PLAN OF WORK

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Cooperative Extension Service
Purdue University

Federal Fiscal Year
2001

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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 2001. 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; Multistate Extension Activities; and Integrated Research and Extension Activities. This report indicates acceptable progress towards our overall goals.

Impact statements from Purdue's School of Agriculture, School of Consumer and Family Sciences, School of Veterinary Medicine, and Cooperative Extension Service may be viewed at the following website: http://www.agcom.purdue.edu/AgCom/news/impact/Impacthome.html.

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FY 2001 ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

A. PLANNED PROGRAMS

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

Purdue Extension focused on several programs related to Goal One. For FY 2001, a total of 5,242 contact days were devoted to primarily three programs: Agricultural Competitiveness, Horticulture and Turf, and Alternative Agricultural Enterprises and Practices. These efforts resulted in a reported 278,215 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.

Purdue Extension is committed to providing the education and outreach programs necessary for Indiana producers to adopt emerging technologies and research results that will keep the State's agriculture financially stable and globally competitive. During the past fiscal year, Purdue Extension reported 3,145 contact days being devoted to this important issue, and resulted in 122,034 direct people contacts. 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 improve production efficiencies, makes producers more competitive, and adds value to Indiana agricultural products.

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 651 days to programs that exposed 339,134 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. Our 2001 educational and outreach programs on crop diversification reached 139,871 people in 1,655 contact days. Farm families

all across the state are looking for ways to stay in the farming business by adding value to the commodity crops they produce or by looking for niche markets with new crops. In the southern region of the state, the tobacco producers have lost nearly 70% of their allotted acreage support over the past five years. All of this has placed an increased demand on Purdue Extension to develop educational and outreach programs that foster ways for producers to explore and move to alternative agricultural opportunities. 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 442 days and made 16,310 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 Iowa and Kansas, are addressing the issue of on-farm quality assurance of value-added grains and oilseed with respect to food safety and end use quality. With the help from university staff in Iowa and Maryland, there is also development of varieties of alfalfa to improve yield and winter hardness.

Several examples of the success and impacts of these extension programs will be given in the Key Theme section of Goal One accomplishment and results. However, highlights of a few of the outcomes of some of these issues will be described. In southwestern Indiana, local extension educators have been helping farmers diversify their crops and increase profits by conducting yield trials and holding seminars on value-added grains. In one county, Gibson County, the white food corn production base has grown to 10,000 acres with a potential increase in profits of $450,000 over the production of feed-grade yellow corn. In northwestern Indiana, the local extension staff is working with corn producers to create a cooperative to build an ethanol production facility. Due to Purdue Extension's efforts, the group developed a preliminary analysis of feasibility that led to a $3 million loan/grant to proceed with the feasibility study and business plan.

Purdue Extension feels that the accomplishments being made in the four issue areas identified under this Goal 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. We are also noticing intermediate and long-term outcomes of adoption of practices and technology changes with the other three identified issues of Goal One.

Resources

Approximately $5,251,466 and 82 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

Southwest Indiana Value Added Grains Offer Farmers New Opportunities

Farmers are looking for ways to diversify their cropping systems and increase profits. Value-added grains are new opportunities to capture premiums and increase small farm income from niche markets. Purdue Extension Educators from the southwest counties published a 72-page plot summary of the research on specialty corn trails for the previous three years. Entitled "Primer on Southwest Indiana Value Added Grains," the publication contains 40 tables on corn, soybean and wheat trials from four counties. The Gibson County Plot Committee hosts a fall value-added seminar for 200 farmers. The program includes short topics, keynote speakers, and a grain buyer panel. Each committee participant has input into the design of the specialty corn research and the Value Added Seminar.

Impact: This is a great partnership between industry and Purdue Extension. Gibson County has a six-year history of specialty corn plots. The replicated plots include white, yellow food and high oil corn. Assuming that Gibson County has a 10,000 acre white corn base, planting the top yielding varieties from the 2001 trails could mean an extra 200,000 bushels of corn to market. Assuming that farmers can get $2.25 per bushel, that increase would bring an extra $450,000 into Gibson County. In 2001, 27 white corn varieties generated this much variation in yield, establishing the need for the local research. Food grade white corn varieties are suited for the four southwestern counties of Indiana and could easily support an expanding corn processing plant.

Source of Funds: Smith-Lever, State

Scope of Impact: SW Indiana counties joining the Wabash and Ohio Rivers

Key Theme: Agricultural Competitiveness

Modeling the Impact and Use of Ractopamine on Pig Production

The genetics of pigs have changed as has the swine marketing systems. Ractopamine (Paylean), only when combined with the correct nutrition (increased lysine/protein levels) and fed to pigs at the correct length of time and level will result in substantial improvements in the efficiency of lean pork production. Five research trials have been completed at Purdue evaluating the response of current genetic populations of pigs to Paylean. The research trials looked at the effect of different lysine levels, the response over time , the interaction with alternative genetic populations, energy levels, and joint response with CLA (conjugated linoleic acid). One trial was completed jointly with the research and extension staff at the University of Illinois, who looked at pork quality and shelf life. Also, one trial looked at the effect of increasing or decreasing the level of Paylean. The response per gram of Paylean fed was increased in magnitude and duration of response by the use of the step-up programs. The analysis is being used by Paul Preckel and his associates to look at modeling the optimal use of Paylean fed by the use of the step-up programs.
Impact: The results of these trials were put on the Purdue Pork Page website and referenced as the best single source of Paylean information by each major national swine publication, website, and electronic newsletter. Our information has been used by Elanco in regional seminars held across the United States. The use of Paylean has increased to 20% of the pig production in the United States, resulting in an increased profit of from $2 to $3 per head for both the pork

producer and the processor due to the increased percent lean. Numerous larger producers have switched to the step-up program based on our recommendation.

Source of Funds: Smith-Lever, Hatch, State

Scope of Impact: Multi-State Research with Illinois

Key Theme: Agricultural Profitability

Dairy Excel: Managing for Success

The Indiana dairy industry is undergoing tremendous change. From 1994 to 1999 the percentage of herds with more than 100 cows grew by 50%. Increased herd sizes force producers to deal with numerous new management situations. For example, larger dairies are utilizing more non-family employees, new technology, and more consultants. To be successful and remain competitive in the dairy industry, producers must learn new management skills. With the goal to improve Indiana dairy farm competitiveness, Purdue Extension Educators are leading dairy producers through a newly designed management improvement class. Extension Educators in Marshall, Elkhart, and Kosciusko counties received training at The Ohio State University on the *Dairy Excel: Managing for Success* program in the fall of 1998. The emphasis of this program is business management. The first Indiana class was held in the winter of 1999. Educators worked with the local agri-business industry in the area to help promote the program. The mission of the program is "Dairy Excel is designed to improve the competitiveness of Indiana dairy farms by on-the-farm application of proven principles of resource management."

