEP) celebrated its 35th anniversary of service to limited-resource audiences. EFNEP utilizes family nutrition advisors (trained paraprofessionals known as FNAs) to teach a series of food and nutrition topics that lead to behavior change to limited-resource families in their homes or community sites in 15 Indiana counties. Topics include food safety, meal planning, food resource management, selection and purchase of nutritious foods, and nutrition for pregnancy, lactation, and early childhood. Lessons often include a food preparation activity to reinforce the principles taught. EFNEP works closely with agencies that serve this audience, including WIC, Food Stamps, Step Ahead, Healthy Families, Healthy Start, Head Start, Maternal and Child Health, and other local agencies.

Impact: 2,150 families, including 3,217 children (over 6,811 persons) participated in EFNEP in 2003-2004; approximately 13,500 lessons were taught as part of a series. Eighty-eight percent improved their intake of nutritious foods. Eighty-six percent improved other nutrition practices such as reading nutrition labels and planning meals. Seventy-eight percent improved their food resource management skills such as using a shopping list. Fifty-five percent improved at least one food safety skill. Twelve percent improved their handwashing skills. Forty-three percent improved their use of thermometers to measure doneness of meat, an increase of eight percent. Twenty-six percent of pregnant women increased their physical activity. One thousand seven hundred seven youth, ages 6-14, participated, an increase of approximately 1,100 from the previous year. Four hundred seventy four volunteers assisted in the youth and adult program. Collaborations involved 32 WIC clinics and 15 food stamp offices. Six thousand ninety-four dollars (\$6,094) was contributed to EFNEP efforts by local agencies, a \$3,000 increase. In 2004, the EFNEP initiatives were the hiring of bilingual paraprofessionals in Lake and Marion counties. Other FNAs continue reaching the Hispanic/Latino population. In conjunction with Purdue's Department of Foods and Nutrition, a lesson focusing on physical activity titled "Healthy Life Lessons" is being piloted. The program for pregnant adolescents and limited resource mothers-to-be, "Have a Healthy Baby," continues to show healthier babies as result of participation. "Safe Food and You," which teaches about food safety habits especially during pregnancy to reduce risk of listeriosis, is included in the "Have a Healthy Baby" curriculum. Over 13, 240

pregnant adolescents and adults have participated during the 14-year course of the program. Eight hundred eighty-nine participants from 31 counties were involved in 2004. Funding from March of Dimes has provided "Have a Healthy Baby" video lessons and the upcoming Spanish version. "Exploring the Food Pyramid with Professor Popcorn" continues to be utilized nationally. In Indiana, 5,952 youth in 181 groups representing 31 counties participated. Improvement was reported related to food selection and food safety practices. The collaboration with March of Dimes to facilitate the Indiana Folic Acid Council continues. The March 2004 distance learning conference, Folic Acid through the Life Cycle was broadcast throughout the state. Two hundred forty-eight participants at 32 sites participated. Participant comments were as follows:

"Because of using my list and menu I spent \$30 less than I usually do." "My mom and I are trying to eat better and find ways to get vegetables in our diet." "All my kids ever wanted to drink was tea. I often stop and put something different in now." "I learned that although I might not have a house full of groceries, I can still make a healthy meal for my family using what I have." An FNA was explaining to a participant how proud she was of how this participant had been able to make using a grocery list part of her routine. The participant said, "No one has ever told me they were proud of me for anything before." An EFNEP participant has begun taking GED classes at the encouragement of her FNA.

Source of Funds: Smith-Lever 3(d), State

Scope of Impact: IN

Indiana Family Nutrition Program (FNP)

Nutrition and health status are major concerns for all Americans. Years of research reveal a link between poor nutrition, lifestyle habits, and many of the chronic diseases that lead to illness and death in our society. These issues have an even greater impact on low-income individuals and families who often lack the skills and resources to select and acquire nutritionally adequate food. In addition, many of these individuals lack health insurance and are thereby unable to seek medical care. USDA and Indiana Family and Social Services awarded funds to the Indiana Family Nutrition Program in the amount of \$1,372,428.00, with Purdue Cooperative Extension Service matching the funds with local and state dollars in support of nutrition education for food stamp program participants and potential participants. As a result of acquiring this funding, Purdue Cooperative Extension Service was able to provide nutrition education to current and potential food stamp populations in 55 Indiana counties in 2004. Individual and group educational programs are provided in home and community settings in the areas of basic nutrition, food safety, and food budgeting. The mission of FNP is to increase the ability of individuals and families with limited resources to utilize their food dollars and stamps appropriately and to provide a safe meal environment.

Impact: FNP assistants made direct contact with 68,154 individuals through home and group visits, and 332,146 indirect contacts through the use of informational brochures, newsletters, telephone calls, and recruitment efforts in 55 Indiana counties. There was a 23.9 percent increase of participants who regularly stayed within a budget by planning

menus and shopping skillfully, and a 24.4 percent increase in participants who saved money on food purchased for the month rather than running out of food and or money. There was a 34.5 percent increase of participants knowing how to use the Food Guide Pyramid to plan meals, and a 37.8 percent increase in the number of participants that knew proper serving sizes. There was a 25.2 percent increase in the number of participants that regularly ate five fruits and vegetables servings each day.

Source of Funds: USDA State Contract

Scope of Impact: IN

Exploring the Food Pyramid with Professor Popcorn

Youth establish lifelong food, nutrition, and physical activity habits during their early years. “Exploring the Food Pyramid with Professor Popcorn (Professor Popcorn)” is a curriculum for youth in grades 1-6. Originally written in 1993, it was extensively rewritten in 2002. Major concepts included in the curriculum have been linked to Indiana’s health and science education standards. Topics include: the Food Guide Pyramid, including servings and serving sizes; the Dietary Guidelines for Americans; the Fight Bac! Concepts of Clean, Separate, Cook and Chill; and finally, the importance of physical activity to health.

Extension staff continued training via distance education since 2002 and began teaching following that training. In some counties, teachers have been trained by Extension staff and together teach the program. Credit was obtained from the Indiana Professional Standards Board for teachers.

Impact: Extension staff taught and provided evaluation data for the “Professor Popcorn” program in 31 Indiana counties. Four counties taught the program to grades 1-2; 18 counties taught the program to grades 3-6; and nine counties taught to grades 1-6.

There were 5,952 youth in 181 groups who were taught the program; 4,844 youth in 135 groups in grades 3-6; and 1,108 youth in 46 groups in grades 1-2.

Youth in grades 3-6 reported the following related to behavior change:

- Eighty-eight percent reported that they sometimes or almost always practiced one or more healthy food selection habits, an increase of eight percent.
- Ninety-four percent reported that they sometimes or almost always practiced one or more food safety habits. An eight-percent improvement was reported.
- Ninety-six percent reported that they sometimes or almost always practiced healthy physical activity habits, an increase of two percent.

Youth in grades 3-6 reported the following related to knowledge:

- Ninety-four percent reported knowledge of healthy food choices and food preparation, an increase of two percent.
- Ninety-one percent reported knowledge of safe food handling. A 19 percent improvement was reported.

- Ninety-eight percent reported knowledge of the relationship of physical activity to health, an increase of two percent.

Youth in grades 1-2 reported the following related to knowledge:

- Ninety-nine percent reported knowledge of one or more nutrition, food choices and/or food preparation facts. An eight-percent improvement was reported.
- Eighty-eight percent reported knowledge of safe food handling, an increase of four percent.

Source of Funds: USDA EFNEP

Scope of Impact: IN

Fish Made Easy

The American Heart Association recommends eating fish twice a week for heart health. Currently, people in Indiana eat little fish. The national average is 2-3 meals of fish per month. When they do eat fish, 60 percent of the fish eaten is eaten in restaurants. There is a need for individuals to learn more about the health benefits of fish, how to prepare fish and prepare it safely, and to eat more fish. A hands-on training was attended where participants learned about the fishing industry and how to prepare fish. The "Fish Made Easy" program was developed consisting of a PowerPoint presentation on the health benefits of eating fish and also a demonstration of how to cook fish confidently and safely. The "Fish Made Easy" program was presented at the Purdue Home and Family Conference, reaching 45 women. The class was presented at the foods labs at Purdue. It was based on the hands-on experiences in the training "Seafood Sense: Fisheries Technologies for Foods Educators." A PowerPoint presentation was given and a team demonstrated the cooking of four dishes of fish using four different methods of preparation. Local county presentations were also given. A survey was conducted to see if participants intend to change behavior toward fish.

Impact: Returned survey cards from the Conference session all noted that they planned to increase fish consumption in the future. Eight reported eating fish once a month currently; seven of those plan to eat fish once a week after taking the class, and one plans to eat fish twice a week after taking the class. Two reported eating fish currently once every six months; one of those plans to eat fish once a month after taking the class. Eleven reported that they currently eat fish once a week; eight of these plan to double fish consumption by eating fish twice a week after taking the class. Before the program, 10 reported they thought fish took too long to prepare and nine reported that they didn't realize that fish could play such an important part in their overall health.

Source of Funds: Smith-Lever, State

Scope of Impact: IN

Dealing with Diabetes

With an aging population and a rapid increase in obesity and sedentary lifestyles, the disease of diabetes has become a major health concern in Indiana, and the rate of this disease is expected to rise over the coming years. With an increase in diabetes will come an increase in heart disease, stroke, blindness and amputations. Over 5,000 people die in Indiana each year from complications due to diabetes. A program to educate the public on the concerns about diabetes was promoted. The program focuses on what happens with diabetes, how to tell if you are diabetic, and what you can do to prevent the onset of diabetes or delay the complications. The target audience was the general adult population. The program will be used to raise interest and awareness of a more comprehensive diabetes program that will be targeted starting in 2005 called "Dining with Diabetes."

Impact: The program was given 36 times in 26 counties by eight county Extension educators and 11 volunteers from October 2003 through June 2004. A total of 599 people attended the programs and 513 completed both the pre- and post-questionnaire. Twenty-nine of the programs were conducted with Extension Homemaker clubs (387 of the participants) and seven were given to other groups (126 of the participants). Of the 513 who completed the questionnaire, 257 (50 percent) did not have diabetes, 91 (18 percent) did not have diabetes but were caring and/or cooking for someone who did, and 165 (32 percent) had diabetes. Participants increased their knowledge score on five questions, from 10.4 (74 percent) out of 14 correct to 11.9 (85 percent) out of 14 correct from the pre- to the post-questionnaire. This increase in knowledge score was statistically significant. The increase in knowledge was seen for those with and without diabetes, although there was no difference in the change in knowledge scores between participants who had or did not have diabetes. After the program, most participants listed at least one behavior they were motivated to change in order to help control or prevent diabetes. For those who did not have diabetes; 59 percent planned to "encourage more physical activity with the person who has diabetes"; 69 percent planned to "prepare more low-fat meals that are higher in fruits and vegetables and whole grains"; and 61 percent planned to "encourage more regular medical doctor check-ups to monitor for signs of complications." For those who had diabetes; 84 percent planned to "become more physically active most days"; 81 percent planned to "increase the number of servings of fruits and vegetables and whole grains in my diet"; 79 percent planned to "focus more on getting my weight within a range that is healthy for me"; 67% percent plan to "more carefully check my blood glucose level as often as my medical doctor or diabetes educator recommends"; 78 percent plan to "work harder on maintaining normal blood glucose"; and 68 percent plan to "check myself more often and ask my medical doctor to check for signs of complications from diabetes." Of the 348 participants who were not diabetics, 223 of them selected two or more of three behavior changes, while 136 of 165 who were diabetics selected three or more of six behavior changes. After the program, most participants said they planned to change at least one behavior to prevent the onset of diabetes or help keep it under control.

Source of Funds: Smith-Lever, State
Scope of Impact: IN

Key Theme: Birthweight

Have a Healthy Baby

Low birthweight (LBW) and short gestational age are the two most important risk factors for infant health and survival. 7.6 percent of Indiana babies are born at low birthweight (2002). Ten percent of infants born to mothers age 10 to 17 were born LBW. 12.9 percent of African-American infants were born at LBW. Twenty-eight percent of LBW births are associated with maternal smoking. In Indiana, 19.1 percent of the mothers smoked during their pregnancies. LBW babies are 64 percent more likely to attend special education classes than normal birthweight babies. LBW accounts for 10 percent of all health care costs for children. The lifetime medical cost of caring for a premature baby is conservatively projected to be \$500,000 per case. More than 60 percent of private-sector preterm births and LBW cases are preventable.

Pregnant teens and adults in homes, schools, community centers, and WIC clinics participated in the “Have a Healthy Baby” program. This prenatal nutrition education program consists of six lessons emphasizing nutrition and lifestyle choices—smoking, drinking, and drugs. It is a research-based curriculum taught by trained, caring professionals. It is a highly visual, interactive, and complete curriculum, including: “Ten Un Bebe Sano” (for the Latino community), “Safe Food and You” (food safety during pregnancy), video lessons for use in physicians’ offices and clinics, and a Spanish version of the video lessons.

Impact: Thirty-one counties provided the program, teaching 889 pregnant adolescents and at-risk adults. Data was obtained on 732 live births. The incidence of low birthweight was significantly less for African-Americans compared to Indiana statistics (7.6 vs. 12.9). Sixty-eight percent of smokers report decreased tobacco use. Fifty percent achieved appropriate weight gain. Fifty percent of participants initiated breast-feeding. Decreased neonatal mortality—four deaths were reported—along with decreased days of hospitalization with subsequent savings; decreased long-term care costs due to healthier babies; significant increase in both nutrition knowledge and improvement in intake of healthy foods.

Since program initiation, over 13,240 pregnant adolescents and at-risk adults were taught; fewer low birthweight infants, decreased neonatal mortality, and decreased days of neonatal hospitalization were reported. There was significant increase in nutrition knowledge and improvement was shown with the intake of healthy foods. WIC participation after birth showed a significant increase.

Participant comments about the changes made were as follows:

“I use the Food Guide Pyramid and watch what I eat and drink. I also look at drink labels in the store. I stopped smoking—smoke-free home.”

Seventeen-year-old in eastern Indiana—“Eat healthier, stop smoking, cutting down on a few bad habits. Love to exercise more.

Sixteen-year-old in eastern Indiana—“I use a meat thermometer to measure doneness and I cook deli meats before I eat them.”

Thirty-four year old in eastern Indiana—“Definitely choosing to breastfeed, knowing how important it is; I try staying away from junk food more often because I know it has no nutritional value.”

Seventeen-year-old in northeast Indiana—“I have decided to breastfeed instead of bottle feed because there are a lot of advantages to breast feeding.”

We continue to partner with WIC, March of Dimes, Healthy Families, and the Division of Family and Children.

Source of Federal Funds: USDA, March of Dimes, State

Scope of Program: IN

Key Theme: Human Health

Caregiving in the Heartland

Caregiving has become an increasingly important issue, especially given the overall aging of our population. The stresses on caregivers are often compounded in rural areas by such factors as geographic isolation, lack of transportation for people with disabilities, and limited access to social services. In 1998 Breaking New Ground (BNG) secured funding from the Indiana State Department of Health (ISDH) to conduct a workshop for caregivers based on the resource kit. In 1999, funding was again acquired from ISDH to plan a series of caregiver workshops to be held at various sites around Indiana. These “Caregiving in the Heartland” workshops grew from two in 2000, to three in 2001, to four in 2002 and 2003. The thrust of “Caregiving in the Heartland” shifted somewhat in 2004. Instead of multiple regional workshops, a single train-the-trainer workshop was conducted for professionals and volunteers working with caregivers. Sessions focused on equipping professionals to serve as resource specialists for caregivers and conduct caregiver workshops in their own communities. As part of the 2004 caregiving outreach effort, BNG also developed www.ruralcare.info, a website for rural caregivers. The site includes a variety of resources, including electronic versions of BNG’s “To Everything There is a Season” materials, and numerous links to other organizations that can benefit caregivers.

Impact: Approximately 40 professionals were trained in the train-the-trainer workshop. In regard to evaluation, on a scale from one to 10 with 10 being the highest, participants rated the overall effectiveness of the entire workshop 8.7.

Some of the comments included on the evaluations included:

“Great Conference. Train-the-trainer idea is good.”

“Good—no—great workshop. Would like to stay involved. We have linked to your web site from ours at generationsproject.org.”

“Very informative.”

“Enjoyed opportunity to “network” as well as the updated info that I gathered. Lots to think about and “act on.” A good workshop!”

All participants received resources for conducting local caregiving workshops and were encouraged to do so. More than 50 organizations have participated in planning or sponsoring the workshops over the years. The networking and collaborative relationships developed through the workshop planning process have been some of the most positive outcomes of the effort. Some of the main collaborators have included the state's Centers for Independent Living, the Arthritis Foundation, and regional Area Agencies on Aging. In addition, representatives from 10 of Purdue Extension's county offices have participated in the planning process since 1999. Breaking New Ground also received a Purdue University Cooperative Extension Service Association Team Award for "Caregiving in the Heartland 2004."

Source of Funds: Smith-Lever, State

Scope of Impact: IN

Enhancing the Health and Well-Being of Plain Communities

Old Order Anabaptists, such as the Amish, are a rapidly growing, largely agricultural population. However, few consolidated efforts have been identified that are designed to train Extension personnel and other professionals in working with this population. The Purdue Agricultural Safety and Health Program (PUSASP) led a team of Extension specialists and other professionals from six different states in planning and conducting the Enhancing the Health and Well-Being of Plain Communities conference in Elizabethtown, Pennsylvania on June 2-4, 2004. The main purposes of the conference included:

- To share recent research findings and demonstrated strategies concerning the well-being of Plain Communities.
- To provide a forum to present recent findings associated with unintentional injuries within Plain Communities.
- To enable service providers working in Plain Communities to network and share resources and effective intervention strategies.
- To identify future education, research, and outreach needs concerning the well-being of Plain Communities.

The main topic areas addressed at the conference were:

- Agriculture and natural resources
- Community relations and public policy
- Food and water safety
- Medical, health, safety, and human services.