Impact: A follow up evaluation was conducted one year after the training. Producers say they are now setting aside more management time. Seven operators have found that staff meetings with employees or management improve overall production. Two farm managers have started training procedures for employees. Also, five producers reported improved communication skills with their families and employees. Overall Dairy Excel has helped producers "set new goals for the future of the operation, to remain competitive, and become more conscious about communication with employees." Since the beginning of the program in 1999, 33 producers from 23 dairy operations in eight Indiana counties (Elkhart, Marshall, Kosciusko, LaPorte, Franklin, Bartholomew, Jackson, and Johnson) have completed the course. All participants paid at least a $100 fee to participate in the program. This fee covered all costs of the program. They all learned the five critical functions of management: staffing, directing, organizing, planning, and controlling. All of the participants completed the program by writing a mission statement for their dairy and doing an organizational chart for their operation. 97% felt that it was good for them to complete the mission statement. 94% felt that the workshops helped them to assess the strengths and weaknesses of their management. 70% thought the program increased their confidence in their decision-making ability. 91% thought that the workshop was a valuable use of their time and money. Comments from attendees were, " Dairy Excel gave me the opportunity to meet other dairymen who are facing the same challenges. Also, spending time with fellow dairymen, sharing ideas, and visiting each other's farms allows us to keep up with the industry." Additional results of the Dairy Excel program have been the formation of the Dairy Excel discussion group and continuing courses for the graduates. In the discussion group, producers

found the interaction with each other to be very valuable. They meet at least quarterly either on farms or over lunch to share ideas and help to solve problems. One producer has appreciated the level of trust that has developed in the group. Advanced courses in labor and financial management have been offered to the graduates.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Animal Production Efficiency

Indiana Beef Evaluation and Economics Feeding Program (IBEEF)

The IBEEF program was designed to provide cattle producers with an opportunity to place cattle on feed and gather performance, carcass, and economic information that can be used to make genetic and management improvements in their herd. In 2001 (the third year for IBEEF) there were 616 animals from 36 cooperators that were harvested and complete carcass data was collected (yield grade, ribeye area, carcass weight, fat thickness and carcass weight). The information collected also was used to evaluate the economic performance of each producer's cattle as it related to possible sale price as a feeder calf when each calf entered the feedlot, how efficient each animal was for average daily gain, and the amount of time it took to reach harvest. Cooperating feedlots were located in northern Indiana and west-central Iowa. The overall program's data and performance were used to demonstrate to feedlot owners and operators that Indiana cattle were good investments because of their quality.

Impact: The information obtained through the 2001 IBEEF program and that from the two previous years has made a tremendous impression on those who fed out the animals in the program. The reputation for the quality of Indiana feeder calves has changed from questionable to preferred. Cooperators have been able to make major management decisions concerning the use and selection of breeding stock based on the data collected and the comparisons made among the cattle. The range in profits was -$20.33 to $162.13 for heifers with an average profit of $62.80 per head. The profit margin range for the steers was -$46.74 to $170.20 with an average profit per head of $64.05. These figures were based on the value that the cooperator could have received for his calves had they been sold as feeders instead of retaining ownership through harvest. There was a $30 and $36 per hundred-weight difference between the breakeven feeder calf value for the high profit group and the low profit group for the steer and heifers, respectively. In most cases, cooperators learned that retained ownership along with a good health program yielded good quality cattle that returned more profit than marketing the calves as feeder calves.

Sources of Funds: Smith-Lever, Hatch, State

Scope of Impact: State Specific

Key Theme: Biobased Products

Value Added Ethanol Project for NW Indiana

Northwest Indiana has historically been one of the top corn and soybean production areas in the state of Indiana. This region has always had low basis prices because of location to markets. Farmers are looking for value added opportunities to increase income, without increasing acreage. Iroqouis Bio-Energy Cooperative is a farmer owned closed cooperative that would like to establish a $60 million dollar ethanol production facility in Jasper County that would utilize 14 million bushels of locally grown corn to produce 40 million gallons of ethyl alcohol. Purdue Extension has been instrumental to this value added group, giving educational information and assistance when needed. Extension was instrumental in directing the group to the Purdue Technical Assistance Program (TAP) that provided graduate student assistance and a financial sensitivity analysis to assist the group in their decision-making efforts. Purdue also offered technical assistance in developing informational presentation formats.

Impact: To date, over 200 producers have invested into the cooperative to provide a full feasibility study. Over $100,000 dollars has been collected by farmer members in this effort. Purdue TAP completed a financial sensitivity analysis that provided preliminary analysis of feasibility to determine whether or not to proceed to the feasibility study and business plan. These efforts lead to a $3 million USDA grant to complete a feasibility study and begin the business plan. The cooperative is now ready to hire a project manager. This cooperative will employ over 30 people as well as expand the job opportunity for related service industries.

Sources of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Diversified/Alternative Agriculture

Black Beans Give Southeastern Indiana Growers a Profitable Alternative

Weather and soil drainage conditions in Southeastern Indiana make it tough to profit from growing corn, tobacco and soybeans. The only way area farmers with limited acreage can increase their income is by increasing their profit margins. Growers in Decatur County worked with the County Extension Educator to look for an alternative crop that would be profitable in their area. Black beans provided the growers this profitable alternative.

Impact: During the 1997 crop season Decatur County growers planted 65 acres that produced acceptable yields. In 1998, tours were set up to teach area growers how to build a consistent market for alternative crops. That year, growers in Decatur County planted 400 acres of black beans that sold at a price of $40 per hundred weight. Thirteen farmers each produced from 15 to 60 acres of black beans as contract growers for Langeland Farms, a seed cleaning and conditioning firm in the county. They earned returns of about four times more per acre than they would have received from soybeans. Yields were comparable to those for soybeans. In 1999, growers in six counties planted a total of 2,400 acres of black beans at a market value of $2.3 million dollars. The 2000 growing season reflected a down turn in market price and only 400 acres of black beans were planted and harvested in Decatur County at $11 per hundred weight. Yields were again very comparable to soybeans. Current market prices are variable, but the black beans are still giving farmers higher returns than soybeans at $13 per hundred weight. The

26 growers worked as a group and limited sales for two years. Last fall growers sold 960,000 pounds of black beans stored over a period of two years for $34 per hundred weight.

Source of Funds: Smith-Lever, State

Scope of Impact: Southeast Indiana

Wine and Grape Production in Indiana

Grapes are an excellent alternative crop for Indiana farmers with appropriate sites, and wine production is a promising value-added agricultural enterprise. Increasing wine sales depends on improving wine quality, product availability and public awareness of the dynamic Indiana wine industry, as well as, public perception of excellent product value.

The Purdue Wine Grape Team has addressed the wine production problem by responding in three areas: viticulture, enology, and marketing. Viticultural research has focused on identifying grape varieties well adapted to the state's soils and climate, and on economical and sustainable production methods for producing grapes. Enology research has focused on evaluating the wine quality of the best-adapted varieties, and identifying production techniques to enhance the quality of Indiana wines. Market development programs have focused on increasing the demand for Indiana wines through media relations, special events, presentations, and market planning assistance for new wineries. Over 40 educational workshops were held in 2000 and 2001 to educate growers and wineries on the potential of new varieties, wine and grape production techniques, and marketing trends. Timely information for the industry is disseminated through newsletters and a web site. Winery and vineyard visits, telephone consultations, and wine analyses are available to winery and vineyard personnel and entrepreneurs considering entering the wine and grape business in Indiana. In 2000 and 2001, an Indiana value-added grant funded the development of a mobile wine analysis laboratory for training programs customized to the needs of individual wineries throughout the state. In 2001, the team received funding from a Department of Tourism Grant to assist in the further development of the Vintage Indiana Wine & Food Festival, the state's only wine festival.