Impact: Approximately 125 participants attended the conference. In order to help gauge the impact of the event, attendees were asked to complete an evaluation form at the end of the conference. Ninety-six percent of respondents indicated that the conference met their expectations, and 88 percent indicated that they would attend a follow-up conference. In regard to the overall quality of the conference, participants rated it 4.6 on a

scale of 5.0. In regard what the attendees liked best about the conference, some responses included:

- The opportunity to share with other professionals who serve Amish communities.
- Listening to the philosophy of life, work, play, etc. of Amish culture by members of Amish community.
- Learning what others are doing (successfully) in Plain Communities.
- The insights into this community; I learned a lot I didn't realize. Meeting and talking to Amish and Mennonite on the tours was extremely interesting.
- Learning more about the culture of the Plain Communities and how it relates to their values toward health and safety.
- The variety of information and insight into the customs and practices of the Amish community.
- The presence of Amish and Mennonite people was what I liked best. We were able to ask them questions, and they were very open/receptive to us.

Source of Funds: Smith-Lever, State

Scope of Impact: IN, National, International

Key Theme: Sustainable Agriculture

Food Biotechnology: Dreams from the Fields

The Department of Foods and Nutrition Cooperative Extension faculty have developed and delivered a training program to provide science-based information to physicians (3,800), registered dietitians and nutritionists (105), food technologists (323), k-12 science teachers (114), Cooperative Extension educators and specialists (184), producers and producer groups (597), college students (3,503), toxicologists (100), biotech industry personnel (29), miscellaneous professionals (40), food service workers (100), and consumers (1,103). Through a program titled "Food Biotechnology: Dreams from the Fields," we have provided 79 presentations to over 10,000 participants in five countries (USA, Philippines, Mexico, Honduras, and Holland), with 1,353 of these participants completing an assessment survey, including over 826 that completed pre- and post-training surveys to determine the outcome of training on participants' knowledge and attitudes.

Impact: Consumers are more accepting of food biotechnology when provided with balanced, science-based information. Following training, 98-99 percent correctly indicated that fruits and vegetables contain chromosomes, and foods from biotech crops are currently sold in grocery stores. Prior to training, only 31 percent felt that these crops were properly regulated by federal agencies and only 25 percent were confident that bioengineering was unlikely to make an existing food allergenic. Following training, 83 percent felt that these crops were properly regulated and 63 percent believed that biotechnology was unlikely to add new allergens to our food supply. In addition, 90 percent of those trained would eat or serve genetically-modified foods to their family and

90 percent believed that they or their family would benefit from genetically-modified foods within the next five years. It is apparent from these results that when provided sound, science-based information, participants are more accepting of this technology and the regulatory process.

Source of Funds: Smith-Lever, State

Scope of Impact: IN, National, International

GOAL FOUR. GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT.

Enhance the quality of the environment through better understanding of and building on agriculture and forestry's complex links with soil, water, air, and biotic resources.

Overview

The conversion of the Purdue University's College of Agriculture SAM reporting system to new software along with the transfer of the system from the College of Agriculture's server to the University-wide computer server caused a number of programmatic glitches and downtime during the period when staff were inputting their yearly accomplishment and contact reports. In all likelihood this has resulted in the under-reporting of 2003-04 days worked and contacts. While we feel that the days worked and contacts made by Issue Area and Goal are within the expected realm, they are probably lower than the true count.

While manure management and soil erosion, with their related water quality issues, are of primary concern to the agriculture and forest producers, residential waste and water pollution are the issues that most affect the non-farming population of Indiana. Purdue Extension has focused its research and educational outreach resources to address the issues that affect both the farming and non-farming citizens of Indiana. The outcomes of these efforts have resulted in an increased awareness of these environmental issues, and through a combination of extension and research, significant progress is being made with educational programs.

Purdue Extension provides education and outreach programs that allow the public to reach sound judgments regarding the use of natural resources. The quality of air, soil, and water resources is critical to the overall well being of the entire ecosystem of the state. Farmers, homeowners, public officials, and all citizens need to be aware that many of their decisions and activities affect the quality of the environment and the natural resources they use. Purdue Extension is developing and delivering educational information that provides all Indiana citizens the opportunity to analyze and adopt useful emerging technologies, which will maintain family farms, protect the waters of the state, and provide an acceptable wildlife habitat for future generations. A large part of Purdue Extension's efforts is to make farmers and the general public aware of the issues and consequences, from lack of action, to the land and the environment. During FY 2004, Purdue Extension devoted to environmental stewardship issues 1,161 contact days and made 43,945 direct contacts.

Purdue Extension County Educators have worked with county officials to address land use issues when planning the growth and development of Indiana counties. These efforts not only involve training county officials in planning and zoning for residential and industrial growth, but also involved training them on how this growth impacts the natural resources of the area and region. Planning with POWER (Protecting Our Water and Environmental Resources) is a program that introduces county officials to the need for protecting critical natural resources from encroachment by development pressures, and

teams the planning and zoning officials with conservation agencies that provide technical support on natural resource planning and strategies to protect these resources from being destroyed by development of the lands. In SY 2004, Purdue Extension spent 742 contact days on Land Use issues, making 13,636 direct contacts.

Purdue Extension is in the forefront of environmental educational needs to address the issues facing the agricultural community of the state. While we have initiated several new programs and experienced some short-term impacts of knowledge gained and human behavioral change, we have also accomplished some long-term goals and are noticing medium and long-term impacts of implementing new environmentally sound practices that will lead to a cleaner environment. Several examples of the results of these efforts are given below in the key themes section.

Key Theme: Forest Crops

Facilitating Hardwood Forest Tree Plantation Establishment Success with New Fertilizer Technology

Hardwood forest tree plantations often grow slowly and sometimes fail to become established after planting. This has been traditionally attributed to competition from weeds and browse pressure. It is determined that about 45% of trees planted die within the first five years of planting. A treatment to improve initial seedling growth will facilitate plantation establishment. Purdue University examined the use of new controlled-release fertilizer technology to improve plantation establishment success of three hardwood species in Indiana.

Impact: The research found that a treatment with controlled-release fertilizer technology increased height growth by 52% and diameter growth by 37% compared to unfertilized trees during the first growing season. This technology has been extended out to farmers and foresters in Indiana through extension and research presentations. The technique is being adopted as a means to improve initial growth and facilitate plantation establishment.

Source of Funding: Smith-Lever, Hatch, State

Scope of Impact: National

Key Theme: Forestry Resource Management

Timber Tax Strategies for Landowners

The US Internal Revenue Code is extremely complicated, especially as applied to landowners growing timber as an investment or business. Ready access to basic information and interpretations of the statutory, regulatory, and case law is needed for

landowners to make informed decisions to maximize the contribution of their lands to their families and society. A website was created, the National Timber Tax Website (NTTW), www.timbertax.org, to provide easy access to basic information and strategies. In addition, magazine articles are published, and a USDA Agriculture Handbook is kept current.

Impact: The website averages over 165,000 sessions per year, and over 5 million hits (individual pages accessed). Responses are provided to approximately 1,200 questions submitted through the website. The site is also used by policy makers to review the laws applicable to the taxation of timber and timberland by states.

Source of Funding: Smith-Lever, Hatch, State, USDA-FS

Scope of Impact: National

Key Theme: Integrated Pest Management

Protecting Indiana's Ash Trees from Emerald Ash Borer

Emerald ash borer (EAB), a new exotic pest that could eliminate billions of native ash trees from North America, first breached Indiana state lines in Spring 2004. Since its discovery in 2002 in Detroit, EAB has killed over 8 million ash trees, prompting the governor of Michigan to request a Federal State of Emergency to deal with the numerous hazards posed by standing dead trees. The National Science Panel on EAB recommends destroying all ash trees within a half mile of any infected tree found. To stop the pest, the public must understand and actively participate in detection and eradication of EAB in Indiana. In the summer of 2003, with input from Indiana Department of Natural Resources and USDA APHIS, Purdue Extension launched a campaign to educate Indiana citizens about EAB by developing a Web site, printed materials, and slide presentations to enhance communication to groups. Meetings were held with potentially affected industries (Landscape and Nursery, Arborists, Foresters) to raise EAB awareness and to receive input. Extension educators received all available literature, and then passed this information on to local media and affected community groups. On April 19, 2004, after hearing about emerald ash borer finds in nearby Michigan campgrounds, the Extension Educator in Steuben County contacted Jellystone Park Campground in Jamestown to look for beetles. During his visit to the site he collected the first live emerald ash borer found in the state and reported it to the DNR. Additional EAB populations were found in Lagrange County in May of 2004. The Indiana DNR met with the landowner whose cooperation was instrumental to eradication efforts in May of 2004.

Impact: Public information efforts yielded detection of EAB in two sites in Steuben and LaGrange counties. Local Extension Educators in infested areas facilitated the kind of cooperation that was needed for the Indiana DNR to effectively carry out intensive survey and eradication efforts. Excellent cooperation between, Federal, State and local agencies allowed the production of an educational video on EAB to air this fall on some

PBS Stations. Implementation of a plan to salvage timber from ash slated for destruction has saved landowners several hundred thousand dollars by allowing them to process felled trees for lumber and firewood. Owners of local timber were spared several hundred thousand dollars in losses from the planned destruction of over 20,000 ash trees in the area. This response will be a model for further cooperation during future detection and eradication efforts of EAB and other exotic forest pests.

Source of Funding: Smith-Lever, State

Scope of Impact: IN, MI, OH

2004 Crop Management Workshops

The Crop Management Workshops effectively reach a targeted audience of agribusiness personnel, "pest managers," that make significant pesticide input decisions on Indiana's farms. Nearly 100% of the Pest Managers participating in a series of all day winter meetings, Crop Management Workshops, coordinated by the Purdue Pest Management Program, indicated by written evaluation that their pesticide decision making abilities were improved. The goals of the Crop Management Workshops are to educate Pest Managers on economical and environmental pest (identification, biology, damage, sampling, and thresholds) and pesticide (chemistry, application, regulation, calibration, safety) management. Participants' improved knowledge is then multiplied to positively influence producer's pesticide usage and safety on farms throughout Indiana. The Purdue Pest Management Program coordinates a series of all day winter meetings, Crop Management Workshops, held at five locations throughout Indiana. Extension Specialists representing the Department of Botany and Plant Pathology, the Department Entomology from Purdue University and the Office of the Indiana State Chemist present in-depth information on pest management, pesticide regulations, pesticide safety, pesticide application equipment and calibration, and more.

Impact: The Crop Management Workshops effectively reach a targeted audience of 874 agribusiness personnel, "pest managers," that make significant pesticide input decisions on Indiana's farms. Participants highly rated the educational value of the meetings as the following evaluation values indicate: 96% of the participants indicated that the Crop Management Workshop improved their pest management decision making ability and 94% indicated that the Crop Management Workshop was worth their time and expense to attend. In multiplying our efforts, nearly half of the participants indicated that they would share the educational materials with colleagues and/or customers.

Source of Funding: Smith-Lever, State

Scope of Impact: IN, IL, OH

Key Theme: Land Use

Conservation Easements Seminar

Conservation easements are a relatively new tool in the land use area. Several organizations are receiving these easements statewide. Tax preparers, attorneys, landowners and representatives of these organizations need to be aware of the tax and legal consequences of these easements. A program on conservation easements was prepared by Purdue specialists and presented to landowners, accountants, attorneys, and those interested in conservation easements. This program was advertised statewide and credits for (continuing education for attorney and Certified Public Accountants licenses were obtained. The program featured presentations on the legal overview of conservation easements, their use in Indiana, and tax treatment of easements under Federal and Indiana codes

Impact: Program participants were surveyed approximately two months after the program. One hundred percent of the participants indicated they increased their knowledge and awareness of conservation easements, and that they received names of people to contact from the seminar. Over 90% said the resource materials given to participants would be useful to them and nearly 80% indicated they got answers to the questions. Not quite 40% shared they received from the seminar ideas to try immediately. From the seminar, participants were able to understand better the vastness of groups involved in conservation easement administration, the options landowners have, and who controls conservation easement property.

Comments by the participants on how this workshop will help them in their work were: "I represent an organization that may acquire conservation easement in the near future, and it is good to know more about Indiana enabling legislation and suggested conservation easements provisions."

"Able to advise landowners of options and contacts should they want to develop easement."

"I better understand why clients should (or should not) use such easements."

"I now know 99.99% more about conservation easements than I did prior."

"I am a tax accountant specializing in farms. Thank goodness for your workshop!!"

"I plan to incorporate a conservation easement on a large parcel of river front farmland in the area so this will help me execute this plan."

Source of Funding: Smith-Lever, State

Scope of Impact: Fulton County, IN

Indiana Counties Plan to Protect Natural Resources

Indiana ranks 38th in the nation in land area, but ranks second in prime farmland. However, each year over 100,000 acres of agricultural land are being converted to development. As communities grow, local officials generally focus on the economic impacts of growth and pay little attention to its effects on natural resources. Seeking ways

to balance these concerns, some communities have received assistance from Planning with POWER (Protecting Our Water and Environmental Resources), a statewide program designed to help decision-makers and citizens protect water and other natural resources while allowing for compatible economic growth. Funded by IISG and Purdue University Extension Service, Planning with POWER provides the critical link between a community's land-use planning and its watershed and natural resource plans. A Purdue University agricultural economist created a model for assessing the fiscal impact of land use decisions to a county's bottom line. Plus, scientists from many disciplines now meet weekly to create an interactive decision tool that considers the fiscal, water quality, water quantity, biodiversity, and quality of life impacts of land use decisions. The Planning with POWER program plays an active role in this team effort and will perform all resulting outreach and engagement activities with local communities.

Impact: Hendricks County, located just outside of Indianapolis, is one of the fastest growing counties in Indiana. Historically, the county has been very agricultural, but now about half is residential. Inspired by the Planning with POWER program, land use decision-makers in the county established a "Planning with POWER" committee to advise the planning commission about natural resource-based planning. "This group is developing regulations to allow for conservation design in future subdivisions," said Todd Barker, Hendricks County planner. "We are aiming for at least 50-percent open space in these developments." The program directly links research with outreach. IISG has supported research to develop tools that guide local communities as they plan for future growth and the protection of existing open space and associated natural resources. The program has provided technical support and assistance to over 40 counties in Indiana. Currently, 10 percent of the state's counties are working closely with the program (including Dearborn County, which is experiencing growth from nearby Cincinnati, Ohio) to update comprehensive land use plans and policies. Once completed, these plans will encompass 3,768 square miles of Indiana, ensuring the protection of natural resources for future generations while accommodating growth.

Source of Funding: Smith-Lever, Sea Grant, State

Scope of Impact: State Specific

Planning For Hot Topics in Land Use Issues

Local communities are faced with dealing with emerging issues relating to land use planning. Issues include dealing with controversial decisions regarding confined livestock operations, storm water regulations, and rural wastewater issues. Planning commissions, elected officials, planning staff, and citizens are looking for training and solutions to assist them in dealing with these issues. Three IP video programs were held in as many 14 receive sites around the state of Indiana. Topics for the three programs focused on planning for confined feeding livestock operations, stormwater, and rural wastewater. Experts in each of these areas made presentations during the programs and fielded questions from the viewing audience. The IP video systems allowed viewers to ask

questions from other viewers throughout the state. Information in written perform was also provided to each of the participants.

Impact: More than 200 individuals from around the state participated in three programs. Fifty-two or 71 percent of those who completed the surveys indicated they learned something from the program that they will put to use in their community. Seventy or 96 percent of those surveyed rated the educational content of these programs good to excellent. Sixty-five or 89 percent of those surveyed would recommend these programs to those interested in planning. Participants indicated that they learned about new zoning ordinances to more effectively plan for confined livestock operations. The participants learned about new decision making tools for dealing stormwater runoff regulations. Participants also learned about the different alternatives available for planning with rural wastewater issues and regulations.

Source of Funding: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Natural Resources Management

Parke and Vermillion County Woodland Owners Organization

Invasive species and poor timber management practices are a threat to our hardwood forests in Indiana. Timber stands can return \$3,500 to \$5,300 per acre depending on the level of management. One acre of young trees supplies enough oxygen to keep 18 people alive. One healthy tree provides enough oxygen (450 lbs.) in one growing season to keep one person breathing for one year. For every pound of wood grown by a healthy forest, 1 1/2 pounds of carbon dioxide are removed from the atmosphere and a little over 1 pound of oxygen is released. Leaf surfaces filter dust, ash, and pollen from the air, as much as 13 tons per acre per growing season. On average, it takes one 100-foot tree per year to keep each American supplied with wood products. Forest products are the fifth largest industry in Indiana, employing close to 50,000 people. Poor in arable land but rich in scenic forest land, Brown County has capitalized on the natural beauty of its forests to create a tourist Mecca. Over 120 species of mammals, birds, reptiles, and amphibians depend on our forests for cover, nesting, and feeding. Forty percent of the 97 million breeding birds in Indiana nest in the forest, which accounts for just 20 percent of the total land base. The first ever Parke and Vermillion County Woodland Owners Organization was created to address potential threats to our hardwood forests in Indiana. A program was organized to address these issues. The list of attendees was used to solicit potential hosts for the next meeting and was used to create a potential leadership structure for sustainability of the organization in the future.

Impact: Summary Invasive species and poor timber management practices are a threat to our hardwood forests in Indiana. Twenty-five woodland owners learned about timber management and stand improvement, as well as new invasive insects that are a threat to their timber. A total of 4000 wooded acres were represented by the woodland owners in

attendance. Market value of the timber on 4000 acres is \$14 million to \$21 million. Some woodland owners volunteered to serve as a host site for the next meeting, which will increase the chances of this organization becoming sustainable.