Impact: The wine and grape industry has expanded greatly over the past few years due to the increased demand for Indiana wine. There are now 31 wineries operating and two more plan to open in the near future. Wine production in 2000 was 221,000 gallons, a 120% increase over the past 5 years. Grape acreage in the state has increased four-fold and continues to expand to meet the increasing demand for Indiana-grown fruit. Annual retail wine sales were $8.9 million for 2000, up from $4.1 million in 1996. Approximately one million people visited Indiana wineries in 2001, and about 1/3 were from out of state. The contribution to the state's economy and tourism related industries is approximately $34 million annually. Investment in the wine industry has increased four-fold since 1990, resulting in state and local taxes of approximately $442,000. The 2nd annual Vintage Indiana Wine Festival attracted 8,000 people in 2001. The Indy International Wine Competition is the 2nd largest in the nation. The quality of grapes and wine produced in the state has improved through the use of new grape varieties, modern production practices, and quality control in the vineyard and winery. This is evident from the doubling of the percentage of gold medals won by Indiana wineries at the Indy International Wine Competition from 1995 to 2001. Improved wine quality and packaging have led to significant increases in shelf space for Indiana wine at package and grocery stores where a much broader segment of

wine buyers have access to Indiana wine. Indiana wines represent 3% of the wine market share in Indiana, up from 0.5% prior to 1996. The Indiana wine industry and the Purdue Wine Grape Team have developed a reputation as leaders in the region.

Sources of Funds: Smith-Lever, Hatch, State

Scope of Impact: State Specific

Key Theme: Grazing

Rotational Grazing

Wayne County has more than 14,000 acres of pasture that support 3,700 beef cows, 2,800 dairy cows, supporting young stock, and 1,000 sheep. Graziers need to know more about plant growth, importance of "rest" periods, fencing equipment, and watering systems. Graziers' interest in improved pasture management practices has increased because other graziers have indicated increased profits with the adoption of rotational grazing systems, due to increased carrying capacity and reduced costs. Forage newsletters have included pasture management information. A quarterly *Hoos-Your Grazing* newsletter has been circulated to 209 graziers in the county. Special fact sheets are available on numerous grazing topics. Pasture walks and winter meetings are organized to observe and discuss rotational grazing management practices. These activities have allowed graziers to interact with one another to discuss goals and accomplishments. Field days have highlighted watering systems and fencing equipment.

Impact: Fifty-six graziers have developed rotational grazing systems by creating four or more paddocks in their pastures. Of that group,18 have made significant improvements to their watering systems to complement the additional fences that they have constructed. Thirty-seven have adopted the practice of over-seeding a legume onto their pastures in late winter. Sixteen have applied significant amounts of fertilizer/lime. Twenty-two are extending their grazing season by using stockpiled forages or cornstalks. A county grazing group has been formed; this network has allowed the exchange of information to occur. Graziers are moving forward with more confidence. This confidence is a product of graziers seeing and hearing graziers being successful in making changes.

Sources of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Home Lawn and Gardens

Consumer Horticulture Communications in Marion County

An estimated 67% of U.S. households (1997) participate in one or more types of indoor and outdoor lawn and garden activities. This means over 500,000 people in Marion County are involved in gardening related activities. Efficient methods of communication are needed to reach

the large number of clientele. New and existing written and broadcast communication methods were used to help efficiently disseminate consumer horticulture information to the public. Three new and five existing communication tools were used in 2001 to provide consumer horticulture information to people over 790,000 times during the past year. A weekly lawn and garden call-in radio show was established in March 2001. Each week telephone calls were answered live on the air from 7 to 12 callers. Each show had an average of 5,800 actual listeners. During an 8-month period, 197,200 people were reached with information. A new print media opportunity was established in February 2001. A monthly news column was provided to *Indianapolis Prime Times*. Based on an estimated circulation of about 24,000, information was provided to a possible 216,000 people during a 9-month period. An electronic *Master Gardener Answerline* was created during 2001 to answer questions from consumers via e-mail. Fourteen Master Gardener volunteers were selected and trained via e-mail to help provide a quick response to questions. During a 3-month period, questions were answered from 78 people. Two news items were written on a quarterly basis for the Indianapolis Business Journal, *At Home Quarterly*. The total potential audience was 54,705 for each issue or 218,820 people for the year. With approximately 10,000 subscribers, a monthly news column for the *Angie's List Unified Neighbors* publication potentially reached 120,000 people. Through the *Master Gardener Horticulture Hotline*, an electronic communication to Master Gardener volunteers, 187 messages were sent to as many as 242 Master Gardeners. This resulted in 34,708 contacts for the year. This does not include the contacts made by the volunteers who pass the information on to others. Two news columns were written for two monthly newsletters of the Marion County Master Gardener associations. With 300 Master Gardeners on the mailing list, 3600 contacts were made. Horticulture information was provided to the Marion County bi-monthly *Visions* newsletter, with a circulation of 192, there were 1152 contacts made during the year.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Master Gardener Educational Classes

Over the past four years, over 120 people have gone through the Master Gardener's course in three rural southwestern Indiana counties, and they have increased their basic plant and insect biology knowledge to combat weed and destructive insect problems by way of topics on: basic soils science, plant science and propagation, disease and insect identification, and organic pest control methods and proper chemical uses. The students learned that Purdue University is a great source of information. In 2001, 60 Master Gardeners took advantage of advanced Master Gardener Training. Their advanced topics included: Water Gardening, Greenhouse Management, Organic Gardening, Backyard Wildlife Management, Woodland Management, Tree Care Practices, Animal Damage Control, Butterfly and Hummingbird Gardening, Backyard Wildlife, and Advanced Tree Identification.

Impact: The local nursery growers have reported a substantial increase in foot traffic as well in sales over the past four years, primarily due to the awakening of the local Master Gardeners. On an average, each Master Gardener has spent $500 in nursery stock and bedding materials (a total of $60,000), and has saved an additional $500 (a total of $60,000) by doing the planting

themselves. It seems that the people who have participated in the programs together have been able to work on outdoor projects together. The environmental aspect of the Master Gardener program has the 120 Master Gardeners using only 1/3 of the pesticides in the gardens and lawns after learning the proper use of pesticides and chemical than before the class was taught.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Niche Market

Barley Straw as an Alternative Crop

Southeastern Indiana has a large acreage of ponds used for recreation and a source for livestock water. During the hot summer months these ponds generate a large amount of algae growth, reducing the water quality. A source of natural algae control was reported in the literature that would aid in reducing the algae population. The Extension Educator contacted several home backyard water garden sites that experienced high algae populations. These aquatic garden sites were treated with barley straw that resulted in excellent control. Several farm ponds were treated using barley bales intact and anchored to the bottom of the pond. Algae control was reported at all sites.

Impact: Barley straw can be raised in southern Indiana and harvested the first week in June allowing double cropping with soybeans or corn. Alternative crops with higher cash returns can be introduced while maintaining current crops. These alternative crops can be used to develop new markets. One barley grower has sold 500 bales to pond owners at $6 per bale and fed his cattle over the winter with barley hay.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Risk Management

Agricultural Banking Extension Programs

Agricultural producers and agribusiness managers require borrowed funds to operate their businesses and acquire capital assets. A major provider of borrowed funds to agriculture is commercial banks. In order to do an effective and efficient job of providing funds to agriculture, bank loan officers need educational programs on a variety of subjects, including credit documentation and analysis, loan structuring and pricing, marketing bank products and services. The extension program is focused on providing: 1) a one-week agricultural banking school; and 2) an agricultural clinic (a one-day conference each year). The school has been held each year for the past 29 years. The clinic has been held each year for the past 57 years.