Source of Funding: Smith-Lever, State

Scope of Impact: Park and Vermillion Counties, IN

Key Theme: Pesticide Application

Bulk Storage of Pesticides and Fertilizer Saves Farmers Money and Protects the Environment

Advantages of storing pesticides and fertilizers in bulk quantities on the farm include reduced costs for purchasing bulk quantities, product on hand when needed, ease of handling out of large tanks, and eliminates the rinsing for 2.5 gallon plastic containers. But the advantages of storing larger quantities come with the risk of accidental spills. Facilities that qualify as bulk storage must register with the Office of Indiana State Chemist and meet specific requirements set by regulations. By learning the facts and regulations of on-farm bulk storage Indiana farmers can make informed decisions for their operation concerning whether or not to store bulk quantities of fertilizer and pesticides on the farm. Indiana farmers and growers must attend three pesticide applicator recertification programs (PARP) to maintain their private pesticide applicator certification. The regulatory topic addressed at the programs was bulk storage of pesticides and fertilizer on the farm. The presentation informed private applicators of the quantities that constitute bulk storage, the details of regulations, and available assistance (i.e. tax credit, cost share). Between January and June, 2004, over 5,600 private applicators heard the bulk storage topic. Private applicators were given a pre- and post-test evaluation to assess knowledge gain.

Impact: A total of 3,545 private applicators responded to pre- and post-test questions regarding the bulk storage presentation. Respondents increased their accuracy to identify the bulk storage quantity of liquid fertilizer from 54 to 88% and liquid pesticide from 75 to 90%. This significant increase shows that farmers now better understand if the bulk storage regulations apply to their on-farm storage of pesticides and fertilizers. Minibulk tanks were the most common type of bulk storage used (20%). Under the regulations, minibulk tanks can be stored on the farm for 30 days without requiring diking. After the presentation, 98% correctly identified the 30-day possession regulation for minibulk tanks (an increase from 74% on the pre-test). This almost unanimous fact means that farmers are more likely to comply with minibulk regulations and avoid significant fines when held for more than 30 days. From the program, 79% learned of the tax credit available for registered bulk storage facilities. The bulk storage program prompted 27% of farmers with on-farm storage, to respond that they would make a change in their pesticide and/or fertilizer storage as a result of the program. The most common choice was to build a bulk storage facility, or add a dike or load pad to an existing facility. A private applicator from Jay County noted that because of the cost sharing he learned of at

the program he is considering changing his loading pad. Another private applicator from Washington County noted he would check on available cost share funds to build a storage facility as a result of the program.

Source of Funding: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Wildlife Management

Crop Depredation Research

Negative perceptions related to crop depredation by vertebrates are likely the fundamental causes of most conflicts arising between agricultural and wildlife interests. The development of viable solutions to such conflicts is the primary means to a more productive and sustainable coexistence between agriculture and wildlife in human-dominated landscapes. Purdue Wildlife Specialists are undertaking a study which quantifies crop depredation by wildlife species across a 450 square mile portion of northern Indiana. As a part of this study wildlife was quantified occurring in corn (100) and soybean (60) fields from planting until harvest using multiple transect surveys of damage throughout the growing season. In addition, extensive telemetry data on target species including white-tailed deer, raccoons, and wild turkey have been collected throughout the study period to provide spatially explicit movement data for these species within the same landscape that is being surveyed for crop damage.

Impact: Agricultural damage by wildlife species in the U.S. is substantial and widespread, and such damage is a serious concern to many agricultural producers. It has been estimated that wildlife-related, economic losses to agricultural producers (farmers and ranchers) currently exceed 4.5 billion dollars annually in the United States. Furthermore, results of nationwide surveys conducted in 1993 and 1994 indicate that 80% of farmers and ranchers suffered wildlife damage in the prior year, and 53% suffered damage that exceeded their tolerance. This research will provide producers in the Midwestern United States with data on the extent and economic impact of wildlife damage to corn and soybeans and will provide them with extension tools to help them clearly identify the individual species causing such damage.

Source of Funding: Smith-Lever, State

Scope of Impact: State Specific

Snakes of the Midwest

Over 500 species of wildlife (birds, mammals, amphibians, reptiles) are native to Indiana. With the exception of the more common species, most Indiana residents are unaware of the diversity of wildlife that Indiana has to offer. Since most of the land area in Indiana is

privately owned, increasing people's awareness of the wildlife on their property is an important step in the management of less common and poorly understood wildlife species. As part of an ongoing effort to increase people's knowledge and awareness of native wildlife, Purdue University Extension developed an interactive exhibit and educational CD-Rom. The Snakes of the Midwest exhibit was featured at the 2004 Indiana State Fair and will be displayed at sites around the Midwest in the future. The Snakes of the Midwest CD offers information about all 45 species of snakes native to the Midwest and includes lesson plans, PowerPoint presentations, and activities for late-elementary school kids that meet many Indiana Science Standards.

Impact: Most landowners focus management efforts on game species. However, the majority (85%) of native wildlife are non-game species. Monitoring programs and research has demonstrated that populations of many species of non-game wildlife, including several reptiles and amphibians, have declined in recent years. Moreover, populations of some groups of species are in jeopardy. For example, 10 of 32 (31%) species of snakes native to Indiana are endangered or species of special concern. This program will help Indiana residents become aware of the diversity of wildlife in the state, and help them understand conservation and management issues pertaining to many declining species and reduce poaching and unlawful sale of wild snakes.

Source of Funding: Smith-Lever, State

Scope of Impact: IN, IL, IA, MI, MO, OH, WI

GOAL FIVE. ENHANCED ECONOMIC OPPORTUNITY AND QUALITY OF LIFE FOR AMERICANS. Empower people and communities through research-based information and education to address economic and social challenges facing our youth, families, and communities.

Overview

Youth Development

Purdue University, through its 4-H Youth Development Program, reached 284,021 youth throughout Indiana during FY04. We continue to focus on new audience development to reach youth beyond the club program in order to meet youth needs and build youth competencies relevant to enabling them to become successful adults. Much of our success is due to the outreach being done county by county in collaboration with other organizations. We have also begun working to establish 4-H Afterschool Clubs by working with a variety of organizations that provide ongoing after school child care. Extension staff in Indiana has reported 10,649 days of activity, with 378,477 direct contacts addressing issues related to youth development.

Examples of the success of 4-H Youth programs will be provided in the Key Theme section of Goal 5 accomplishments. Briefly, our programming is delivered by three different methods which are club programming, school enrichment programming and community programming (usually in collaboration with other community groups and organizations). During the past year, we introduced nearly 46,000 new youth to the Indiana 4-H Program and have experienced significant growth in organized club efforts for the first time in several years. The alignment of our 4-H youth development curriculum with state teaching standards is now standard procedure in all new curriculum produced and adopted for use in the Indiana 4-H Program. This has afforded the opportunity to strengthen existing, and to build new relationships with public school systems.

Parenting

Families are at the very heart of the strength and competitiveness of our nation. Indiana county-based needs assessments conducted in 1998 strongly indicated that increasing parenting skills was the topic of highest priority for Extension programming. Purdue Extension continues to respond to this high priority. The Strong, Resilient Families Plan of Work Issue is responded to with high priority. A diversity of programming was offered to strengthen families through the learning and use of positive personal development and relationship skills and teaching parents to know and use positive parenting practices. Over 79,954 direct contacts have been made with programming focused to strengthen families in FY 2004. These contacts represent 2,193 contact days of programming effort. One hundred eighteen students were reached with the Purdue-developed "Teen Decisions" program which utilized discussions concerning teenage pregnancy. Newsletters are used effectively across the state on a variety of topics. "News Notes to Parents" is a monthly publication which enhances positive parenting skills with its multi-county team approach, reaching 8,929 families per month in northeastern Indiana.

Kindergarten Family Fun Night

Changing family forms and situations leave families searching for help with parenting skills. In addition, both parents are often working away from home, creating a challenge for parents to be actively involved in their children's lives. The CFS Extension educator in Newton County provides needed educational material in a fun and productive way utilizing collaborative efforts from county schools and organizations.

Child Care and Dependent Care

Parents and child care providers benefit from parenting education. Since June 2001, obtaining the Child Development Associate Credential is a requirement for family child care providers and lead teachers in child care center settings in order to meet state child care licensing regulations in Indiana. A partnership with the Indiana Association for the Education of Young Children and the Indiana Child Care Fund Board allowed for 120 classroom hours of education to 44 child care providers. A website, Provider-Parent Partnerships, added 15 new pages to help distribute valuable information.

Fire Safety

“Do’s and Don’ts at the Gas Pump: Static Electricity Fires—How to Prevent Them” was developed after an Extension educator experienced a refueling fire. This educational video has reached thousands nationally and internationally. Gas pump fires have decreased by 70 percent in one state alone.

Financial Management

Financial management programming in Indiana encompasses many different aspects of both personal and business financial management. Specialists and educators reached 23,317 direct contacts with financial programming to youth and adults. These contacts represented 1,669 programming days. Basic competence in personal money management is important to everyone. Financial workshops targeted in Indiana high schools reached students and teachers in 28 counties. The “Get Checking” program allowed 503 certified individuals the ability to open checking accounts and to save hundreds of dollars in service fees. Individuals need to become aware of identity theft and take steps to protect their identity. “Identity Theft” programs were presented across the state to 242 individuals that now pay attention to their billing cycles, realize that they should not let their credit cards out of their sight, and know the importance of ordering copies of their credit report.

Resources

Approximately \$ 3,647,042.50 and 111 FTEs have been invested in Goal 5. This is a best estimate and these are not presented as auditable numbers.

Key Theme: Leadership Training and Development

Adult Volunteer Development

Description: The 4-H Youth Development Program is dependent upon volunteers to effectively deliver programming to youth. There is a need to provide the 4-H volunteers with the opportunity to develop knowledge, skills and competencies.

Impact: A variety of state, local and regional training opportunities were organized to target volunteer skill and competency development. Over 700 volunteers participated in these sessions that ranged from a focus on 4-H policies and procedures, to organizational issues and youth/adult partnerships to specific subject matter areas. Over 90% of participants indicate increased confidence in their individual, volunteer role. 87.5% indicate improved understanding of policies, procedures and financial reporting requirements. 97% indicated they gained skills/knowledge that they will use in their efforts as a 4-H leader or judge. 87% indicated an improved understanding of specific standards in a specific subject matter area.

Teen Leadership Development

Description: Purdue Extension's history of delivering educational programs that help build healthy organizations and communities extends not only to adults, but also to youth audiences. A variety of Teen Leadership Academies have been planned by bringing together individuals from the local school corporations, youth serving agencies, service organizations and business leaders to develop and enhance leadership skills among local youth. The programs cover a variety of topics such as communication, public speaking, and listening skills; team building; personality styles and leadership; learning about city and county government; planning and organizational skills; board and group process; parliamentary procedure; consensus building; youth and adult perspectives and stereotypes; community visioning and philanthropy.

Impact: Pre- post participation scores indicated knowledge gains in regards to parliamentary procedure, group process and how boards function, community visioning and planning, personality and leadership styles, recognizing and understanding stereotypes, philanthropy, and trusteeship. Teen participants exhibited and reported improved leadership skills in group activities and increased confidence in working with adults. Additionally, the youth participants reported that they had gained confidence to speak out on issues of interest, gaining skills in communication and decision making, leadership knowledge and an increased ability to work with other people.

Source of Funds: Smith-Lever, local sponsors and partners, and participant fees

Scope of Impact: Statewide

Key Theme: Children, Youth and Families at Risk

Project LEAD: Legal Education to Arrest Delinquency

Description: Many Indiana counties participate in the 4-H *Project LEAD* program in school settings in order to help students develop an understanding of the legal systems and to develop skills that help them communicate, handle conflict and make sound decisions so that they can avoid situations that may lead to undesirable behavior. Sessions are conducted in fifth-grade classrooms in partnerships with schools. This prevention program teaches about laws, law enforcement, the judicial system, decision-making, and consequences of actions. Many local professionals and elected officials volunteer their time to teach different portions of the program and host tours of the county facilities, including courtrooms and jails.

Impact: 6,758 participant evaluations using the Scale of Juvenile Legal Attitudes (pre-post-test) show that after the program, youth have a better attitude toward laws, law enforcement, the judicial system, and the idea that they must take personal responsibility to abide by laws and report unlawful acts. Additionally, teachers in the classroom report a positive change in attitude after completion.

Source of Funds: Smith Lever

Scope of Impact: State specific

CARe: Communities Against Rape (2004)

Description: Every year, approximately 2,000 rapes and 4,000 cases of child sexual abuse are reported, according to the National Crime Victims Research Center. In 2002, 1,843 reported sexual assaults resulted in 39 arrests across Indiana. With only half of the 92 Indiana counties involved through CARe, it is obvious that despite successes in some communities continued work is needed in raising awareness about this issue and in implementing violence prevention education programs throughout the rest of the state.

The Communities Against Rape Initiative (CARe) is a statewide collaboration that facilitates the development of programs to prevent sexual assault and rape, particularly of youth, in Indiana. Based on the assumption that prevention of violence is a dynamic process that involves interrelated systems in community specific programs created by individuals committed to violence free environments, the CARe Initiative employs a multi-faceted approach to violence prevention. Since 1997, over 49 local communities and 27 colleges and universities have joined Purdue University in a statewide violence prevention initiative which includes policy analysis, community coordination and prevention education programs. Specific activities in each of these areas are under the pervue and direct leadership of the principal investigator at Purdue University and implemented through a series of partnerships.

Impact: 84,000 Hoosiers participated in prevention education programs. Pre and post test results from these programs reflect that participants learned important information. One county was able to show that students learn rape happens most frequently between people who know each other.

Another showed that students learned rape is a crime, regardless of how the victim is dressed. A third demonstrated that students learn they should trust their gut feeling about a potentially dangerous situation. Over 1000 teacher representatives were trained to facilitate the CARE In-School Curriculum Module. Results of pre- and post-tests from students who participated in curriculum activities indicate that there is significant reduction in their beliefs in rape myths and in learning how to protect themselves and their friends.

Source of Funds: Indiana State Department of Health, Centers for Disease Control and Prevention, Rape Prevention Education Grant

Scope of Impact: IN

Key Theme: Fire Safety

Do's and Don'ts at the Gas Pump: Static Electricity Fires—How to Prevent Them

About 175 fires at self-service gas pumps caused by static electricity have been reported to the Petroleum Equipment Institute (PEI) since 1992, most since 1998. There are some indications that the number of such fires has been increasing in recent years. A free Purdue curriculum was created by an Extension educator who was seriously burned in a refueling fire May 15, 2000. She developed the materials with the assistance of the Petroleum Equipment Institute, who provided her with surveillance camera footage of several gas pump fires. The curriculum was posted to the Web in June 2003, we printed some business cards to advertise the Web site, and we put 30 videos into inventory at our Media Distribution Center for sale. The videos sold out in November, after Agricultural Communications did a news release and a two-part video news release, and after the educator and program leader promoted the program at two professional conferences. The inventory was twice replenished and about 100 of the videos were sold this past year.

Impact: This Purdue Extension program about static electricity fires at gasoline pumps already has reached thousands of people across the nation, and it eventually could reach hundreds of thousands around the world. In Indiana alone, we collected almost 500 paired pre-/post-evaluation forms during the program's first year. Results show significant gain in knowledge. Three manufacturers of gas pump equipment have distributed more than 25,000 copies of the Purdue video on CDs and DVDs; they have translated the videos into Spanish and French for use in Mexico and Quebec, Canada; and they have produced a CD that contains the Purdue PowerPoint slide show and handouts about safe refueling practices. The free lesson plan, PowerPoint presentation, handouts, and evaluations are on the Web at <http://www.cfs.purdue.edu/extension/gaspump/>. The optional accompanying video, CD, or DVD sells for \$10. In February 2004, Purdue gave OPW Fueling Components permission to copy the video onto CDs that OPW agreed to distribute for free. OPW added some new footage to the video, and OPW now reports that the CD or a DVD eventually will be distributed to every gas station in the country. As of October 2004, OPW had sent copies to 3,000 gas stations in Oklahoma, 3,000 in South Carolina, and more than 12,000 in Texas. The OPW account executive at the Dean Houston Advertising Agency reports that Ohio has made it mandatory for

every driver's education student to watch the video, and the CD has gone to every EPA regulator in the country and to all 500 OPW distributors. The program now is an industry group project, and OPW competitors Husky Corp. and Catlow Inc. and Fowler Associates are distributing the CD and DVD through their own networks of distributors. OPW has distributed hundreds of thousands of fliers advertising the video's free availability. In June 2004, OPW requested permission to put the PowerPoint slide show and accompanying handouts on a separate CD for widespread distribution, and OPW is offering incentives to its sales force to show the video and PowerPoint slide show to its customers worldwide. As of July 9, 2004, OPW sales reps had made more than 400 presentations to oil companies and distributors. Finally, the Petroleum Equipment Institute says gas pump fires in one state have decreased by about 70 percent in the past year, and he attributes at least part of that decline to the video.

Source of Funds: Smith-Lever, State

Scope of Impact: IN, National, Mexico, Canada

Key Theme: Child Care/Dependent Care

Indiana Non-Formal Child Development Associate Credential Training Initiative

Since June 2001, obtaining the CDA (Child Development Associate) Credential is a requirement for family child care providers and lead teachers in child care center settings in order to meet state child care licensing regulations. Because child care providers work long hours (usually 6 a.m. to 6 p.m.), time available for formal class work is limited as well as their ability to reasonably travel to one central location for class instruction. The Purdue Extension CDA program included 120 classroom hours in the form of three 40-hour courses, plus 24 hours of advising in preparation for the national CDA assessment. The program was conducted from November 2003 through May 2004.

The classes were offered to child care providers in eight rural counties not currently having access to other formal CDA training. Over the course of the project, child care providers from four other counties also participated. Two-way IP (internet protocol) video was utilized in class delivery for the northern counties involved and was part of a "blended" approach to class instruction (including distance education—IP video, on-site individual instruction, and group instruction by area).

Impact: Forty-four child care providers needing the CDA credential participated in some or the entire program. A total of 37 providers completed all classes/advising, and their training will potentially impact 565 children in their care. All class participants had at least a GED or high school diploma but almost no other educational training prior to participating in the CDA classes.

A five-question, open-ended evaluation instrument was administered at the beginning of each class period based on the previous class's instruction and experiences (beginning with Class II). The questions were designed to reflect changes implemented since the previous class in the areas of attitude, knowledge gain, skill, and behavior.

Content analysis of the returned self-report candidate evaluations revealed that, on average, 81 percent of the reports related to the topics of classes taught. These results indicate that candidates receiving CDA training were significantly influenced by the individual classes.

A closer examination for each self-report question, combining all candidate responses who returned the self-reports, indicates that 71 percent of candidates changed to a more positive professional view of themselves; 96 percent changed their views about young children and their families; 91 percent reported that they learned new knowledge and skills from the CDA courses; 92 percent changed their child care environments to be more closely related to developmentally appropriate practices; and 98 percent positively changed their interactions or behaviors with young children. Individual candidate comments also indicated positive changes and a high level of satisfaction with the CDA courses and their delivery.

The partners were: Indiana Association for the Education of Young Children (IAEYC) and the Indiana Child Care Fund Board.

Source of Funds: Smith-Lever, IAYEC, Indiana Child Care Fund Board Grant, State

Scope of Impact: IN

Provider-Parent Partnerships: A Web Site to Help Parents and Childcare Providers

Parents could benefit from parenting education, but they do not attend programs in large numbers. Many children are in childcare settings. Parents and providers discuss parenting, but providers are not parenting educators. Nineteen new pages of information were added to the web site over the course of the year. Drafts of 10-15 additional pages were written. Hundreds of promotional bookmarks were distributed. A display at Annual Staff Development Conference helped many Extension educators become more aware of the resources available and encourage a number to participate in the evaluation.

Impact: The following comments were submitted by users of the site:

--by an Extension educator: This is a really exciting site! I just started in Cooperative Extension after working with young children for 35 years—20 in family child care. This is exactly the area that I am particularly interested in.

--by a director of a childcare resource and referral service: A great site, with a lot of valuable information. Thanks for the thoughtfulness that went into the development of the site.

Source of Funds: Smith-Lever, State

Scope of Impact: IN, National, International

Key Theme: Parenting

Kindergarten Family Fun Night

Most parents have not participated in any kind of parenting class. Many do not know the normal developmental stages of children and appropriate activities to go along with these stages. Changing family forms and situations leave families searching for help with parenting skills. In addition, both parents are often working away from home, creating a challenge for parents to be actively involved in their children's lives. The CFS educator in Newton County continues to work with a committee comprised of kindergarten teachers, the Step Ahead coordinator, North Newton FFA members, and Newton County public librarians and volunteers to address parenting issues. "Kindergarten Family Fun Night" is beginning its sixth year. Eight programs are offered in the elementary schools annually. Kindergarten children and their parents rotate through stations and participate in age-appropriate activities they can repeat at home for little or no cost. Stations include activities in the areas of writing, reading, food safety and preparation, fine motor development, family traditions, and fun and games. Parents are encouraged to spend quality time with their children. Meals and child care are provided for the whole family. Approximately 700 meals were prepared for families and volunteers last year. Child care was provided for more than 130 children. Each family receives a four-page newsletter and take-home activities. Funding for the 2003-2004 school year came from the Coalition for a Drug-free Newton County, The Newton County Community Foundation, Thrivent, and Kentland Rotary.

Impact: A simple three-question evaluation tool was used at each program. Ninety-eight percent of the evaluations returned rated the program as "Great." Eighty-eight percent of the parents identified something new they learned, and 90 percent of the parents identified an activity they will try at home with their child. Approximately 175 children and 250 parents benefited from "Kindergarten Family Fun Night" this year. Written comments from the evaluations included: "I thought tonight was a wonderful program for children and parents. Keep up the wonderful work."

"I really enjoyed the program. It gives the parents more one on one with the child."

"I think this program is a very great idea. It brings families together."

"I enjoyed the time with my kindergartener and knowing my younger daughter was having fun, too. I learned great ways to teach and play with my child that does not take a lot of time."

"It was fun. Knew most stuff but my son had a great time and that's what was important. I thought it was great to have kid care because I have four small children and this was great to have special time with one child. Thank you."

"This was a fun learning experience for my family. Thank you." One hundred seventy-five kindergarten children and 250 parents discovered new ways to make learning fun by attending "Kindergarten Family Fun Night" programs in Newton County.

Source of Funds: Smith-Lever, State, Coalition for a Drug Free Newton County, Newton County Community Foundation, Thrivent, Kentland Rotary

Scope of Impact: Newton County

Parenting Programs Help Parents across Indiana

Changing family forms and situations are leaving families looking for new skills and resources. Indiana county planning committees have expressed concern that many parents lack a sense of direction and optimism, skills for dealing with children and parenting responsibilities, and programs and services that will support them. The state of Indiana provided parenting education programs to help provide the information necessary to develop these skills and assessed the impact of these programs to enhance their effectiveness with adults, children, and families. Nine counties used the Purdue Extension Parenting Program Evaluation Response (PEPPER) evaluation forms to assess the effectiveness of those programs from 2001-2004. This report summarizes the combined impacts of those programs. Parenting programs were conducted in nine counties. Educators collected PEPPER data from participants and submitted the data to Purdue to be aggregated. Programs used objectives that were consistent with the PEPPER forms.

Impact: Two hundred thirty-six pretests were returned, and 96 post-tests were also returned. Eighty-five pre- and post-tests could be matched to assess change. Of the respondents of PEPPER, 30 percent were male and 70 percent were female. Two hundred thirty-six indicated their age in the form. Among them, 44.5 percent were between the ages 31-40, 26.3 percent were from 25 to 30 years, 11.9 percent were from 41 to 50 years, and 10.6 percent were 18 to 24 years old. A small number (5.1 percent) were between 51 to 60 years, while the rest were either over 60 or under the age of 18. A large number of the respondents (82.1 percent) indicated that their children were living with them. Almost of the children were below 18, while only 11 were 18 and older. Seventy-two children were two years old or younger, while 76 were between three to five years, 78 were between six and eight, 74 were in the age range of 9 to 11 years, 61 were from 12 to 14, and there were 29 children who had ages from 15 to 18. In general, there were significant improvements in the feelings of the parents being parents. After the programs, the respondents felt more confident in their parenting skills; specifically, they were less likely to say I wish I felt better about my parenting ($p < .01$); less likely to say I wish I had more respect for myself as a parent ($p = .013$); and they were more likely to say I could list 10 things that I can do well as a parent ($p < .001$). In giving themselves a grade as a parent, there was again a significant improvement that can be noted ($p < .05$). Being happy with their parenting showed a slight increase after participating the program but did not meet statistical significance. Overall, there were changes in the feelings of these parents from before the program and after participating in it. In general, more participants said they would describe themselves using the more positive feelings of being happy, patient, understanding, loving, and fun. Consistent with this result, there were fewer respondents who reported that they would describe themselves with the more negative words like feeling at a loss, frustrated, strict, impatient, and angry. Of the 88 respondents who responded to the question, "How much new information did you learn?", half of them reported that they have learned "lots," 33 percent said they learned "some" new information with this program, 13.6 percent said they learned a little, while only 3.4 percent reported they did not learn anything from it. Some of the more common new information that they said they learned was dealing with stress better, using positive approaches and new techniques, and listening to children. Some examples are:

Better able to teach and focus on the kids' development, and positive reinforcement is the greatest attribute to give to your kids; how to deal w/stress better, how to be a better listener and relate better to my 3 ½-year old; other ways for dealing with problems involving my son. In regards to the behavior change: Of the 87 who answered the question “Have you changed your behavior because of the program?”, 42.5 percent stated that they “definitely” changed their behavior after the program, 49.4 percent said they “maybe” have changed, while only 8 percent said that they did not change at all because of the program. Some common themes in the changes of behaviors are dealing with their problems to move forward, improvement in their communication skills, discipline, and understanding their children more. Examples were: Trying to get by some of the hurt and pain caused by the other parent, to move forward and deal with the immediate future; explaining things/modeling behavior more effectively; talking somewhat with his mother.

Child development: Child development aspect of the program was measured by a total of 16 matched sets of pre- and post-tests. In general, there was no significant difference from before the program and after the program in the reported knowledge of participants about child development. It can be noted, though, that there were slight improvements in a few of the specific items, especially respondents’ reported understanding what the child can or cannot do at his age and in a decline of feelings of disappointment with their child.

Discipline: Five counties measured the discipline aspect of the programs. On average, based on a total of 36 matched forms, the discipline aspect did not show significant change from pre-test to post-test. But when specific items were analyzed, spanking behavior was seen to decrease significantly ($p < .05$), and an increase was measured in explaining rules to the child before the child does something wrong ($p < .05$). **Praise:** A total of 30 matched sets measured the “praise” aspect of the programs and the amount of positive parent-child communication. Regarding the general aspect of praising the child by looking at the form as a whole, there was no observed significant improvement from pre- to post-test. In a more specific analysis looking at individual items, it was observed that there was a significant change in participants using new ways to tell their children they are proud of them ($p < .05$). There were also slight improvements seen in a decline in their yelling at their child, and telling the children what they are feeling, but these items did not reach statistical significance. **Stress:** Stress was measured by six of the counties mentioned. With a total of 31 matched PEPPER pre-/post-tests, data showed that there was a very significant improvement in the feelings and management of stress for the participants from before and after the programs they attended ($p < .001$). There was a large decline of feeling that they needed help in parenting their children ($p < .001$), and feeling that they are at their wits’ end ($p < .01$). In managing their stress, they can already recognize the signs when they feel upset ($p < .05$), they count up to 10 ($p < .05$) and there is a decline in their yelling to blow off steam when they are stressed ($p < .01$). Overall, it is clear that Purdue Extension parenting programs are making a difference for families by helping them to appreciate their children’s development, giving them more positive methods of discipline, and helping them cope with parenting stress.

Source of Funds: Smith Lever, State

Scope of Impact: IN, National, International

Teen Decisions

The health department, school personnel, community agencies, and the educator in the Starke County office of Purdue University Cooperative Extension Service held discussions concerning teenage pregnancy. They felt programs with different approaches were needed to address this issue. The "Teen Decisions" curriculum was distributed to guidance counselors in all three school systems in the county. One school decided to implement the program. It was taught in conjunction with the health education courses for 10th-grade students. It was taught for two semesters. Each semester, five sessions were taught to three classes. A total of 118 students were reached. The curriculum for "Teen Decisions" was developed by Purdue University. The educator attended training for this program. Notebooks, videos, and the evaluation instrument were provided. As this class was taught over the years, the educator made adjustments to the process of delivering the curriculum to fit the youth in the classes. Often the teenagers would not answer questions as a group. So the questions were developed into activities that they would discuss in small groups. Each group then felt more comfortable reporting their discussions. These reports were then processed by the class and the educator.

In the first session, the students were asked on an index card to tell me what they would like to talk about and learn with this class. This was done anonymously. Information was tabulated by class. If necessary, information was added from extra sources or extra emphasis placed on the topics the students requested. To get an idea if the sessions were effective and reinforce the topics for the day, students were asked after 2-3 of the classes to report what they learned from that particular session. This was done anonymously and was not used for publication.

Impact: Sixty-seven pre-and post-tests could be matched to assess change. There was an improvement in some areas of self-esteem, especially in their feelings of happiness about themselves. They are significantly more likely to say that they are happy about themselves and that they can list ten things they do well. The teenagers were more likely to say they were "happy" and "loving." There is an increased report of being "frustrated," "stressed," "angry," and "impatient" that may indicate they are being more honest.

The youth reported that they spent more time at the end of the program talking with their parents and friends about the topics of dating, their boy/girlfriends, and sex, although they also stated that they felt a little less comfortable in doing so. The fact that they were talking with their parents more is a positive result that could lead to greater understanding over time. The teenagers reported that they are less confident with handling peer pressure, although data showed no statistical significance. Almost half of the participants (45.9 percent) who responded to the post-test question, "How much information did you learn?" reported that they have learned some new information, while 31.6 percent stated they learned a lot. Sixteen percent said that they learned a little, while six percent reported that they learned nothing new. Common themes were found in the new information learned by the teenagers. These are dealing with peer pressure better, considering consequences of their decisions, and communicating and talking about sex, birth control, relationships, and other topics. Twelve percent of the participants who responded reported that they have definitely changed their behavior, while almost half of them (49 percent) stated that they maybe have changed their actions and behaviors after the program. Thirty-eight

percent reported that the program did not help them change their behavior at all. Common behavior changes included an improvement in making their decisions, handling their relationships better, and improving their attitudes.

Source of Funds: Smith Lever, State

Scope of Impact: IN

“News Notes to Parents” Newsletter

Many parents want and need concise, timely, and up-to-date information about parenting. Finding reliable information from a trusted, non-biased source can be difficult, time-consuming, and expensive. “News Notes to Parents” was developed as an educational tool for parents of young children (ages 3-7 years) and with a focus on enhancing positive parenting skills. The four-page newsletter addresses such topics as parenting, child development, family communications, and the balancing of work and family. Regular columns within the monthly publication include: Building Character; Nutrition, Health, and Wellness; and the Strengthening of the Family. The editorial content covers a variety of topics from month to month. Researched-based information for the newsletter comes from Purdue University, plus other state Extension resources are featured in monthly columns and newsletter content. Also presented are recommended parenting websites for readers to review and use as a future reference. The Extension educator editorial team that creates the publication is represented by the three CFS program area specialties (Human Development, Foods and Nutrition, and Family Resource Management). The newsletter is sent electronically to each Area XI Extension office (a total of nine counties) for county-wide distribution. One column is left blank on the back page of the newsletter as it is sent electronically. This provides each county with the opportunity to personalize the monthly issue with "county-specific" information to promote upcoming Extension programs and events. Each county reproduces and distributes “News Notes To Parents” to childcare providers, day care centers, Head Start, Even Start, Step Ahead, First Steps, Healthy Families, Division of Family and Children, Boys’ and Girls’ Clubs, WIC Centers, YWCA, public and parochial schools, pre-schools, and libraries. The Area XI CFS team distributes 8,929 newsletters per month, with a total of 76,864 issues being distributed for the year throughout northeastern Indiana. Editorial creation, reproduction, distribution, and evaluation are all completed in a "teamwork" fashion.

Impact: “News Notes to Parents” is a monthly contact with 8,929 families in northeastern Indiana. Each issue provides an opportunity to promote Purdue Extension and to create an awareness of available Extension resources, websites, and programs. Having concise, timely, up-to-date information makes it a bit easier for parents raise their children. "News Note to Parents" is a newsletter created by Purdue Extension educators for parents of young children (ages 3-7) with a focus on enhancing positive parenting skills. Of the parents who receive the newsletter, 95 percent say they value the publication and wish to continue receiving it. A checklist evaluation was randomly inserted in a monthly issue for readers to provide feedback about the benefit that “News Notes to Parents” provided to them as parents. One hundred seventy-two readers

responded and completed the evaluation. The evaluation data included feedback on the newsletter's editorial content, plus behavior or attitude changes of parenting that resulted due to the reading of the newsletter. Ninety-five percent say they value the publication and wish to continue receiving it. Eighty-one percent increased awareness of nutrition, health, and safety. Seventy-five percent better understand their role as a parent. Seventy-five percent have greater insight into the developmental stages of children. Seventy-four percent better understand the "building of character" in children. The evaluation also enables the CFS editorial team to respond to parents' changing needs and special requests. Comments written on the bottom of the checklist evaluation include: "As a teacher, I find the newsletter informative and helpful to me and for the families I serve"; "I think this newsletter is wonderful for parents who may not otherwise have or seek out this kind of information;" " 'News Notes To Parents' is a great reminder and helps parents to refocus on parenting skills"; "As a daycare director, I provide your newsletter to my parents and staff;" "The newsletter covers so many good parenting and family topics. This is valuable information that parents need. News Notes to Parents has become a well-recognized, highly respected educational resource within the local community and is also used by fellow professionals."

Source of Funds: Smith-Lever, State

Scope of Impact: Northeast IN

Key Theme: Family Resource Management

Developing the Financial Literacy of Youth

Basic competency in personal money management is important to everyone. Unfortunately, an understanding of money management principles is a life skill that many high school youth do not possess. In national studies measuring 12th-graders' knowledge of personal finance basics sponsored by the JumpStart Coalition for Personal Financial Literacy, students consistently receive failing grades. Broadly, the principles high school students need to understand include planning, goal setting, and budgeting; saving and investing; using credit; and protecting against risk. Parents, educators, employers, and communities all have a role—and an interest—in improving the financial literacy of youth. Purdue Extension educators and specialists conducted several one-day, multi-county workshops for teachers. The workshops focused on using the "High School Financial Planning Program (HSFPP)" available from the National Endowment for Financial Education (NEFE). The workshops were targeted to mathematics, social studies, family and consumer sciences, practical arts, and agricultural sciences teachers in Indiana high schools. The following multi-county areas of the state were targeted: Area A included nine counties, B included eight counties, and C included 11 counties. NEFE completed one mass-mailing of financial education informational materials directly to mathematics, social studies, family and consumer sciences, practical arts, and agricultural sciences teachers in Indiana high schools. The mailing reached an estimated 5,970 teachers.

Purdue Extension continues to be represented in the Indiana JumpStart Coalition and its committees.

Impact: The student count for August 2003 through May 2004 was 10,455—an increase of 73 percent over the prior academic year. The three multi-county teacher trainings reached a total of 98 teachers. Nearly all of those teachers (91) completed end-of-workshop evaluations. All of the teachers who completed the end-of-workshop evaluation indicated that they learned some information from the workshops. Slightly more than half of the teachers indicated that they learned a lot of information; two out of three teachers said the workshop was very helpful. Most of the teachers (81) agreed to participate in a follow-up evaluation after three months; 43 (53 percent) returned their follow-up evaluations. Of those who returned their follow-up evaluations, 84 percent (36) indicated they had used at least one idea from the training when working with students; 12 percent (five) haven't used an idea yet but plan to in the coming school year. In addition, 42 of the 98 teachers (43 percent) who attended the trainings ordered materials; a total of 2,300 student guides was ordered by the 42 teachers.