Impact: In 2001, 24 agricultural bankers from Illinois, Indiana, Michigan, and Ohio attended the agricultural banking school and 125 agricultural bankers from Indiana attended the agricultural clinic. A written evaluation was completed on the school and the clinic. Also, a committee of agricultural bankers evaluated the school curriculum and the clinic program before each event to ensure both included relevant and timely topics. In addition, a follow-up survey was mailed to school graduates in September 2001. Of the 11 bankers returning the survey, 100% had used material presented at the school on loan documentation and analysis, 91% had used the material on marketing bank products and services, and 82% had used material on loan structuring and pricing. All 11 indicated they would attend another program offered at Purdue.

Source of Funds: Smith-Lever, State

Scope of Impact: Multi-State with Illinois, Michigan, Ohio

Production Agriculture Risk Management

Soybean and corn producers express concern relating to their marketing expertise. As a result of the Freedom To Farm Act, markets became more volatile. Foreign trade decreased and United States exports fell short, partly because of the strong dollar. Loan Deficiency Payments (LDP) came to the rescue but was untimely. As a result of various supply- and demand-related issues, price risk management skills become increasingly important. Since 1997, the Sullivan County Extension Educator has provided bi-monthly educational marketing sessions at two locations in the county. Two marketing clubs were organized. One club established goals of how to use options in their marketing program. Clubs focused on outlook presentations, market reports and any topic relating to price risk management.

Impact: In May of 2001, a survey was taken of eighteen farmers participating in club activity. Of the producers surveyed, 55% said their net farm income improved by up to 10%, as a result of the marketing club sessions. The remaining 45% said that their net farm incomes increased by 10 to 20 percent, while none reported no increase or an increase over 20%.

Source of Funds: Smith-Lever, State

Scope of Impact: State specific

Key Theme: Small Farm Viability

Vegetable Grower Auction

With the softening of the farm economy over the past eight years, farmers are looking for ways to keep their small farms viable and help make them more profitable. In 1999, a group of Amish farmers began meeting to explore the possibilities of growing produce and marketing it though a new local produce auction. They formed a group named the “Clearspring Vegetable Growers.” The group selected a board of directors and secured investors and established the Clearspring Produce Auction, which has been in operation for two seasons. The group came to Extension for educational assistance. The Michigan State University Extension Agent in neighboring St.

Joseph County, Michigan, heard about the development of the new enterprise and contacted the Purdue Extension Educator in LaGrange County to work together in developing a multi-faceted educational program to assist local farmers in transitioning to the new produce enterprise. The Purdue Extension Educator in LaGrange County worked closely with the board of the Clearspring Vegetable Growers in identifying the educational needs of farmers to begin growing and marketing vegetables. A list of publications on growing produce was developed with the assistance of a Purdue Vegetable Specialist. In 2000 and 2001, over 500 free and paid publications such as the *Indiana Vegetable Production Guide for Commercial Growers* were distributed. Twelve educational meetings were held locally in 2000 and 2001 with an average attendance of 60 growers. With the assistance of the St. Joseph County Agent, educational field trips were made to the Benton Harbor, Michigan, Produce Market and the Southwestern Michigan Vegetable Research Center. The Purdue Extension Educator and MSU Extension Agent organized and team-taught a four-session series on soil science, plant science, vegetable culture, and integrated pest management at a site in Indiana and a site in Michigan during the winter of 2000 which was attended by 31 growers. The LaGrange County Extension Educator publishes a newsletter specifically for vegetable growers, which is mailed to 140 addresses. An Extension Vegetable Specialist with MSU Extension has presented programs locally and contributes his expertise in an advisory capacity.

Impact: Farmers are utilizing the information and education from Cooperative Extension to grow very high quality produce. The Clearspring Produce Auction had total sales in 2000 of $217,000 and $330,000 in 2001. This is a 52% increase. Many growers utilize recommendations on pest management and variety selection from Extension sources. Growers are coming to Extension as a primary source of information about specific problems or issues of growing produce. LaGrange County helped over 50 new private pesticide applicators get their licenses in 2001, 90% of whom are vegetable growers.

Source of Funds: Smith-Lever, State

Scope of Impact: Multistate with Michigan

Key Theme: Urban Gardening

Urban Garden Program of Marion County

Community gardeners often need assistance in obtaining resources to start or maintain their gardens. Extension's Urban Garden Program solicits donations from local garden centers and individuals. The resources are sorted, the community gardeners are notified and the resources are distributed on a first come first serve basis. The Urban Garden Program also holds a fundraiser, the Tomato Juice Stand, at the State Fair. The volunteers for the stand come from community gardens, and their garden receives a percentage of the profits based on the percentage of hours staffed by their volunteers.

Impact: The financial burden to community gardens was decreased by over $18,372 through donations to the Urban Garden Program that were distributed to community gardens. More than $6,500 worth of year-old seeds were distributed to 30 community gardens and over 50 Plant-a-Row for the Hungry participants. Over $8,372 worth of spring flowering bulbs were distributed

to more than 15 community gardens. Seven community gardens received over $2,000 worth of heirloom iris. The 10 community gardens that volunteered at the Tomato Juice Stand earned over $1,500 (ranging from $31.71 to $338.22 per garden). Throughout the year, miscellaneous items such as garden hoses, tools, growing containers, and canning supplies are donated to the Urban Garden Program and then distributed to community gardeners.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

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 to all consumers. The emphasis that Purdue Extension puts on this important issue is reflected by the 1,555 days of effort reported on this topic by campus and field staff, and the 34,821 direct contacts made with educational programming. Of those 34,821 contacts, 15,161 were youth. Extension staff also made contacts through the media to 126,465 people related to food safety and quality topics.

Specific programmatic focus relates to the food industry and to general consumers. Programs emphasized in the FY2001 program year focused toward educating the food industry have been predominantly food service related. Programs include titles such as *Food Safety Fair* and the National Restaurant Association program *ServSafe*. These programs teach food safety sanitation to food service workers and provide certificates of completion and passage of the course. Total food industry contacts made in FY2001 were 3,435 people. Eleven counties reported conducting the *ServSafe* program.

Purdue Extension food safety programs reach general consumers with research-based food safety and sanitation basics. Curricula used encourage discussion, questions, participation and involvement of the general public to help teach 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. A new program developed through CSREES funding emphasizing the importance of food safety during pregnancy, *Safe Food and You: Food Safety during Pregnancy* débuted in FY2001. Programs for children, *Professor Popcorn: Hooked on Health*, and *The Mystery of the Poisoned Panther Picnic* teach basic food safety concepts with games, music and videotapes.

A new food safety program for consumers in FY 2001 relates to the important topic of Food Biotechnology, *Food Biotechnology: Dreams from the Fields.* This program taught both

directly to consumers and to professionals (high school teachers, dietitians, nurses, staff of departments of health) has been effective in raising awareness and increasing knowledge of this important topic.

Resources

Approximately $836,395 and 13 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 Biotechnology: Dreams from the Fields

Description: A September 2001 survey by the International Food Information Council (IFIC) found that only 33% 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 this new technology may lead to the same lack of confidence in food systems 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.

Outputs: Our Cooperative Extension efforts developed and delivered a training program to provide science-based information to physicians (3,800), dietitians and nutritionists (105), food technologists (323), science teachers (66), Cooperative Extension educators and specialists (115), producers and producer groups (597), college students (1,173), toxicologists (100), biotech industry personnel (29) and consumers (966). Through a program entitled Food Biotechnology: Dreams from the Fields, we have provided training to over 7,200 in three countries (USA, Philippines, Mexico) with 890 participants completing an assessment survey including over 350 that completed pre- and post-training surveys to determine the outcome of training on participants knowledge and attitudes.