Source of Funds: Smith Lever, State

Scope of Programs: IN

“Get Checking™”

If you mismanage your checking account, it is likely that your financial institution will close the account and inform ChexSystems, a consumer-reporting agency that collects information about account activity and shares it with other member financial institutions. Consumers who are reported to ChexSystems are typically unable to open an account for five years. In Indianapolis, no financial institutions will open a checking account if a consumer has been reported to ChexSystems; just one financial institution in the area allows consumers in ChexSystems to open a savings account. Local financial institutions report that approximately one out of three consumers who attempt to open checking accounts at their institutions cannot because they are in ChexSystems. Not having access to checking account services is costly and inconvenient for consumers. In addition, it can cause embarrassment and compromise personal safety. Further, if a community wants to promote increased savings and reduced debt, not having access to a financial institution is an additional barrier to an individual's financial stability as well as to their long-term financial security. The “Get Checking™” program was developed by University of Wisconsin Extension staff to give individuals who currently do not have checking accounts—either because they have never had an account, or because they have had problems with their account in the past and were reported to ChexSystems—an opportunity to qualify for access to checking account services. Participants who successfully complete the “Get Checking™” program learn how to choose and manage checking accounts and are awarded certificates of completion. They are then able to open checking accounts at participating financial institutions. The financial management Extension educator in Marion County organized a collaboration of financial partners and educational partners who agreed there was a need to offer “Get Checking™” to Indianapolis metro residents. Class offerings were coordinated. The

development of 10,000 promotional brochures produced per quarter was managed. The distribution of the brochure to participating financial institutions and promotional partners was coordinated. Eight instructors offered 67 different “Get Checking™” six-hour programs between September 1, 2003 and August 31, 2004. Eleven were cancelled due to lack of enrollment. Nine “Get Checking™” classes to 64 participants was taught.

An Extension staff development training was offered on "How to Launch a ‘Get Checking™’ Collaboration." During the first 12 months of the “Get Checking™” program, 581 consumers registered. Of those, 503 successfully completed the “Get Checking™” course and earned their certificate. The typical “Get Checking™” participant was a white female between the ages of 25 and 34 years old living in a household with two to three people and with a family income between \$18,871 and \$31,450. Financial institution partners have stated that the “Get Checking™” program: Allows organizations to serve a segment of the market that they could not before and, as a result, increase number of households/dollars on deposit; Empowers the customer/client to take "care" of themselves; and Builds self-confidence by completing class and giving a feeling of accomplishment. Educational partners have noted that the “Get Checking™” program provides an opportunity for participants to gain knowledge about various services provided by the various partners. It also helps partners get better acquainted with the variety of services offered.

Impact: Not having access to checking account services is costly and inconvenient for consumers. The “Get Checking™” program gives individuals who need it an opportunity to qualify for access to checking account services. Because it is possible they will need time to repay debts related to a previous account, participants who successfully complete the “Get Checking™” program have one year to use their certificate and open an account. To date, 276 consumers have opened checking accounts at one of the participating financial institutions. According to Caskey (2002), individuals without access to financial account services pay an average of \$400 each year in fees to cash checks and purchase money orders. (Source: Caskey, John P., “Bringing Unbanked Households Into the Banking System,” Capital Xchange, January 2002). Thus, the 276 individuals who have already opened checking accounts will likely save an average of \$400 each over the next year and aggregate savings will likely exceed \$110,000. When each of the 503 individuals who successfully completed the “Get Checking™” program this year eventually open checking accounts, the aggregate savings over the five years they would have remained in ChexSystems will likely approach one million dollars.

Source of Funds: Annie E. Casey Foundation, Smith-Lever, State

Scope of Impact: IN

Minimize Your Risk of Identity Theft

The 1990s spawned a new variety of consumer fraud crook—the identity thief. Indiana ranked 18th in the number of identity theft victims per 100,000 population for 2003. Of the 5,455 reported cases of consumer fraud, 3,660 (67 percent) of the cases were identity theft. The top locations in Indiana for identity theft were, in order, Indianapolis, Fort Wayne, South Bend,

Gary, and Hammond. Indianapolis reported 870 victims of identity theft or 24 percent of all the cases in Indiana. (Source: Federal Trade Commission, www.consumer.gov/sentinel/, January 2004.) According to *Consumer Reports*, October 2003, victims typically lose \$800 and spend two years clearing their name. The Extension educator for Family Resource Management reviewed statistics, research, and resources for the latest information and recommendations for minimizing the chances of becoming a victim of identity theft. A session guide, activities, and packaged lesson were prepared. Twelve “Identity Theft” programs were presented to 242 individuals (103 Extension Homemakers, 30 National City Bank employees, and 109 federal employees).

Impact: One third of the program participants reported NOT paying attention to their billing cycles before the program, while 99 percent plan to pay attention to their billing cycles as a result of this program so that they will notice if they don't get a bill and realize that something may be amiss. More than half (60 percent) of the participants did not know the importance of ordering copies of their credit report every year as compared to 94 percent plan to order copies of their credit report from each of the three major credit bureaus as a result of this program. Two out of three participants did not realize that letting their credit card out of their sight (such as when a waiter takes your card in a restaurant) was putting their identity at risk. As a result of this program, 94 percent of the participants plan not to let their credit cards out of their sight. Three out of four participants didn't know the steps to take if they are a victim of identity theft; as a result of the program, nearly all participants responded that they now know the steps to take if their identity is stolen.

Impact: Indiana had 3,660 reported cases of identity theft, while Indianapolis reported 870 cases or 24 percent of all the cases in Indiana. The Extension educator revised and updated an identity theft session and presented it to 242 individuals. Pre-/post-tests showed significant increases in the number of people who plan to take four steps to protect their identities.

Source of funds: Smith-Lever, State

Scope of Impact: IN, National

Key Theme: Children, Youth, and Families at Risk

Meth: Affects Everyone

Home visits are not what they used to be. Greene County is one of the top three counties in the state listed as having the worse problem with Methamphetamine (Meth). Labs are busted and arrests are made daily. The drug is disastrous in every way. Parents who in the past attended parenting classes due to drug usage are no longer capable of learning if they use Meth. The children are immediately removed from these homes. The children's belongings are contaminated and so left behind. The problem affects everyone because we all know of someone involved, crime is increasing, users of the drug tend to also carry weapons, parents/teens are unable to work, and the method of production is very dangerous (explosive) and toxic. Cleanup is

expensive. There are not enough homes in which to place the children. Replacing basic belongings is expensive and taxing the county's already strained budget. The jail and courts are overflowing, adding greater costs to the county.

Extension hosted a series of three public sessions on Meth in 2003. Keynote speakers included Indiana State Police Drug Task Force, Hamilton Center (mental health), Department of Family and Children, county prosecutor, and a recovering college student. Two all-day sessions and one night session were held. Mostly interested in attending were those agencies whose employees work closely with families and make home visits. This was the first training the Step Ahead Council (who sponsors annual trainings) had school personnel attend in any numbers. Also targeted for attendance were businesses who sell precursors and those who work outdoors or in rented spaces (hotels or apartments) and may come into contact with remains of a "cook." In 2004, awareness activities included a "Drug Free in Greene" night of interactive exhibits, another session for the public based on past year's format of having a panel of speakers; plus, being an election year, a political forum is planned for October so candidates can express their views on the handling of drug issues.

Impact: The dangers of Meth were taught at each of the sessions and the media helped expand the information. Agencies that make home visits are more knowledgeable and will know not to enter suspect homes at all or will recognize when to get out sooner. Workers will be safer. Outdoor workers, renters, and hotel employees also were taught to be aware and extra careful. Extension convened a variety of county people to address a very serious local problem. A task force (GUAM—Greene United Against Meth) continues to meet and act to improve the situation. Extension hosted four public sessions on Meth. Over two hundred fifty individuals attended. Ninety-five percent of the attendees indicated they had learned new information they could use immediately. The information learned meant greater safety for most attendees. Procedures for reporting a lab were outlined. The media covered each session and wrote additional articles during the two months the sessions were being held which expanded the knowledge further throughout the county. The content of the sessions was discussed and referred to at other county meetings. A GUAM (Greene United Against Meth) task force continues to meet and plan other actions. The importance of knowing your neighbors and having neighborhood watches was emphasized.

Source of Funds: Smith-Lever, State

Scope of Impact: Greene County

Key Theme: Youth Development --- 4-H

Description: The 4-H component of Purdue Extension utilizes hands-on, research-based education that helps young people become competent, caring, confident, connected, and contributing citizens of character.

Impact: In 2004, 284,021 young people in Indiana (nearly 35% of the state's youth ages 10-18) were involved in some way with 4-H. 73,494 participated with adult volunteers in 2,410 clubs, while 136,799 youth were involved in school enrichment programming and 73,998 participated in after-school and community programming. Additionally, 598,771 youth participated in educational workshops, events and activities or made an information request to a local Extension office or a state 4-H specialist. The 4-H program also involves 17,240 volunteers who contribute an estimated \$297,390 annually in time, mileage and out-of-pocket expenses.

Source of Funds: Smith-Lever

Scope of Impact: State specific

Key Theme: Community Development

Entrepreneurship

Description: Economic development strategies have shifted from industrial recruitment to (a) the retention and expansion of existing firms and (b) the creation of new businesses. Extension provides educational offerings, resources and referrals designed to help existing and potential entrepreneurs enhance their prospects for success. Specific areas of emphasis are small businesses, especially in rural areas; new opportunities in entrepreneurial agriculture and natural resource enterprises (e.g., agritourism); and the strong and growing interest in entrepreneurship among youth and young adults, women, ethnic minorities, and new immigrants. Examples of specific programming follow:

1. A series of workshops titled *So You Are Thinking of Starting Your Own Business* was initiated in Starke and Pulaski counties. These workshops were done in conjunction with local economic development organizations and local Chambers of Commerce.
2. Extension Specialists and Educators conducted three one-day, multi-county workshops for high school teachers. These workshops focused on financial literacy of youth, using the National Endowment for Financial Education's High School Financial Planning Program. Additionally, the Indiana Council for Economic Education (ICEE) provided a variety of ongoing training opportunities and programs on economic and financial education to K-12 teachers. Finally, Extension Educators in Adams, Bartholomew and Pulaski Counties provided leadership for entrepreneurship and economics programming using the Kauffman Foundation's Mini-Society Program. This program targets students in grades 2-6.
3. The National Timber Tax Website (NTTW) was created to provide easy access to basic information to landowners who are growing timber as an investment or business.
4. An Educator initiated a survey for finding ways to create new and improved agriculture in Greene County. Results suggested entrepreneurs needed a place to develop local and regional products for resale.
5. The Hoosier Agritourism Conference Series was established, involving more than a dozen partners.

6. *Nx Level Ag: Tilling the Soils of Opportunity* workshops were held in Allen, LaGrange, and Kosciusko Counties. These intensive 10-session workshops are designed to help new and potential entrepreneurs develop a business plan.

7. An Agricultural Innovation and Commercialization Center (AICC) was created with a \$1M grant from USDA Rural Development. The focus has been on developing easy to use and accessible business planning publications and tools. In particular, a web based business planner uses a question and answer format to assist users in developing business plans.

8. The New Ventures Team, a group of Extension Educators and Specialists, which was initiated in summer of 2002, continued to provide support and guidance to agricultural producers wanting to move away from agricultural commodities to value added products and services. The overall goal is to help launch successful ventures and to prevent ill-conceived ventures.

9. A workshop titled *An Introduction to Starting a Specialty Food Business in Indiana* was held in several locations. Collaborators included the Indiana Small Business Development Centers, Office of Commission of Agriculture, Indiana Farm Bureau, and Indiana Board of Health.

10. Extensive education and training was directed toward Extension Educators and counselors from other agencies (e.g., SBDC) who work with entrepreneurs in evaluating the potential of new business investment. Specific offerings included sessions at Extension's Annual Professional Development Conference and at an ANR training; participation by New Ventures Team members at the National Value Added Conference; and a total of three days in-depth training on two occasions for New Ventures Team members and participants from other relevant agencies and organizations.

11. Two one-half day Grant Writing Workshops were held via IP Video. Agency collaborators included USDA Rural Development and the Indiana Office of the Commissioner of Agriculture. Participants included producers and other entrepreneurs interested in developing new businesses and obtaining government grants to help finance start-up and market development.

Impact:

1. Three of the participants in the Starke and Pulaski county program have now started their own businesses.

2. More than 80 percent of the teachers attending the multi-county workshops on financial literacy used at least one idea from the training. The ICEE programs reached over 3,000 teachers and educators, with 34 school corporations receiving grants to develop innovative school economics programs. Students increase their knowledge of economics and finance by an average of 51% when ICEE trained teachers are compared to non-ICEE trained teachers. Students participating in the Mini-Society Program showed a substantial increase in knowledge gain in the areas of entrepreneurship, economics, government, law, and ethics.

3. The NTTW has become the definitive source of timber tax information in the United States for both landowners and policy makers.

4. Stakeholders in Greene County conceived the notion of a Regional Commercial Kitchen and state government has made available a small planning grant.

5. Nearly 350 participants attended one of the five workshops on agritourism. Surveys of attendees indicated 2/3 felt they were better prepared to begin an agritourism enterprise and over 80 percent were more aware of potential liability and how to address it.

6. Twenty-two participants participated in the *Nx Level* workshops with most of them completing a business plan. Follow-up with those who completed a business plan indicated the plans were being used in a variety of ways to guide the development of the business: monthly planning, capital acquisition and tracking accomplishments. Comments included: “By writing and following the business plan we have been able to present a better image for financial purposes.” and “Sales increased more than projected—50 percent, rather than 25 percent”.

7. Agencies such as the Small Business Development Centers and the Indiana Cooperative Development Center are now using the business planning tools developed by the AICC as they counsel clients. New Ventures Team members are also using the tools and resources developed by the AICC.

8. The New Ventures Team was contacted by 50 people or entrepreneurial groups. Evaluation surveys indicate those seeking assistance were better ready to start a business and thirty eight percent had gone on to start a business.

9. Approximately 75 entrepreneurs attended the *Introduction to Starting a Specialty Food Business in Indiana* workshops. As a result of the workshops participants were able to identify key marketing, food safety and processing concepts. A number of attendees are pursuing product development using technical assistance from the Food Entrepreneurship Program. Twenty five percent of those attending learned that their business concept was not likely feasible and decided not to pursue their initial venture.

Source of Funds: Smith-Lever, grants and local and statewide sponsors and partners

Scope of Impact: Local, regional and statewide

Planning and Visioning

Description: Communities, neighborhoods and regions need to create their own road map for the future in today’s fast paced world of change. Extension can help facilitate these efforts by mobilizing local resources to help plan for the future and by engaging in applied research and providing educational programs and resources that focus on community and regional priorities. Two areas of high priority in many communities and regions are economic development planning/strategies and land use issues. While Extension’s visioning and planning efforts are not limited to these areas, they receive special emphasis. Examples of specific programming follow:

1. With support from Sea Grant, four regional planning agencies in Illinois, Indiana and Wisconsin have agreed to the Wingspread Tri-State Regional Accord.
2. Extension helped launch a Smart Growth Initiative in Lake and Porter Counties. Five Smart Growth programs have been held on best management practices, smart growth tools and other relevant topics.
3. An Extension Educator in Hendricks County recognized a growing concern locally with a variety of environmental issues, including water and air quality and farmland

- preservation. A local committee was formed and Extension's *Planning with Power Program* was brought to Hendricks County.
4. Newton County residents and local officials felt a need to update the County's comprehensive plan. A local Educator informed the Newton County Plan Commission of the educational programs offered by Purdue, including the resources of the Purdue Land Use Team. The Educator was then asked to facilitate the local process, drawing upon techniques gained at *Dealing with Controversial Issues* trainings.
 5. Three IP video programs were held on emerging issues related to land use and land use planning. As many as 14 local sites participated in these IP Video offerings.
 6. In White County, Extension facilitated strategic planning at two levels: a county-wide strategic plan and a strategic plan for the North White School District.
 7. Specialists in two academic departments (Forestry and Natural Resources and Agricultural and Biological Engineering) created a comprehensive GIS data base that will be refined and made available for communities and watershed groups that do not have the resources to generate their own GIS system. This data base is also being incorporated into appropriate Extension programs such as *Planning with Power*.
 8. Extension was asked by the Indiana Economic Development Council to partner in a major economic development planning effort. Specifically, regional plans were developed for each of 12 regions in addition to a state plan. One of Extension's campus based planners and analysts provided much of the data analysis, and also provided overall leadership for identifying and analyzing relevant economic clusters. Additionally, Extension helped organize and facilitate a number of regional "listening sessions" and other types of public meetings associated with this major economic development planning effort.

Impact:

1. The Wingspread Tri-State Regional Accord has resulted in an unprecedented commitment by the signatories to work together to manage environmental, economic, and transportation concerns for the future across traditional jurisdictional boundaries. It has led to the creation of the Lake Michigan Academy through which the relevant agencies have built an active network to further their collaboration and initiatives. This tri-state accord has also led to the creation of the Tri-State Water Consortium which will ensure a sustainable, high quality water supply for future generations in the Chicago Metro area.
2. Porter County has formed an Open Space Committee to revise its ordinances to reduce impervious surfaces, increase open areas, and provide vegetated buffers to positively effect water quality and natural resources.
3. Hendricks County is now involved in a GIS septic system mapping and has changed the local ordinance to allow the Plan Commission to have greater control and negotiating power over proposed projects. This is resulting in higher quality development, an enhancement of the county's overall appearance and greater tax revenues from the higher quality developments.
4. Consensus was reached on the four or five priority issues facing Newton County. This information was then turned over to a consultant who used it to help draft a

- comprehensive plan. The County was able to save at least \$5,000 in consulting fees because of the consensus process and data collection that had already been completed by the Educator.
5. Over 200 individuals from around the state participated in the IP Video offerings. Seventy percent of those returning surveys said they learned something from the program that they can put to use in their communities.
 6. Extension's efforts in White County have resulted in many favorable outcomes. For example, the countywide effort led to the creation of a number of working committees and task forces, and more than \$1M has been raised to move a variety of initiatives forward. In the case of the school district, task forces have been established and are moving forward to address priority issues in a collaborative fashion; and a long-term vision and plan involving school consolidation has been agreed upon. The latter was done in a manner that prevented destructive community conflict.

Source of Funds: Smith-Lever, grants and local and statewide sponsors and partners

Scope of Impact: Local, regional and statewide

Key Theme: Leadership Training and Development

Adult Leadership and Civic Engagement

Description: A rapidly growing body of research indicates that a strong civic infrastructure is a precursor to economic development and in the creation of strong and vibrant communities, neighborhoods and regions. Purdue Extension has a long history of creating and providing educational programs and leadership development opportunities for Indiana residents. Examples include such signature programs as Leadership 20/20, i-LEaD (Indiana Leadership Education and Development), the Master Gardener Leadership Program, and a new Natural Resources Leadership Development Institute. There are approximately 46 community leadership programs in Indiana and Extension Educators are involved in many of them, and Extension provides much of the base curricula, materials and updates even if Educators are not involved. Collateral programs include conflict management and facilitation training, building inclusive communities through multicultural education, grant writing workshops, the Myers-Briggs and Real Colors personality assessment programs, and youth leadership development. Examples of specific programming follow:

1. Communities and organizations in rural LaGrange and Steuben counties were experiencing difficulty in finding skilled and willing leaders to fill leadership roles. Extension Educators offered the i-LEaD program, using experiential learning activities to supplement training from campus via distance education. The use of satellite and IP Video was used in four counties and was especially helpful to emerging leaders who were unable to participate in previous daytime offerings. In addition to the iLEaD program, other types of leadership

programs were conducted in Brown, Tipton and Warrick Counties, and on a multi-county basis in Southeast Indiana.

2. Two Extension Specialists have taken the lead in developing a Natural Resources Leadership Program, in conjunction with the Indiana Land Resources Council, Indiana Department of Natural Resources, Indiana Association of SWCDs, and USDA's Natural Resource and Conservation Service.

3. Purdue Extension specialists have developed a manual and training workshop on successful grant writing skills, including how to develop an idea into a fundable proposal and matching projects with potential funding sources. From 2001-2003, 85 participants throughout Indiana have completed the training program. In 2004, the program was expanded using two-way video programming, partnering campus Extension Specialists with trained Extension Educators to deliver the program across Indiana. More than 300 participants completed the program.

4. A number of Extension programs have been developed to address the fact the Latino population is the fastest growing component of Indiana's population; and this dynamic creates some unique challenges and opportunities in the area of leadership and civic engagement: Extension has been heavily involved in organizing a statewide Hispanic/Latino Summit; Extension's learning centers have taken the lead in offering conversational Spanish classes; and Marion County Extension has initiated a *Cultural Sensitivity Program* to bring knowledge and cultural experiences to communities and organizations throughout Indiana.

5. Whitley County's Extension Director developed a program titled *Diversity is the Recipe for Workplace Understanding* that focuses on appreciating individual values and diversity.

6. More than 10 years ago the Extension Educator who was then serving Brown County helped to initiate and organize the Brown County Community Foundation (BCCF) and served as the Chair of the Board of Directors to help in the formation of bylaws and other aspects of organizational development. The assets of the BCCF have grown from \$16,394 in 1994 to nearly \$4M. The BCCF has invested more than \$5M in such community needs and projects as the YMCA and public library.

Impact:

1. Participants indicate that because of the iLEaD program a variety of changes occur: LaGrange and Steuben Counties—70 percent are more likely to speak out on an issue, join a community organization (50 percent), take an office in an organization (40 percent), and run for public office (20 percent); Clinton County—60 percent are more likely to speak out on an issue, join a community organization (40 percent), and take an office in an organization (40 percent); Vigo County—80 percent are more likely to speak out on an issue, join a community organization (80 percent), take an office in an organization (50 percent); IP Video—55 percent are more likely to speak out on an issue, join a community organization (50 percent), take an office in an organization (39 percent), and run for public office (10 percent). Additionally, a number of former iLEaD graduates have gone on to start businesses and assume leadership roles such as state and county association officers. Similar impacts have been reported for the leadership programs underway in Brown, Tipton and Warrick Counties and in Southeast Indiana.

2. The new Natural Resources Leadership Program has been highly regarded by the participants and follow-up phone calls indicate many of them are using the collaborative problem solving approach with the groups they serve and work with.

3. Participants have shown improved knowledge and skill development as measured by submitted project proposals and a pre/post evaluation assessing basic grant writing knowledge and basic skills. A follow-up survey in 2003 of participants (with a 41% response rate) reports \$678,782 in funds awarded through funded grants. In the five months since the two-way video program was initiated more than \$180,000 has been secured. These grants have been put to a variety of uses, including enhanced computer and health education programs, building upgrades to ensure compliance with the Americans with Disabilities Act, developing a youth fitness and nutrition program and purchasing bulletproof vests for a county sheriff's reserve personnel.

4. Over 200 people attended the 2004 Hispanic/Latino Summit. Virtually all of those returning evaluation forms, indicated another Summit should be held in 2005. One participant noted, "It is important to have the Summit every year in order to keep up with changes in laws, etc." Another participant stated, "The Summit was a great networking opportunity for me as a new professional in the state of Indiana and very informative as to what is the state of Latino-related activities in the State."

During the last year 366 individuals participated in Marion County's *Cultural Sensitivity Program*. Evaluation data show participants are more likely to see new immigrants in a positive light and as an enrichment to the culture of their communities; and many participants made one or more of the following commitments: to become more caring and understanding of new immigrants, to learn Spanish, and to encourage their respective churches to increase their outreach efforts.

The Conversational Spanish for Professionals attracted 320 participants in Clinton County. Considerable improvement was noted in all areas evaluated, with the most improvement seen in the category of feeling comfortable understanding spoken Spanish. The benefits of the course included both value to the individuals in promoting specific communication skills and also value to the community by promoting inter-cultural interaction and understanding.

5. The Whitley County program on diversity was first delivered to the local Extension Board and is now being considered as part of the Whitley County Employee Training Day Initiative. It was also presented at the National NACAA-AMPIC and National ESP conferences. Eighty-three percent of the participants felt it would enhance their job performance; and Extension professionals in Florida and Pennsylvania have adopted the program as part of their training.

Source of Funds: Smith-Lever, grants and local and statewide sponsors and partners

Scope of Impact: Local, regional and statewide

Key Theme: Workforce Preparation—Youth and Adults

Community-Based Learning Centers and Workforce Development

Description: Extension, in partnership with Purdue's Division of Continuing Education, has been heavily involved in creating several community based learning centers. These centers provide a variety of credit and non-credit offerings based entirely on local demand, using both face to face and distance-education technologies. The offerings of these centers, including the emphasis placed on workforce development, are improving the quality of life and the economic opportunities of local residents--especially for those residents currently marginalized from educational opportunities and institutions. Extension will continue to nurture existing learning centers and be as helpful as possible to other communities and neighborhoods that wish to consider the establishment of such a center.

Extension-Continuing Education supported learning centers are operating in Clinton, Hendricks, Jasper-Newton, Pulaski, Tipton and Wells Counties. A collateral workforce development activity is a Work Readiness website created by an Extension specialist. The website provides research; quick facts; links to relevant local, state, and national organizations; information about effective curriculum materials; and potential funding opportunities.

Impact:

The six learning centers have had a major impact on the availability and outcomes of a vast range of offerings. A handful of *selected examples* follow:

- *Hendricks County faces a severe shortage of school administrators. The learning center worked with Purdue's main campus to bring a Masters in Educational Administration to the county to "home grow" the needed administrators. More than 10 local educators have graduated and received their principal's license.

- *In Pulaski County, 471 people have obtained 3,028 hours of training in over 68 classes.

- *Thirty six GEDs have been awarded due to the offerings of the Tipton County Education Center.

- *Whitley County Learning Services is providing computer skills for the workforce. Participants indicate job offers were received due to increased skills after taking classes.

- *Seventy-eight individuals took classes at the Wells County Computer Lab. Surveys revealed the participants increased their skills, knowledge and productivity.

- *Learning center participants were able to save time and travel expenses by being able to receive training locally.

Source of Funds: Smith-Lever, grants and local and statewide sponsors and partners

Scope of Impact: Local, regional and statewide

B. STAKEHOLDERS' INPUT PROCESS

The initial development of the 1999-2004 Plan of Work had extensive input by a cross-section of the citizens of Indiana. Over 5,000 citizens representing the diversity of the Indiana community participated in a series of two meetings hosted by each county extension staff. The purpose of the first meeting was to discover what citizens believed were the important issues in their community. During the second meeting, the listing of issues was reaffirmed with the group establishing a priority ordering of those issues. The county extension staff then prepared county Plans of Work as well as reports that transmitted the findings of each county to the state Program Leaders. From the 92 reports, the Program Leaders classified the many issues into 16 priority issues that form the Indiana Plan of Work.

However, it is critical for stakeholders and all citizens to have a continued opportunity to provide input on identification of issues in their communities. Each of Indiana's 92 County Extension Boards is a broad representation of local citizens who provide identification and prioritization of the issues to be addressed by county extension programs.

In addition, local citizens in each county are selected to represent the connection to the statewide Council on Agricultural Research, Extension, and Teaching (CARET). CARET members represent the Extension Boards, elected officials, community leaders, staff from K-12 education, and business. The key criteria in their selection to CARET are their interest and their willingness to improve the quality of life in their communities through the programmatic functions of Purdue Extension.

Through their county connection, these citizens participate in twice-a-year multi-county meetings attended by County, District, and State Extension administrators as well as others such as the Dean of Agriculture and the Directors of Ag Research, Academic Programs and International Ag Programs. Most of the discussions during these Area CARET meetings focus on issues of concern to these local citizens.

Once each year, typically in November or early December, a State Conference is provided for the members of CARET and County Extension Directors. The format of the Conference is to provide an opportunity for obtaining input from the participants in a facilitated and structured manner. The Conference also provides an awareness of what Extension is providing to the citizens of Indiana and seeking their reaction to future educational needs and issues. The following educational presentations were presented and associated discussions occurred in November at the 2004 State Conference: Role of the Land Grant University in Rural Economic Development, Rural Entrepreneurship, Workforce Development, Collaborative Partnership Building, Youth Entrepreneurship, and Leadership and Civic Engagement.

Most of the College of Agriculture Administrators and Faculty serve as ex officio committee members for county and state agriculture associations and organizations, and receive stakeholder feedback through these interactions.

C. PROGRAM REVIEW PROCESS

There have been no significant changes in the program review processes since Indiana's 5-Year Plan of Work was submitted.

D. EVALUATION OF THE SUCCESS OF MULTI AND JOINT ACTIVITIES

Purdue Extension is proud of its achievement in effectively and efficiently responding to the needs and concerns articulated by Indiana citizens through various means of harvesting their input. To deliver relevant educational information to a spectrum of audiences, Purdue Extension is obligated to continually focus on three major tasks: 1) actively seek citizen input, 2) integrate research and extension outcomes into program planning, and 3) intensely scrutinize programs through effective reporting and evaluation systems. As evidenced by the reports provided for each Goal, Purdue Extension has accomplished these steps.

In the past five years, Purdue Extension has aggressively addressed the responsibility of delivering relevant information to new audiences and new information to traditional audiences. Engaged audiences vary from traditional family, youth, community and agricultural groups to new populations such as Asian or Hispanic communities, and from targeted groups such as participants in funded nutrition education programs to under-served audiences such as families with small farms and Amish farmers. They also vary from traditional families planning retirement to single fathers and from youth in 4-H projects to after-school children involved in enrichment programs. In the past five years, Purdue Extension has become much less tradition bound and more capable of reaching audiences in a variety of high touch and high technology manners.

The process of program evaluation is being improved through the on-going adoption of the LOGIC evaluation model. Extension staff associated with the 16 Plan of Work Oversight Issue teams completed several days of staff development regarding the utilization of this tool. All Extension (as well as research and teaching) staff participated in training in the past three years to prepare them to effectively evaluate their educational programs using the LOGIC model. Within the past year, all field staff participated in a refresher class that focused on program evaluation. In addition, over 30 campus Extension specialists participated in an intense half-day session that focused specifically on the LOGIC model and its application to program planning and evaluation. Two additional professional positions, designed to provide focus on staff

support in the areas of program evaluation and accountability, were added in the office of the Director of Extension.

The System for Accountability and Management (SAM), based on the LOGIC evaluation model, allows Extension staff to report community needs, create an action plan for addressing those needs, and report against the plan. The system allows educators to identify programs that target underserved and underrepresented audiences. Having one system where they can plan, collect data, and prepare impact and other reports allows staff to be more efficient and effective in planning and reporting to stakeholders.

Goal 1: Agriculture is an important component of the Indiana economy and Purdue Extension is working to keep it a profitable and viable industry. Extension staffs have helped non-agriculture adults and youth learn more about agriculture and its needs and concerns, while helping producers stay competitive.

Indiana is experiencing a rapid growth in diversification of crop and livestock production opportunities and as a result Extension has helped citizens explore the feasibility of alternative agriculture opportunities which range from home-based businesses to organic crop and livestock production to direct marketing of produce. Ongoing research and Extension programs, in collaboration with research and Extension in other states, are addressing the issues of on-farm quality assurance of value-added grains and livestock production. Great strides have been made at improving the competitiveness of the beef cattle and small diversified producers of Indiana through the efforts of Purdue Extension.

Goal 2: Food safety and quality education provided by Purdue Extension continues to focus on all stages of the food handling system- production, processing, distribution, preparation, and consumption. Specific programs focus on the food service industry teaching food safety and sanitation and provide the certification examination. These efforts were presented in both English and Spanish during the last year.

Purdue Extension food safety programs reach general consumers with research-based food safety basics that can help consumers and low income audiences learn concepts that can decrease the incidence of food-borne illness. A new program offered last year helps both consumers and professionals become more accepting of food biotechnology.

Goal 3: Purdue Extension emphasizes nutrition education across the state helping adults and youth form healthful dietary practices to support longer, healthier, and happier lives. The Dietary Guidelines for Americans continues to be the backbone for our nutrition education, emphasizing informed dietary choices.

The Expanded Food and Nutrition Education Program (EFNEP) and the Family Nutrition Program (FNP) target limited-income audiences helping these families stretch their food resources while still maintaining high quality nutrition and a balanced diet.

Goal 4: Purdue Extension has focused its research and Extension outreach efforts to address the issues that affect both the farming and non-farming citizens of Indiana. We provide education that allows the public to make sound judgments regarding the use of natural resources, teaching that many of their decisions and activities affect the quality of the environment and the natural resources they use.

Extension Educators have worked with county officials to address land use issues when planning the growth and development of Indiana counties, helping them understand the need to protect critical natural resources from encroachment by development pressures.

A large part of Purdue Extension's efforts is to make farmers, the general public and local officials aware of the issues and the consequences from lack of action to the land and the environment.

Goal 5: Purdue Extension provides resources and educational offerings to help citizens address the economic and social challenges they face. Programming directed at strengthening families is a high priority as well as financial management programming for youth and adults.

The 4-H Youth Development program is delivered by three methods: 1) club programming; 2) school enrichment programming; and 3) community programming resulting in significant growth, and strengthened and new relationships with public schools and community groups and organizations.

Purdue Extension has a long history of creating and providing educational programs and leadership development opportunities for Indiana residents. We provide educational for existing and potential entrepreneurs to enhance their prospects for success. Additionally we help communities, neighborhoods, and regions plan for their future in areas of economic development planning.