Impact: Following training, 97-98% correctly indicated that fruits and vegetables contain chromosomes and that foods from biotech crops are currently sold in grocery stores. Prior to training, only 27% felt that these crops were properly regulated by federal agencies and only 29% were confident that bioengineering was unlikely to make an

existing food allergenic. Following training, 84% felt that these crops were properly regulated and 66% believed that biotechnology was unlikely to add new allergens to our food supply. In addition, 96% of those trained would eat or serve genetically-modified foods to their family and 94% believed that they or their family would benefit from genetically-modified foods within the next 5 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 Federal Funds: Smith Lever

Scope of Program: USA, Philippines, Mexico

Fifth Grade Food Safety

Description: With the high number of cases of food borne illness that occur each year, food safety education is needed. Today's consumers are becoming more aware, but many don't have the information and knowledge they need to eliminate food borne illness in Delaware County. Working with children is not only a starting point, but many times is a direct avenue to educating parents.

Outputs: The CFS Educator contacted the twenty-four county Elementary principals and 5th grade teachers. A 45 minute Food Safety program that includes the "Poison Panther" video and discussion of the gTemperature Danger Zone, h proper food handling, along with hand washing techniques were covered. One selected student participates in the hand washing technique by using Glow Germ and a black light. A pre and posttest was given to measure knowledge gained.

Impact: Four schools participated or 16 - 5th grade classes (a total of 552) in the Food Safety class. At the completion of the class, 89 percent of students increased their scores by 1 to 10 questions. The increase in scores varied from school to school. School H increased 84%, school M increased 96%, school Y increased 96.5% and school R increased by 81%. When comparing the 12 questions on the pre and posttest of the 16 classes, 17% increased their score by 1, 18% increased their score by 2 and 19% increased their score by 3. The areas they felt were most beneficial were: hand washing, keeping cold foods cold and hot foods hot, how bacteria play into food

poisoning, and temperature danger zone, and proper food storage in that order. Participants increased knowledge of proper food storage; increased awareness of the importance of proper hand washing for 20 seconds; increased awareness of the importance of time and temperature in controlling bacterial growth; and increased knowledge of cross contamination.

Source of Federal Funds: Smith Lever

Scope of Program: State

Safe Food and You: Food Safety during Pregnancy

Description: There is an increased risk of food borne illness during pregnancy. Approximately 2,500 cases of listeriosis are diagnosed annually in persons throughout the life span, 20% of these cases are fatal. However, 30% of listeriosis occurs during pregnancy and can lead to miscarriage and preterm labor

Outputs: A curriculum was developed with funding provided by a USDA Food Safety and Quality Initiative competitive grant. The needs assessment indicated that high-risk, hard to reach audiences, in particular, during pregnancy, and for parents of small children have a need for food safety education. Purdue collaborated with Iowa State University to develop this curriculum. The curriculum is based on the Fight Bac! concepts of Clean, Separate, Cook and Chill. The mothers-to-be portion utilized a video along with a lesson plan. This lesson can be adapted to any nutrition program for pregnancy throughout the country. Participants in the initial portion of the program were given instant-read or refrigerator thermometers to reinforce the concepts taught. The parents and preschoolers portion utilized a CD of hand washing songs along with activities for parent and child to do together. Each lesson contains an evaluation component. Groups were conducted in both Indiana and Iowa during the Summer and Fall 2000 with pregnant women in rural and urban settings. The pilot program training was held in November 2000, followed by teaching of the program and evaluation. Based on this pilot, certain parts of the program were changed. The curriculum was distributed through training in Indiana and Iowa in March 2001 (Indiana EFNEP), April 2001

(Indiana FNP), May 2001 (Iowa EFNEP and FSNEP) and September 2001 (Indiana Extension Educators).

Impact: 16 mothers to be and 42 parents/preschoolers provided matched pre-post evaluations from the pilot portion of the program. Goals achieved as reported by these participants: 19% improved practices related to prevention of Listeria, such as reheating lunch meats until steaming hot, avoiding soft cheeses; 48% improved their hand washing; 31% improved practices related to cross-contamination; 31% improved cooking practices; and 69% improved practices relating to chilling food properly. Goals in progress as reported: 19% working on Listeria prevention; 17% working on improving cleaning practices; 50% working on practices related to proper cooking; and 56% working on improving practices related to chilling of food. Participant comments: What I learned or plan to do differently c "Cook lunchmeat until steaming" "Use meat thermometer" "Keep refrigerator at 40 or below" "Wash hands for 20 seconds" Participants were surprised by the information about Listeria monocytogenes. The risk of contracting it during pregnancy had not been discussed with them prior to our instruction.

Source of Federal Funds: USDA Food Safety and Quality

Scope of Program: Indiana

EFNEP Fights Food Borne Illness and Wins

Description: Each year in this country, millions of people will contract food poisoning. Most will experience flu-like symptoms for a few days and then they will recover. Over 500 will not be so lucky, they will die from the type of food poisoning they had – E. coli 0157:H7 or Listeria monocytogenes. These forms of food-borne illness are mostly associated with eating either raw foods, such as undercooked meats, as well as processed foods that become contaminated after processing, such as soft cheeses, and cold cuts and hot dogs (Listeria monocytogenes) and eating under cooked, contaminated ground beef (E. coli). According to the USDA, " A meat thermometer is the only way to ensure that all meat, fish, poultry and eggs are cooked to a temperature high enough to kill harmful and potentially deadly bacteria like E. coli and Listeria

monocytogenes. Yet, less than half of the United States population owns a meat thermometer. And only 3 % of those who own one, use it to check meat for proper doneness.

Outputs: Through the Expanded Food and Nutrition Education Program (EFNEP), trained paraprofessionals work with limited-resource families individually or in small group settings to provide both direct education on the importance of using a meat thermometer and supply these families with their own instant read meat thermometer. Participants are also shown how to properly use their meat thermometers. In addition, a special educational lesson is available for pregnant women in EFNEP, as a pregnant woman is even more likely to contract food poisoning than the person who is not pregnant.

Impact: Information collected by the EFNEP program showed the following changes in participant's behaviors as related to food safety practices: 34% now use meat thermometers to check for meat doneness. 31% improved their avoidance of eating soft cheeses during pregnancy. 70% improved their practices of heating processed lunchmeats and hot dogs to "steamy hot" before eating them during pregnancy. 42% improved the way they thaw frozen meat, i.e., not thawing meats at room temperature

Source of Federal Funds: Smith Lever, EFNEP

Scope of Program: Marion County, State

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 rather than trying 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 a higher quality of life. Purdue Extension emphasizes nutrition education across the state devoting 3,916 days to nutrition education programming and

making direct contact with 84,865 individuals. Of the 84,865 individuals, 42,505 were youth in FY2001. Purdue Extension staff made 127,769 contacts through the media with important nutrition information.

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.

Two main objectives serve to direct the nutrition programming related to the Dietary Guidelines: 1) Citizens will increase knowledge of nutrition-health relationship; and 2) All ages will use the Dietary Guidelines and the Food Guide Pyramid to better their food habits. Related to citizens increasing their knowledge of nutrition-health relationship, 27,577 direct contacts were made accounting for 893 days of programming effort. Related to using the Dietary Guidelines and the Food Guide Pyramid to form better food habits, 15,353 direct contacts were made with 384 days of programming effort.

Nutrition education for youth audiences focuses on building better food habits and maintaining healthy weight. The *Exploring the Food Pyramid with Professor Popcorn* and *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 program has reached 10,772 youth in Indiana in FY2001.

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 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 FY2001, 1,210 at-risk pregnant women were reached with the *Have a Healthy Baby* program. Results of this program continue to show lower rates of low birth weight infants in women participating in the program compared to state averages.

Resources

Approximately $1,659,079 and 26 FTEs have been invested in Goal 3. This is a best estimate and these are not presented as auditable numbers.

Key Theme: Human Nutrition, Adults

People Eat Healthier After Community Programs

Description: Research shows that the diets of many Americans are high in fat, sodium and calories, and too low in fiber, fruit and vegetables. Nearly fifty percent of Americans are overweight. Overweight increases the risk of heart disease, diabetes, stroke and certain cancers.

Outputs: During 2000-2001, the CFS Educator has provided educational programming throughout the Johnson County community. A variety of programs have been conducted some of which included: (1) Sumptuous Salads focused on types of greens and salad herbs and increasing the variety of greens and fiber in diet; (2) Slow Cooker Delights focused on increasing the use of the crock-pot for meal preparation and increasing consumer confidence in the safety of such preparation; (3) Altering Recipes for Better Health focused on increasing understanding of how to successfully alter recipes to lower fat, sodium and sugar; (4) Solo Cooking focused on planning and simplifying preparation at home to meet nutritional needs; and (5) Food Guide Pyramid focusing on eating a variety of food and the importance of limiting serving sizes to reduce weight gain.

Impact: Over 1,570 persons have attended these educational programs with the following results: (1) 88% indicated increased knowledge of greens and salad herbs; 80% indicated they would increase fiber by adding grains and/or beans to their salads and they would rinse beans and fruits to reduce sodium and sugar content, respectively; 87% indicated they would eat at least 5 fruits and vegetables per day; (2) 80% indicated they would increase the use of their crock-pot for making family meals; 92% felt increased confidence concerning food safety in using their crock-pot for meal preparation; (3) 100% indicated increased understanding of how to alter a recipe and would lower fat in recipes by sautéing in broth, using fruit purees or other low-fat substitutes and trimming exterior fat from meats; (4) 80% indicted they were encouraged and more confident in how to plan more variety in their meals by using the food guide pyramid to meet their nutritional needs; (5) Food Guide Pyramid - 95% of the elementary students could identify and match foods to their food group.

Source of Federal Funds: Smith Lever

Scope of the Program: Indiana

EFNEP Participants Improve Quality of Life Through Changed Food and Nutrition Behaviors

Description: 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.

Outputs: The Expanded Food and Nutrition Education Program (EFNEP) utilizes Family Nutrition Advisors (trained paraprofessionals known as FNAs) to teach a series of food and nutrition topics which 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. Local initiatives have included the following in 2001: In Marion County, EFNEP collaborated with Habitat for Humanity to provide nutrition education to Habitat families. These lessons were provided to participants at their place of employment over their lunch period. The East Central Indiana Food Bank (ECIFB) and EFNEP collaborated in an effort to provide healthy meals for children at targeted low-income sites. Outreach to the Latino community in Marion County has been strengthened by the addition of a bilingual Family Nutrition Advisor. The Lake County EFNEP program hosted an awards banquet in April 2001 for agencies that work closely with the EFNEP program. Forty-five agencies were recognized at that time for their partnership. EFNEP Family Nutrition Advisors in Area 2 received vegetable and flower seeds from the Floyd County Master Gardeners to give to participants and instruct on home gardening. The East Central Indiana Food Bank (ECIFB) brought in a chef to gshow and tell h volunteers from food pantries and Purdue University Cooperative Extension offices about the nutritious salmon from Alaska distributed to food banks.

Impact: 2,131 families including 3,758 children (over 7,320 persons) participated in EFNEP in 2000-2001; over 13,200 lessons taught as part of a series. 91.7 percent improved their intake of nutritious foods; 90 percent improved other nutrition practices such as reading nutrition labels, and planning meals; 82 percent improved their food resource management skills such as using a shopping list; 59 percent improved their food safety skills; 94% maintained or improved hand washing; 84% maintained or improved use of thermometers to measure doneness of meat. 1,039 youth, ages 6-14 participated, 370 volunteers assisted in youth and adult programs. Collaborations involved 24 WIC clinics and 16 agreements with other agencies. Participant comments: "There has been so much talk about heroes lately. I just wanted to let you know that you are mine. You have always been there for me. My life has changed so drastically in the past few years and a great deal of that was because of your encouragement." Eastern Indiana participant to her EFNEP FNA. "I used to never make a shopping list. Now I do, and I still have plenty of food left over. I used to go shopping and get what I thought I needed, and I usually had it at home. How I know what I need and don't have extras and I have the things I need." Southern Indiana participant. "I had never had a piece of fruit. See, you are teaching me and I in turn am teaching the youth group at my church. The good you do is passed on to others." Northern Indiana participant. One participant learned how to make chicken and noodles. It was her father's (who was dying of leukemia) favorite dish. It was one of the few things he would eat before he died. The participant felt that she had helped her dad." Central Indiana participant.

Source of Federal Funds: USDA, Smith Lever, EFNEP

Scope of Program: Clark, Crawford, Delaware, Floyd, Grant, Harrison, Howard, Lake, Madison, Marion, Orange, Scott, Vigo, Washington, Wayne

Key Theme: Human Nutrition, Youth

Exploring the Food Pyramid with Professor Popcorn: Evaluating Behavior Change in Youth

Description: Youth establish food and nutrition habits which will last a lifetime during their early school years. It is important to document changes which occur during this time in response to nutrition education.

Outputs: A curriculum was developed to teach nutrition and basic health principles to youth in grades 1 through 9. The materials were pilot tested with targeted limited resource audiences. Use of the materials has expanded into all Indiana counties and all 50 states. Exploring the Food Pyramid with Professor Popcorn is available in two levels. There are seven lessons in each level. Lesson One introduces the Food Pyramid, Lessons Two through Six each focus on a different food group, and Lesson Seven centers on the tip of the Pyramid. The lessons encourage children to make healthy choices and become more aware of the importance of exercise. There are activities, games, and snack preparations included in the lessons. The program is taught as a series of 4-6 lessons. An outcome evaluation instrument was designed for fourth grade students in classroom settings throughout the school year and for day camps during the summer. This instrument is part of the national Youth Outcome Evaluation project for foods and nutrition. Questions assessed food safety and food selection behaviors. The instrument was tested in Delaware, Madison, and Scott counties. A variation was utilized in Marion County. The evaluation instrument will be included in the upcoming revision of the Exploring the Food Pyramid with Professor Popcorn curriculum to be completed in spring 2002. This revision coincides with the Indiana Curriculum Guide for Health and Science in elementary grades.

Impact: 403 matched pre-post test pairs were recorded representing 32 groups; 26 percent of students in Eastern Indiana classrooms improved and 51 percent described no change in food selection; 17 percent of students in Eastern Indiana classrooms improved and 72 percent described no change in food safety practices; 41 percent of students in urban summer day camps improved and 52 percent described no change in food selection practices; 17 percent of students in urban summer day camps improved and 75 percent described no change in food safety practices; 18 percent of students in rural Southern Indiana classrooms improved and 69 percent described no change in food selection practices; 11 percent of students in rural Southern Indiana classrooms improved and 79 percent described no change in food safety practices; race and

gender did not affect the outcomes. The instrument was found to be both reliable and valid.