E. MULTISTATE EXTENSION ACTIVITIES - CHART

U.S. Department of Agriculture

Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities
 (Attach Brief Summaries)

Institute Purdue University

State Indiana

Check One: X

Multistate Extension Activities

Integrated Activities (Hatch Act Funds)

Integrated Activities (Smith-Lever Act Funds)

| Title of Planned Program/Activity | Actual Expenditures | | | | |
|--|---------------------|--------|--------|--------|------------|
| | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Ag 101- An Agriculture Primer for Regulatory Personnel | | | | | 57,476.03 |
| A Cooperative Partnership for Small to Medium-sized Beef Producers in the Eastern Corn Belt: Phase 1 | | | | | 41,231.47 |
| Strategic Business Planning for Commercial Producers | | | | | 61,493.26 |
| Swine Growth Modeling Extension Project | | | | | 58,197.56 |
| Extension Combines Regional Expertise to Help Fruit Growers | | | | | 53,651.60 |
| Agricultural Lender Education Program | | | | | 54,673.17 |
| Purdue/Illinois Web Site Helps Farmers with Marketing | | | | | 73,064.25 |
| Biocontrol Workshops, Web Site Reduce Pesticide Use in Home Gardens Training and Volunteer Research | | | | | 48,221.48 |
| Total | | | | | 448,008.82 |

David C. Petritz **March 1, 2005**
Director
Form CSREES-REPT (2/00)

E. MULTISTATE EXTENSION ACTIVITIES BREIF SUMMARIES

Ag 101 - An Agriculture Primer for Regulatory Personnel

Regulatory personnel that deal with agricultural producers need to have some level of familiarity with common practices in the production systems they are charged to regulate. The decreasing portion of the U.S. population that has direct exposure to production agriculture makes the need for an agricultural primer increasingly important. Purdue University, representing the interests of other universities and state and local governments, developed a web-based educational module to assist those wishing to gain a better understanding and appreciation of modern agriculture and to understand the complex activities that are required to cope with the uncertainties of day-to-day crop and livestock production. The module also provides realistic assessments of the potential for environmental contamination if those activities are done irresponsibly. The target audiences for this software are U.S. Environmental Protection Agency (EPA) regulatory personnel and those who advise farmers. This program should also be of value to anyone unfamiliar with modern U.S. agriculture. The PC-compatible software was developed to function on any computer that is capable of using the Internet with a modern browser. This makes the program readily and freely available to the target audiences. In cooperation with the U.S. EPA, the Ag101 website was launched in 2004. The site offers information on a carefully-selected, yet broad set of topics including: demographics/economics/land use; crop production; common agricultural production systems in use across the U.S.; impact of climate, slope, site implications and location; drainage and irrigation impacts; pesticide and fertilizer storage and application issues; tillage methods and implications for runoff ; weather effects on production and water quality; soil erosion overview; potential problems and solutions related to soil erosion; pork, beef, poultry, and dairy production (common production practices, common manure collection and storage practices, common land application methods and environmental considerations, other methods of manure utilization); and nutrient balance (nutrient balance concept, nutrients brought onto farm, nutrients removed from farm, and nutrient build up on farm). A glossary of terms is also included to aid the user. There are approximately 320 hits per month for the main Ag 101 page (<http://www.epa.gov/agriculture/ag101/index.html>), but in looking at the detailed statistics it's clear that users are hitting a lot of pages deeper into the site as well. For reference, there are about 1,200-1,500 requests each month for the EPA Ag Center's main page ([epa.gov/agriculture](http://www.epa.gov/agriculture)) and about 50,000 - 70,000 successful requests total each month to the whole site. All of the details are available at: <http://www.epa.gov/reports/objects/oecaagct/>

NE, NC

A Cooperative Partnership for Small to Medium-sized Beef Producers in the Eastern Corn Belt: Phase I

The Five State Beef Initiative (FSBI) has been a partnership between the Land Grant Universities, Cattlemen's Associations, State Departments of Agriculture, and Farm Bureau in Illinois, Indiana, Kentucky, Michigan and Ohio, plus United Producers, Inc., a producer owned livestock marketing cooperative. This partnership was created to develop a vertically coordinated beef production and marketing system that would increase producer profit by meeting consumer demand for high quality beef products. A feedlot project was initiated in 2003 and will be completed in late 2004. A final report was created for Phase II of this project and submitted to USDA/Rural Development in early 2004. Two meetings of the Five State Beef Initiative Board of Directors were held to discuss accomplishments and plan the future. The FSBI has certified 1,438 producers and 2,060 bulls and tagged over 22,100 calves. This project has changed producer mindsets and resulted in a number of secondary alliances, joint ventures and partnerships that have adopted appropriate aspects of the FSBI model. Examples would include the Manager Beef Alliance (MBA) program offered by United Producers, Inc. as well as several county, state, and regional branded beef initiatives. One of the significant impacts of FSBI activities is the building of cooperation among partner groups in creating regional resources, an education network, a business structure that serves producers in the region, and a transferable model that can be utilized by other agricultural commodities. Stakeholders have gained an understanding and appreciation of: the value and importance of unique electronic animal identification for benchmarking, disease traceback, and data sharing between industry segments; beef quality assurance and how it can affect product quality; and the importance of genetics, animal well-being, environmental stewardship, and working together to meet consumer expectations and changing industry needs. This project has changed producer mindsets and resulted in a number of secondary alliances, joint ventures and partnerships that have adopted appropriate aspects of the Five State Beef Initiative model. Examples would include the Manager Beef Alliance (MBA) program offered by United Producers, Inc. as well as several county, state, and regional branded beef initiatives. One of the significant impacts of FSBI activities is the building of cooperation among partner groups in creating regional resources, an education network, a business structure that serves producers in the region, and a transferable model that can be utilized by other agricultural commodities.

IL, IN, KY, MI, OH

Strategic Business Planning for Commercial Producers

Extension Educators have found that many farm business managers in Indiana and across the Midwest need improved financial and strategic management skills. To be one of the successful farms in the future, farm business managers must have a comprehensive set these tools, but many do not have even a partial set. Two methods for addressing this problem were developed by a team of Purdue Extension specialists. This effort was called Strategic Business Planning for

Commercial Producers. First, a multi-session program was delivered to an audience of Indiana producers. The classes consisted of intensive one-on-one strategic consultation, group work, case study analysis, and financial skill development. The 18 participants were introduced to and applied advanced business management concepts to the strategy and financial management problems confronting their management teams. Further classes in Indiana are in development. Second, a comprehensive curriculum of educational materials used in the classroom was created and released to Extension Educators for use in developing their own programs. The carefully developed package, including 33 annotated PowerPoint presentations, accompanying exercises and numerous specialized publications, is available to all educators via a website. This year four new publications were written to expand the resources available. Visit the website at www.agecon.purdue.edu/extension/sbpcp.

Program leaders have seen a marked evolution in how farm managers view the strategic focus of their businesses. While gaining skills in the short-term financial control of their business, participants have developed a long-term view of the profitability of their business essential to success. One participant in an earlier session said “As we grow our business, there are a lot of challenges ahead for the future that we need to address. At these seminars, we've learned how to manage our assets, how to manage our resources, and how to manage our employees. Also, we've looked at how to think about growing the business. These are things for the young farmers and nurserymen of the future to be aware of - or we won't be in the business.” Other Extension specialists have found the curriculum very useful. The initial target audience was the North Central Region Farm Management Extension Committee, comprising 12 states. Extension specialists from those states have used the materials in whole and in part in presentations on business management. Web site statistics indicate that the site has been visited by 1,463 users. The average visitor spends 10 minutes on the site and has used the site 2.6 times. This educational program provides needed skill improvement in financial and strategic management via two methods. As a comprehensive resource for educators everywhere these materials can be used for teaching farmers additional business management skills. As a teaching program in Indiana it has improved management skill through intensive class sessions.

OH, CO

Swine Growth Modeling Extension Project

Pork producers are striving to produce quality lean pork as efficiently as possible with minimal environmental impact. Feed represents approximately 60% of the costs of pork production. Feeding pigs the optimal levels of essential amino acids and phosphorus will reduce feed costs while reducing environmental impact. Recently a feed additive, Paylean, has been approved to increase the rate and efficiency of lean growth. The use of Paylean must take into account the marketing system and product system economies. A pig compositional model has been developed that predicts a compositional growth live weight growth and feed intake curve for each pig in a 1000 head finisher. The program has been used to (a) evaluate the optimal marketing strategy with and without Paylean; (b) the cost of fixed scheduling; (c) the impact of errors in the timing of the initiation of Paylean feeding; and (d) the use of new animal sorting technology. The model determines the most profitable series of diets in terms of live weight growth, carcass

composition, and feed conversion for Paylean-fed pigs for different carcass-value-based marketing systems. The model can be used to establish specifications for a series of diets that maximize profitability for pigs fed Paylean for the given marketing system.

The research results have been discussed with pork producers by four different means: large producers were invited to attend regional meetings; a series of swine research reports; a series of popular press articles (National Hog Farmer); a series of seven teleconferences. Research has been conducted examining the use of bodyweight records collected by animal sorting technologies. These machines weigh each pig multiple times daily but usually without any individual pig identification. A method to analyze these pig body weight measurements has been developed. The method allows for the development of 100 percentile body weight growth curves that be used to determine the optimal marketing, Paylean use and barn turn over strategy. The use of this analysis has been discussed with the manufacturer of Paylean and the manufacturers of animal sorting technologies. The feeding of Paylean can substantially increase the efficiency of swine growth and profitability. However, the benefits of Paylean feeding can only be fully achieved with improved feeding and marketing management. Initial research results indicate that the collection of serial live weight and compositional data as well as development and implementation of the optimal marketing system via animal sorting technology can result in a \$7,000 to \$10,000 increase in profitability per 1000 head finishing facility. The optimal use of Paylean increased profitability for the 1000-head finisher an additional \$9,000 per year. The teleconferences reached the managers, owners or technical representatives of over 70% of the US pork industry. Over 90% of the participants felt the information on the modeling work will alter their use of Paylean.

KS

Extension Combines Regional Expertise to Help Fruit Growers

With the exception of Michigan, the Midwest states are not major producers of small fruits or tree fruits. However, there is a significant fruit industry in most of the Midwest states. Fruit growers in those states tend to grow primarily for direct market sales and are widely scattered over the states. Many of the recommendations for fruit production and pest management from the major producing states are not appropriate for smaller operations in the Midwest. There was a need to provide fruit production and pest management information that was specifically targeted at fruit growers in states with small fruit industries. The Midwest Fruit Workers consists of Extension personnel with responsibility for fruit from 11 Midwestern states; Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Missouri, Nebraska, Ohio, West Virginia and Wisconsin. This group meets annually at the Midwest Fruit Workers Conference in Indianapolis to work on cooperative publications. Each year, the Commercial Tree Fruit Spray Guide and Midwest Small Fruit and Grape Spray Guide are revised and updated to provide growers with the latest information regarding pest management alternatives. Other publications produced by this groups include Midwest Tree Fruit Pest Management Handbook and Midwest Small Fruit Pest Management Handbook. Publications targeted at home fruit growers include Tree Fruits: Insect and Disease Management for Backyard Fruit Growers in the Midwest and Small Fruits: Insect

and Disease Management for Backyard Fruit Growers in the Midwest. For each of these publications, the pooled knowledge of Extension specialists from all the cooperating states is merged to produce a single set of recommendations that are used throughout the region. The Midwest Fruit Workers provide information on fruit production and pest management for commercial and backyard fruit growers throughout 11 Midwestern states. Each year, over 4000 of each of the Midwest Commercial Small Fruit and Grape Spray Guide and Commercial Tree Fruit Spray Guide are distributed for use by fruit growers in the 11 states. By working cooperatively, the quality of the publications is enhanced beyond what could be done individually. As a result, fruit growers will use the correct pesticides for particular pests at the proper time, resulting in improved control, less overall pesticide use, and reduced pesticide residues on fruit crops.

AR, IL, IN, IA, KS, KY, MO, NE, OH, WV, WI

Agricultural Lender Education Program

To improve the knowledge of lenders in the area of lending to agricultural producers and agribusinesses, an Extension Education Program was conducted that included the following: one-day conference for Indiana Bankers (Bankers Agricultural Clinic), two-day Advanced Agricultural Credit School for Indiana Bankers, one-half day session on agricultural lending and credit analysis with the Community Bankers of Illinois, one-day session on agricultural financial statements with Kansas and Nebraska bankers, three-day session on agricultural lending with Arkansas and Missouri lenders, week-long school on agricultural lending with Indiana, Illinois, Michigan, and Ohio bankers, one and one-half day session with loan officers for AgQuest and Land-O-Lakes in Minnesota, a concurrent session at the American Bankers Association Agricultural Conference, two presentations to agricultural producer groups, three articles in Hoosier Banker magazine, and one article in the Journal of the American Society of Farm Managers and Rural Appraisers. The attendance at the three conferences was 203, attendance at the five multi-day schools was 123, and attendance at the two producer programs was 43. Lenders who attended the schools and conferences learned how to prepare and analyze financial statements to assess creditworthiness. Financial ratios were then compared to industry averages and benchmarks to determine business strengths and weaknesses. Finally, changes considered for an individual business to address those weaknesses were evaluated using a profitability linkage model to assess the impact on financial performance and condition. The schools and conferences were evaluated and/or a lender committee was used to plan future programs.

MO

Purdue/Illinois Web Site Helps Farmers with Marketing

Agricultural producers and agribusiness managers repeatedly say that marketing of the products they produce is one of their biggest challenges. In particular they request more information on marketing alternatives and price outlook topics to

1. Better understand the forces that influence prices, and to
2. Enhance profitable decision making and to better manage risks in their businesses.

With staff at the University of Illinois, a Purdue Agricultural Economist coordinate a weekly newsletter and quarterly reports on corn, soybeans, cattle, and hogs. Weekly reports target current market events that are moving prices. The focus of the weekly newsletter is to provide a review and analysis of how current news may impact prices. Suggestions are provide to producers for how this may affect their marketing decisions. The quarterly reports provide detailed sets of historical data and more in-depth analysis of supply and demand factors in each commodity. The quarterly reports tend to be used by other analysts and advisors that work directly with producers in their marketing decision. Material is accessible from Web sites at both the University of Illinois and Purdue University. The web sites with this information have about 200,000 hits per year. Our weekly newsletter is reprinted in most of the ag weeklies in Illinois and Indiana. In addition, the weekly newsletter is received electronically by all Ag and Natural Resource educators in Illinois, Indiana, and Wisconsin. Most all agricultural producers in Illinois and Indiana would be exposed to this material. There are also many related media interviews that are generated. Nearly all producers of corn, soybeans, cattle, and hogs in Illinois and Indiana have some exposure to the information in these newsletters and reports. Decision making in these industries which total about \$11 billion in the two states would be improved by access to this information and analysis. The material is used in other states as well, and is often quoted by many media outlets both regionally and nationally.

IL

Biocontrol Workshops, Web Site Reduce Pesticide Use in Home Gardens Training and Volunteer Research

Home gardens in Indiana and throughout the United States receive more pesticides per acre than many crops. Loss of pesticides registrations for many home garden uses has left homeowners in need of alternatives. Unfamiliarity with many non-pesticide tactics presents a major barrier to their use by the general public. Purdue professors in the Department of Entomology developed a Web site to help gardeners learn about biological control of insect pests in home gardens. Between 1998 and 2003, more than 700 Master Gardeners in Indiana, Illinois, Ohio and Kentucky were taught alternatives to the use of insecticides in workshops using the Web site. Gardeners also learned to conduct experiments in their backyards and were encouraged to participate in a summer research program that tested specific control methods. Workshop participants were surveyed before the workshop, and in two successive growing seasons to measure changes in their pest management practices. The program was so popular among Master Gardeners that the professors developed a shortened course designed to teach the material in a three-hour session. This mini version has been given to over 200 individuals in seven workshops, including the 2003 International Master Gardener Conference. Home gardens in Indiana and throughout the United States receive more pesticides per acre than many crops. To reduce pesticide use, Purdue entomology professors developed a Web site to help gardeners learn about biological control of insect pests in home gardens. The Web site was also featured in HGTV.COM. In the last six years, more than 700 Master Gardeners in Indiana, Illinois, Ohio and Kentucky attended workshops that used the site. Extension educators in 20 states downloaded

training materials. Follow-up surveys showed that more than 20 percent of workshop participants stopped applying insecticides, herbicides, and fungicides for up to two growing seasons. Extension educators in 20 states, from New Jersey to Georgia and Alaska, have downloaded training materials from the Web site. Follow-up surveys showed that more than 20 percent of participants stopped applying insecticides, herbicides, and fungicides for up to two consecutive growing seasons. The Web site was also featured in HGTV.COM as a useful resource for finding alternatives to managing garden pests. Gardeners who voluntarily participated in biological control research more often adopted biological control practices. More than 30 percent of this group reduced or eliminated pesticide use in their gardens. University of Georgia specialist, Susan K. Bremen, commented, "Wanted to compliment you on the scope and impact of the ACORN program. I have been contacted by Diane Housemen who was so motivated by your presentation to master gardeners that she would like to make the program and educational opportunity available in her (coastal) area of Georgia. Terrific work!"

IL

F. INTEGRATED RESEARCH & EXTENSION ACTIVITIES - CHART

U.S. Department of Agriculture
 Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities
 (Attach Brief Summaries)

Institute Purdue University

State Indiana

Check One:
 Multistate Extension Activities
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

| Title of Planned Program/Activity | Actual Expenditures | | | | |
|--|---------------------|--------|--------|--------|-----------|
| | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| An Extension Guide for Interpreting Nitrate Concentration in the Tile Drainage Water | | | | | 53,403.00 |
| Genetics of Pork Growth and Swine Lean Growth | | | | | 58,197.56 |
| Using Dietary Acids as Alternatives to Antibiotics | | | | | 57,476.03 |
| The Effect of Co-Mingling Litters on Piglet Behavioral and Welfare | | | | | 21,019.26 |
| Determining Non-Laying Hens | | | | | 22,452.98 |
| A Cooperative Partnership for Small to Medium-sized Beef Producers in the Eastern Corn Belt: Phase I | | | | | 41,231.47 |

| | | | | | |
|--|--|--|--|--|-------------------|
| Alfalfa Yield Improvement | | | | | 55,313.35 |
| Leadership in Drainage Water Management in Indiana | | | | | 19,744.07 |
| Strip Tillage and Nutrient Banding: A Systems Approach with High Potential | | | | | 41,179.64 |
| Growing Organic Apples | | | | | 53,651.60 |
| Improving Food Safety in Indiana Apples | | | | | 39,586.81 |
| CystX Soybean Varieties Increase Financial Return to Farmers | | | | | 5,531.67 |
| Total | | | | | 468,787.44 |

David C. Petritz
Director
Form CSREES-REPT (2/00)

March 1, 2005

F. INTEGRATED RESEARCH AND EXTENSION ACTIVITIES BREF SUMMARIES

An Extension Guide for Interpreting Nitrate Concentration in Tile Drainage Water

The combined objectives of maximum corn yields, efficient use of inputs including fertilizer and improved water quality in agricultural watersheds has led to both agricultural and regulatory industry interest in measuring nitrate nitrogen (NO₃-N) concentrations in field drainage tile outlets. Crop, soil, and fertilizer management practices can have a strong influence on the amount of nitrogen (N) that is leached through soil and susceptible to loss in tile drainflow. However, other factors beyond a farmer's control can also strongly influence NO₃-N leaching and these need to be considered when attempting to evaluate success of N management practices based on NO₃-N concentrations measured in tile drainflow. Because of the importance of both tile drainage and nitrogen fertilizer to corn production in the Eastern Cornbelt, NO₃-N concentrations in tile drainage water have been studied extensively by university researchers. Purdue university staff have developed an Agronomy Guide publication for technical personnel in the agriculture industry and conservation professions. The purpose of this publication is to provide some general guidelines for interpreting measured NO₃-N concentrations in drainflow samples collected through monitoring programs, and to describe the most important factors influencing drainflow NO₃-N concentrations. Collectively, numerous experimental results from university researchers suggest some common guidelines for interpreting the meaning of results from water testing programs. This publication translates this research information into a technical bulletin that permits individuals involved in public or private water monitoring efforts to draw scientifically supported conclusions about potential linkages between agricultural land management and surface water quality.