Source of Federal Funds: USDA EFNEP

Scope of Program: Indiana

Key Theme: Human Health

Have A Healthy Baby: Healthier Decisions for Healthier Babies

Description: Low birth weight (LBW) is the number one contributor to infant mortality in Indiana. Preterm birth is the number one contributor to the LBW rate. 7.8 percent of Indiana babies are born at low birth-weight (1999). 11 percent of infants born to mothers age 10 to 17 were born LBW. 12.9 percent of African-American infants were born at LBW. 11 percent of LBW births are associated with maternal smoking. In Indiana 20.9% of the mothers smoked during their pregnancies. LBW babies are 64 percent more likely to attend special education classes than normal birth-weight babies. LBW accounts for 10 percent of all health care costs for children (Lewitt et al., 1995). Lifetime medical costs of caring for a premature baby are conservatively projected to be $500,000 per case. More than 60 percent of private-sector preterm births and LBW cases are preventable

Outputs: What is it?

- Prenatal nutrition education program consisting of six lessons.
- Emphasizes nutrition and lifestyle choices--smoking, drinking and drugs.
- Research based, taught by trained, caring professionals.
- A highly visual, interactive, complete curriculum.
- Ten Un Bebe Sano (for the Latino community).
- Safe Food and You (food safety during pregnancy) – 2001.
- Version for use in physician offices and clinics – 2001

Who participates?

- Pregnant teens in schools and community centers.

- Pregnant at-risk teens and adults in their homes or community centers, including WIC clinics.

What does it cover?

- Adequate weight gain and healthy nutritional choices.
- Consequences of smoking, drinking and drugs.
- Importance of early and continuous prenatal care.
- Infant feeding choices--breast-feeding and bottle-feeding.
- Impact of mother-to-be's decisions on herself and her baby.

Where is it taught?

- Throughout the state of Indiana - more than 239 middle and high schools, community agencies and sites.
- 35 other states have purchased the curriculum C Replicated in Iowa, Kansas, and Oklahoma.

Impact: In 2001, HHB participants who were also EFNEP participants showed behavior change in three major areas: improved practices leading to decreased chance of contracting Listeria monocytogenes such as heating luncheon meats until steaming hot; improved food safety practices such as hand washing; and, increased avoidance of second-hand smoke. In 2000, 807 pregnant adolescents and at-risk adults were taught. 45% of those taught were 17 years old or younger. Data was obtained on 589 live births.

- Decreased low birth weight infants to adolescents (6.8% compared to state average of 11%).
- Decreased low birth weight infants to African American mothers (6.2% compared to 12.9%).
- 46% of participants report decreased tobacco use.
- 49% of participants are breast-feeding at one month.
- Decreased neonatal mortality - one death reported.
- 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.

Source of Federal Funds: USDA; March of Dimes

Scope of Program: Indiana

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

Purdue Extension provides educational and outreach programs that allow the public to reach sound judgments regarding the use of natural resources. 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 environment 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 related to the land and the environment. During FY2001, Purdue Extension devoted the efforts of field and campus staff to environmental stewardship issues, and recorded 2,898 contact days and 98,720 direct contacts.

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. Within the State of Indiana, 79% of the soils are not suitable for traditional septic systems. It is estimated that 25% of Indiana's septic tanks are inadequate due to the unsuitable soils. Since the state has no requirement for certification or training for septic system installers, there is a need for training and organizing the septic system installers to inform them of these problems and to provide them with the most readily available research and educational information for proper septic installation.

With new rules on the use of animal manure on farmlands being invoked by the state, research on poultry diet manipulation is being conducted to decreasing the amount of phosphorus that poultry are fed in order to decrease the phosphorus levels that accumulate on lands that have poultry manure applied to them.

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 involves 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 FY2001, Purdue Extension spent 1,051 contact days on Land Use issues, making 23,891 direct contacts.

Thousands of Indiana residents encounter problems with native wildlife every year. Most of the general public has little experience or knowledge of how to resolve wildlife damage problems which amounts to over $315,000 annually in Indiana. Additionally, wild birds cause an estimated $100,000 worth of damage to aircraft annually in Indiana. Purdue Extension with cooperation from the Indiana Department of Natural Resources has developed a wildlife hazard management plan for airports and implemented an integrated wildlife hazard control program that has reduced the number of bird strikes to aircraft by 84 percent.

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.

Resources

Approximately $2,502,330 and 39 FTEs have been invested in Goal 4. This is a best estimate and these are not presented as auditable numbers.

Key Theme: Integrated Pest Management

Development of Management Options for the Soybean Aphid: A Potential Pest of Soybean in Indiana

The soybean aphid (SA) is a recent invasive species in Indiana. It was first found in Northeastern Indiana in 2000, although subsequent surveys late in the 2000 growing season showed that it was present in every county surveyed (46). It is unknown how serious this pest will be in soybean. In 2001, research plots were established to 1) determine if planting date affects SA colonization/soybean injury, 2) determine if cultivars affects SA colonization/soybean injury, 3) begin economic injury level determination studies, and 4) evaluate potential control products. Also, from an Extension standpoint ways were developed to address SA concerns and the need for information by producers and other agribusiness personnel. Surveys to determine the immediate threat of the SA were also conducted.

Impact: The propensity to treat Indiana soybean to manage the perceived threat from SA was countered with aphid population survey information that showed little risk in 2001. This prevented unnecessary chemical applications and associated costs to producers estimated to range from $500,000 to $1,000,000 statewide and prevented unnecessary environmental exposure. In those cases where treatment may be justified in the future, field research studies have identified several registered and experimental insecticides that have potential to efficiently

manage SA. Additionally, it appears from the data, that early planted or early maturing soybean are less likely to experience economic levels of soybean aphid. A 4-page color fact sheet on soybean aphid was also produced and distributed to producers and extension educators.

Source of Funds: Smith-Lever, Hatch, State

Scope of Impact: State and Eastern Corn Belt

Key Theme: Land Use

Planning With POWER

Elkhart County Indiana is experiencing a huge challenge of balancing growth and development while still protecting agricultural lands and its critical natural resources. The comprehensive land use plan developed in the 1960's is outdated and does not address the present growth challenges. The Planning With POWER (Protecting Our Water and Environmental Resources) program has presented educational programs on several site visits with Elkhart County officials, Plan Commission, and local land use decision-makers. At these meetings the County Extension Director, Purdue Land Use Team members, Conservation Partnership (NRCS and SWCD), and Indiana Department of Environmental Management people helped provide educational information and technical expertise on land use planning, non-point pollution, and protection of natural resources for Elkhart County.

Impact: The leadership of Elkhart County has decided to use the *Planning With POWER* educational package to help initiate the process of revising the comprehensive land use plan which can in turn guide growth and development to the most appropriate areas and protect agricultural land and water resources of the county. An ongoing project to evaluate the impact that development has on the watersheds of Elkhart County is underway and will use the *Planning With POWER* educational objectives to determine overall impacts on water quality and natural resources. There were 21 county officials who attended one of the educational presentations. Of those that attended, 36% felt that their knowledge was greatly improved. Another 35% felt their knowledge was improved, and 29% felt their knowledge was improved a little. No one in attendance thought it was a waste of time. Of those responding, 41% said they plan to use this information in their planning decisions, 18% said they will try to get others to use this information in planning, and 41% think they should adopt land use planning by watersheds for community development.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Natural Resources Management

Pond Management Education

Whether it is primarily a source of food or recreation, a pond can help to improve the quality of life on a farm or rural homestead, and can provide an additional source of income to the owner.