Genetics of Pork Quality and Swine Lean Growth

Ractopamine (Paylean), a feed additive, increases lean growth and carcass lean percentage. The response to Paylean decreases with duration of feeding. Pigs outside the pork processors optimal carcass weight range are heavily discounted. For this reason, many pork processors sell 20-30 % of their fastest growing pigs prior to the start of Paylean feeding. The economic benefits of Paylean feeding can be increased if the duration of the response could be increased another one to two weeks. A research trial was completed comparing a Paylean step-up program to a control treatment. The data was used to refine the lysine requirements for pigs fed the increased concentration of Paylean. The research results validated the model predictions of that lysine essential amino acid requirements are higher for Paylean fed pigs than control pigs and the lysine requirement does not drop as in the case of control pigs or pigs fed diets containing a constant dietary concentration of Paylean. The data indicated Paylean step-up programs can extend the duration of the Paylean response. Currently, 50% of all market pigs (50 million) are being fed

Paylean. Step-up programs can increase returns from \$0.80 to \$1.10 per pig over pigs fed constant levels of Paylean. Currently 20% of the producers using Paylean have switched to using a step-up program. The feeding of Paylean increases carcass lean growth and increases carcass lean mass by 7 to 10 percent improving pork processing efficiency. Pork producers need guidance in the optimal use of Paylean for their specific economic and marketing situation. The results of the stochastic pig growth model have been used to demonstrate how dietary lysine concentrations and marketing strategies change with the feed of Paylean.

Using Dietary Acids as Alternatives to Antibiotics

For several decades, antibiotic growth promoters have been used in diets of young pigs to reduce the incidences of post-weaning diarrhea and enhance growth performance. Because of the development of resistance in a number of pathogenic bacterial species, precautionary actions have been taken recently in Europe and to a lesser extent in the US to exclude several antibiotics from pig diets. Organic and inorganic acids and their salts are potential alternatives to in-feed antibiotics to improve the performance of weaned piglets. Additionally, recent interest has also focused on the acidification of drinking water as a means of combating reduced growth performance of nursery pigs associated with the post-weaning lag. The objective of this study was to evaluate the effects of diet and water acidification on the growth performance, microbial shedding, and fecal pH of nursery pigs. This study utilized 205 pigs in a 34 d nursery trial to evaluate the effects of diet and water acidification on weanling pig growth and microbial shedding. Pigs (~19.2 d of age) were assigned to one of three dietary treatments: 1) Basal negative control diet; 2) Diet 1 + 55 ppm carbadox; 3) Dietary acid; diet 1 + .4% organic acid based blend (fumaric, lactate, citric, propionic, and benzoic acids) for d 0-7 followed by .2% inorganic acid based blend (phosphoric, fumaric, lactic, and citric acids) for d 7-34. These three diets were factored with or without water acidification of .33 oz/gal of a propionic and acetic acid based blend (KEM SANTM). Pen FI and individual body weight were recorded weekly. Treatments were fed in three phases: d 0-7, 7-21, 21-34. Feces were collected on d 6, 20 and 33 (3 pigs/pen) for measurement of pH and E.coli. No treatment effects were observed during phase 1. During phase 2, pigs fed carbadox had greater ADG and G:F than pigs fed dietary acids and tended to have greater ADG than pigs fed the negative control. During phase 3 and overall, pigs fed carbadox had greater ADG (overall; .857 vs .767 and .766 lb/d, respectively), ADFI and d 34 BW (41.3 vs 38.2 and 38.2 lb, respectively) than pigs fed the negative control and dietary acids. Phase 3 ADG was improved by water acidification across all diets, while water acidification increased ADFI only in pigs fed carbadox and negative control diets but not dietary acids. Feeding carbadox tended to reduce E.coli on d 33 compared with pigs fed dietary acids. Pigs fed dietary acids tended to have lower fecal pH than pigs fed carbadox on d 20. Pigs receiving water acidification tended to have lower fecal pH than pigs receiving no water acidification on d 33. In collusion, pigs fed carbadox were 3.1 lb heavier at d 34 post-weaning than both negative control and dietary acids. The combination of dietary acids with water acidification resulted in decreased ADFI and overall growth performance, while all other treatment combinations improved pig growth above the non-antibiotic negative control alone. The use of water acidification in this study indicates that it has a greater potential to improve pig performance in a diet containing no antibiotics than dietary acidification and may reduce microbial shedding. The addition of water

acidification improved the performance of the weanling pigs fed a non-antibiotic control diet, such that these pigs were nearly 2 lb heavier than the negative control pigs without water acidification, recovering 50% of the lost performance relative to a positive antibiotic control. The separate use of either dietary and water acidification has the potential to increase nursery pig performance and may further improve pig performance when these pigs are already being fed an antibiotic based on the results of this study. However, over acidification with both water and dietary acids will decrease pig feed intake and growth performance.

The Effect of Co-mingling Litters on Piglet Behavioral and Welfare

The US swine industry is under considerable pressure to consider alternative housing methods which may improve animal welfare. Co-mingling litters prior to weaning has been shown to improve the welfare of piglets after weaning. Changes in piglet behavior and physiology which may explain this phenomenon is presently unknown. An experiment has been completed to examine how co-mingling litters prior to weaning influences behavioral development, growth and their response to various behavioral tests.

Co-mingled piglets grew at the same rate as control piglets and were more adapted to social challenges before weaning. The results indicate that co-mingling piglets prior to weaning alters behavioral development in a manner that improves animal welfare. Results indicate that co-mingled litters were just as productive but had improved responses to social challenges. Co-mingling litters may improve welfare with little negative economic impact.

Determining Non-Laying Hens

In the United States, there are nearly 300 million layer hens, the ones which produce table eggs. On average, approximately 216 million layers producing eggs (72%) or put another way, 28% which equals nearly 84 million layers did not produce an egg. Purdue research is focused on how to identify these “non-layers or low-producing hens”. A Purdue Extension Specialist has devised a non-invasive way via feed additives to correctly identify non-laying or low-producing hens. By correctly identifying these hens, producers could save money on feed cost, disposal of the birds, and improve the environment by directly reducing the amount of manure discharge when these birds are removed. In addition, there is now a technique to enhance yolk appearance in eggs. This may provide value to producers through niche markets. Through this method of selection, producers can effectively reduce 1-5% of the non-layers in a layer flock, which in turn increases the overall profitability of a layer operation; that is, when the layers are removed, the direct cost of feed will be reduced proportionally and thus producers will realize a greater profit margin on the remaining birds as well as a reduction in manure discharge.

A Cooperative Partnership for Small to Medium-sized Beef Producers in the Eastern Corn Belt: Phase I

The Five State Beef Initiative (FSBI) has been a partnership between the Land Grant Universities, Cattlemen’s Associations, State Departments of Agriculture, and Farm Bureau in

Illinois, Indiana, Kentucky, Michigan and Ohio, plus United Producers, Inc., a producer owned livestock marketing cooperative. This partnership was created to develop a vertically coordinated beef production and marketing system that would increase producer profit by meeting consumer demand for high quality beef products. A feedlot project was initiated in 2003 and will be completed in late 2004. A final report was created for Phase II of this project and submitted to USDA/Rural Development in early 2004. Two meetings of the Five State Beef Initiative Board of Directors were held to discuss accomplishments and plan the future. A third meeting is planned for late November to conduct a strategic planning session. The FSBI has certified 1438 producers and 2060 bulls and tagged over 22,100 calves. This project has changed producer mindsets and resulted in a number of secondary alliances, joint ventures and partnerships that have adopted appropriate aspects of the FSBI model. Examples would include the Manager Beef Alliance (MBA) program offered by United Producers, Inc. as well as several county, state, and regional branded beef initiatives. One of the significant impacts of FSBI activities is the building of cooperation among partner groups in creating regional resources, an education network, a business structure that serves producers in the region, and a transferable model that can be utilized by other agricultural commodities. Stakeholders have gained an understanding and appreciation of: the value and importance of unique electronic animal identification for benchmarking, disease trace-back, and data sharing between industry segments; beef quality assurance and how it can affect product quality; and the importance of genetics, animal well-being, environmental stewardship, and working together to meet consumer expectations and changing industry needs.

Alfalfa Yield Improvement

How environment and genetics interact to alter alfalfa forage yield is not well understood. An 8-year long study to follow forage yield and its components from seeding (1997) to demise (2004) of an alfalfa stand was conducted. Fertilizer application was varied in hope of accelerating stand death or improving plant persistence. If alfalfa yield components (plant/ft²; shoots/plant; mass/shoot) respond to application of phosphorus and potash were better understood, researchers would be in a position to create new varieties that are more responsive to fertilizer applications. Knowing critical soil test and tissue test values, below which forage yield will be limited by nutrients, will allow Extension staff to advise producers on appropriate corrective applications of P and K. In addition, it will prevent application of excessive amounts of these nutrients that would reduce profitability or might pose a risk to the environment. In addition, by comparing P and K levels of soil tests, tissue analyses, and yield, producers will have information on the fertility needs of their individual fields. Plant persistence (no. per square foot), shoot numbers per plant, and how massive individual shoots become in response to 20 combinations of P and K fertilizer application were examined. The increased forage yield of alfalfa was due in large part to increased mass per shoot. Because fertilizer-responsiveness is closely associated with greater shoot mass, cultivars possessing this trait may be relatively more productive under well-fertilized conditions. Soil test and tissue test values that are necessary for high forage yield are currently being evaluated.

Leadership in Drainage Water Management in Indiana

Subsurface tile drainage of crop land is a major source of the nitrate load in the Mississippi River Basin and has been linked to hypoxia in the Gulf of Mexico. Research in other states had suggested that managing drainage through the use of water control structures in winter can substantially reduce nitrate loss through tile drains. Another potential benefit (which has little research verification) is that raising the drainage outlet in the growing season may save enough water to boost crop yields. Indiana has one of the highest percentages in the US of crop land with subsurface drainage, yet little of the drainage was managed with control structures, and no Indiana research was advancing the practice. Purdue Researchers participate in the national Agricultural Drainage Management Systems Task Force, a partnership of USDA Agricultural Research Service (ARS), Natural Resources Conservation Service (NRCS), and land grant university faculty. This group has met several times each year since 2002 to develop strategies for improving drainage practices to reduce adverse impacts while enhancing crop production and conserving water. A proposal was written to USDA CSREES to research the water quality, soil quality, and farm profitability impacts on four Indiana farms. The project, which was funded, will help to determine the yield, soil quality and other private benefits of drainage water management on corn and soybean cropping systems, and the impact of widespread adoption of the practice on nitrate loss at the watershed level. The integrated water quality grant enables the researchers to install and monitor paired field on-farm trials of drainage water management systems on four Indiana farms. Data Collection will begin by the end of 2004, enabling us to compare nitrate loads during the 2004-2005 drainage season, and to compare crop yields in the 2005 growing season. Education on drainage water management practice is being carried out through many means including the Field Day at Davis-PAC, publicity for the field day which reached a much wider audience, discussions at meetings such as the NRCS State Technical Committee, and planned education of all NRCS county staff. Few people in Indiana had heard about drainage water management in 2003, but now agencies and industry are showing widespread interest in the practice. Our research will assist Federal, state, local, and non-governmental soil conservation and water quality organizations in making decisions on drainage water management promotion, and it will help growers faced with the choice of initiating drainage water management on their land.

Strip Tillage and Nutrient Banding: A Systems Approach with High Potential

Although the adoption of no-till cropping is better in Indiana than in many other Corn Belt states, no-till adoption is very unevenly divided between soybean (near 60%) and corn (near 20%). That unequal adoption also occurs in other parts of the Corn Belt. Some of the reasons for lower no-till adoption in corn involve producer concerns for planting delays, nutrient stratification, uneven plant establishment and lower yields. Unfortunately, the tillage systems used prior to corn all too often are deep, intensive and result in very little protective residue cover on the soil surface. Furthermore, under such tillage management, the soil structure benefits that accrue with no-till during rotation crops are often negated when corn is produced. Purdue University has been

conducting applied field research on strip tillage for over 15 years, and has been a keen advocate for its adoption. Strip tillage is a system that preserves most of the residue cover benefits of no-till while providing the additional advantages of facilitating deep nutrient banding, and achieving earlier soil drying in spring, warmer seedbeds for young corn seedlings, and improved yield consistency - relative to conventional tillage systems - for corn on many soils. Many corn producers are now using strip tillage as an alternative to both direct no-till and conventional tillage primarily because of the improved seed environment and increased planting flexibility it offers. The recommendations from Purdue have assisted many producers and crop consultants with decisions regarding tillage timing, shank depth, banded nutrient rates, and general nutrient management for the crop rotation cycle when strip tillage alternates with another tillage system for rotation crops like soybean or wheat. The joint benefits of strip tillage and simultaneous nutrient banding have been carefully researched, and the tentative conclusions about this promising system have been widely shared to the agricultural community in several countries. Farmer adoption of strip tillage is increasing, and this has helped to counteract somewhat some of the slow adoption of the no-till system itself for corn.

Growing Organic Apples

More commercial apple growers are looking to grow organic apples. The Food Quality Protection Act is likely to severely reduce the availability of pesticides that are essential to conventional apple growers. Investigating organic methods may provide us with non-chemical alternatives that could be used by conventional growers. Also, there is a lot of interest in growing organic apples, but no one really knows how to do it well. Because of the many disease and insect pests that attack apples it is imperative to use disease and insect resistant apple varieties; unfortunately, there are no apple varieties that resist all diseases or all insects. Growers must therefore use a combination of plant resistance and environmentally friendly pesticides to produce organic apples. Research at Purdue University will provide the best of such combinations. This past year researchers continued to monitor for disease occurrence and severity on those cultivars within the apple scab resistant plots. Previous and current year data indicate that major disease problems for organically grown apples in Indiana will be apple scab, fire blight and sooty blotch and flyspeck. In addition, field trials using new 'organic' products for the control of apple scab and sooty blotch and flyspeck were incorporated into our ongoing organic fungicide program in which the strobilurin fungicide, Sovran, is used as the standard. Field data from this year's research will help determine how commercial Indiana apple growers can produce the highest quality organic apples with the least amount of pesticides. Current research is making the goal of growing organic apples more attainable for Midwest growers. Research continues to look at new 'organic' products to control some of the more common insect and disease problems encountered in Indiana and other Midwest states. By using a combination of minimal sprays along with safer 'organic' products we are closer to our goal of growing organic apples.

Improving Food Safety in Indiana Apples

Indiana apple growers have relied on organophosphate insecticides to manage many serious pests that attack their crop. In 1994, organophosphate insecticides accounted for 84% of the insecticides used on Indiana apples. The EPA has expressed concern about the potential impact of these insecticides on human health, especially children. There was a need to discover how Indiana apple growers could use less toxic insecticides for insect control and, at the same time, improve the safety of Indiana apples. In 1994, Purdue scientists conducted a pesticide use survey of Indiana apple growers to establish a baseline against which to compare future use patterns. Since then, we have conducted numerous field experiments to evaluate possible alternative strategies for managing insect pests of apples without using organophosphate insecticides. The researchers used extension workshops and meetings, presentations at professional meetings, extension newsletters, and one on one consultation to teach Indiana apple growers new methods for controlling insect pests. Purdue scientists conducted a follow-up survey in 2002 to measure changes in insecticide use. Purdue scientists conducted field experiments to find less toxic insecticides for Indiana apple growers. Growers were taught how to best use these alternative insecticide so that they could still produce a marketable crop through workshops, newsletters, and consultations. Use of alternative insecticides increased by 69% from 1994 to 2002, and accounted for 27% of the total insecticide use on apples. Testimonials from growers and pesticide sales personnel indicate that in 2004, there was a dramatic shift in pesticide use, away from the organophosphate insecticides toward safer alternatives. An additional pesticide use survey will be conducted during the winter of 2004 - 05 to document the additional changes in pesticide use

CystX Soybean Varieties Increase Financial Return to Farmers

Over 60,000,000 acres in the U.S. are infested with soybean cyst nematode (SCN), which is best managed by planting resistant varieties of soybeans. Researchers at Purdue and Indiana Crop Improvement Association (ICIA), with partial support from the Indiana Soybean Board (ISB), discovered and developed the PUSCN14 germ plasm, which has complete and broad-based resistance to SCN and can be incorporated into high-yielding soybean lines with no yield drag. Access Plant Technology licensed and is marketing the patented new technology to soybean development companies under their registered logo, CystX. Many farmer yield reports for CystX varieties are now available from several states with heavy SCN infestations, including Indiana, Illinois, Missouri, Arkansas, and Iowa. These farmers report production increases from 3 bu/A to 18 bu/A for CystX varieties as compared with the best SCN resistant varieties previously available. At a soybean price of \$5/bu, these yield increases equal \$15 - \$90/A. The number of soybean developing companies that are commercializing CystX varieties will double from three to six in 2005. About 90% of the CystX varieties currently available are stacked with RoundUp Ready.

Information Systems for Environmental and Natural Resource Management

Non-point source (NPS) pollution causes tens of billions of dollars in damage worldwide each year. Due to the diffuse nature of NPS pollution, identification of the most problematic areas can be difficult. The identification of local watershed boundaries is often required in assessing local hydrology and water quality issues. A WWW-based watershed delineation capability has been created and interfaced with a WWW GIS tool and hydrologic/water quality models (<http://pasture.ecn.purdue.edu/~watergen/>). The system allows users using only a WWW browser to zoom to a location of interest, view GIS data, select a watershed outlet (any point on a stream), obtain an estimate of the watershed boundary, obtain watershed characteristics, and run hydrologic/water quality models for the watershed. The WWW-watershed delineation capability allows users to quickly and easily obtain estimates of local watershed boundaries for any location of interest. The watershed and its properties can be used within hydrologic and water quality models interfaced with the system to identify water quality issues. The decision support system greatly simplifies the identification of water quality issues and potential solutions. Analysis of land values from 2000 thru 2003 for north central Indiana reveal that development values for land in and around urbanizing areas can exceed \$15,000 per acre. The high land prices reduce the cost effectiveness of land use change programs designed to improve water quality.