Ponds can provide hundreds of pounds of food annually in the form of fresh caught, caged or netted fish. Pond owners spend significant amounts of time and money managing plants. Proper use of chemicals to control weeds in and around aquatic environments is a concern to pond owners. Since 1999, nine programs on pond management have been offered in a three-county area by the area Extension Educator/Aquaculture Specialist that emphasize maintenance for healthy fish population and safe weed management practices.

Impact: A survey was distributed to those in attendance at the Fort Wayne Farm Show's *Pond Management* program in 2001 (40 attended). Of the responders, 93% agreed that they now understand how to increase the health and production of fish in their ponds as a result of attending this program. 100% agreed that they would be more environmentally responsible with their pond weed control program as a result of this program. One respondent also commented that he would save $600 per year on pond weed control as a result of this program. At the "Pond, Wetland and Wildlife Field Day" held at the Solamon Farms in Allen County in the summer of 2001, 38 attendees were surveyed. Of those returning the evaluation, 100% reported that they will be more environmentally responsible with weed control programs, and they understand how to increase the health and production of fish in their ponds as a result of attending this program. According to survey results, an average of $150 per year on weed control will be saved by each participant, as a result of this program. One respondent reported that he would save $500 per year. Responses came from residents of Allen, Noble and DeKalb counties.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Pesticide Application

Preventing Drift, Private Pesticide Applicator Training

Private pesticide applicator can purchase and apply restricted-use pesticides on property they control in order to produce an agricultural commodity. In recent years, the Office of the Indiana State Chemist (OISC) noticed an increase in the number of pesticide drift complaints brought against private pesticide applicators. At the same time, the number of complaints filed against commercial pesticide applicators declined. Off-target movement of pesticides can damage gardens, ornamental plants, and susceptible crops. Private applicators can be fined $100 per incident by the OISC if found guilty of pesticide drift. In addition, there may be insurance deductible fees or direct out-of-pocket payments if the applicator is found guilty of a violation. OISC investigators note that most drift cases could have been avoided if the private applicator had responded promptly and courteously to the complainant. Pesticide drift creates a poor public image of farmers and agriculture and increases the public's suspicion of pesticides. One way a private pesticide applicator can maintain their permit is to attend recertification programs conducted by county extension educators. In 2001, the topic of pesticide drift was presented at all recertification programs. Extension educators were provided a variety of resources, power point presentation, video, and fact sheets to present the topic. The first 2,000 private applicators to attend a recertification program received an evaluation in the mail. The return rate was 50% and represented private applicators from 80 of the 92 counties.

Impact: Ninety-nine percent of private applicators surveyed agreed that their neighbors had the same rights to use and enjoy their property as producers have to theirs. Addressing a complaint took top priority. Private applicators responded that they would return the phone calls of the complainant promptly and courteously and would personally visit the complainant's property. Private applicators (98%) recognize that it is best to make a pesticide application with a properly calibrated applicator when the wind direction blows away from susceptible areas. However, 70% acknowledge that they have made pesticide applications even when weather conditions were not favorable. Thirteen percent of the respondents stated someone had complained that pesticide drift had damaged their property. Typically, liability insurance for property damage has a $500 deductible. By heeding surrounding conditions prior to making a pesticide application, Indiana's 16,000 private applicators could potentially save $1,040,000 in damage expenses. Private applicators were asked how they would respond to a complaint of pesticide drift. The following were written responses by private applicators. "Try to resolve the problem in a professional manner as quickly as possible." "Always try to be a good neighbor-which means making it right. Offer to pay for or replace damaged property if possible." "Apologize and find out how to make it right with them."

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Soil Erosion

Watershed Education Outreach

Everyone lives within the constraints of a watershed area. The land use within a watershed is a function of the water quality in the watershed. Water is a natural resource that no one can do without and is an important part of body function, recreation, economics, and the ability to grow food. More than one half of Indiana's 23 million acres is used annually for planting crops. This land use results in scrutiny from the general public regarding agricultural impact to water quality. In surface water, soil from soil erosion is typically regarded to be the greatest contaminant by volume in most Indiana watersheds. Bacteria is also a concern in many watersheds as a result of improper, non-existing, or failing on-site waste systems and animal waste. For ground water, the concerns relate to nitrates, pesticides, and petroleum products. However, a coordinated statewide well testing effort in 1992 did not provide evidence of large-scale groundwater contamination problems. One watershed education outreach effort occurred at the 2001 Farm Progress Show site near Stockwell, IN. The demonstration efforts were three-fold in scope. First the soil erosion/runoff process with and without best management practices was demonstrated in urban and agricultural interfaces within a 20' x20' model. Secondly, an interactive touch-screen computer was utilized to demonstrate the structure and function of assorted on-site waste system alternatives. Thirdly, a well water testing display of past Indiana tests was exhibited and well water testing kits were made available to the general public for nitrate, pesticides, and volatile organic chemicals.

Impact: A decision to test home well water was made by more than 150 people. Many rural homes have only two options to obtain drinking water – commercially purchase or draw from ground water via a well. For those who had water quality problems, the problem was identified and reported confidentially to the individuals submitting samples, allowing the person to fix the

problem and/or avoid drinking unsafe water. Other individuals who did not trust drinking well water were able to confirm the quality of the water drawn from the well. In some instances, households were able to save more than $200 per household annually when well water could be considered safe and commercially purchased water for drinking or consumption was halted. The soil erosion demonstration visually astonished thousands of farmers visiting the exhibit. They learned how conservation tillage could reduce runoff and decrease soil erosion. Demonstrations like this have increased soybean acreage planted to no-till from eight percent in 1990 to 60% in 2000 and corn acreage planted to no-till from 9% in 1990 to 22% in 2000. Also a soil excavation in the exhibit area demonstrated the benefits in soil quality that result from conservation tillage.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Water Quality

Development of a Strong Septic System Installer Organization

Over 800,000 Indiana homes use septic (onsite) systems to dispose of residential wastewater. According to the Indiana State Department of Health, as many as 200,000 of these are inadequate. Many of these are located close together in the nearly 700 small communities that do not have access to municipal sewers and sewage treatment systems. No training or certification is required in most Indiana counties in order to install or maintain onsite systems, and there was not an industry organization to help build and promote professionalism. During 2000-2001, Purdue Extension worked with several active members of the industry interested in forming an organization of installers and pumpers who work in the onsite wastewater field in Indiana. A charter and bylaws were developed and the Indiana Onsite Wastewater Professionals Association (IOWPA) was legally recognized as a non-profit organization in the State of Indiana. Two Extension Water Quality Specialists organized a statewide conference to bring together individuals who work in the onsite field to help educate them about new developments in septic system technologies. Financial support was obtained from Purdue Extension and the Indiana State Department of Health in order to keep registration fees low and worked with IOWPA to establish a companion tradeshow.

Impact: IOWPA took the lead in running the tradeshow and collected several thousand dollars that allowed them to publish a monthly newsletter during the year and to become an established organization. This base level funding has allowed IOWPA to grow and they have had their second conference in December of 2001 in Indianapolis, Indiana. As IOWPA has grown stronger, Purdue has been able to reduce its involvement and allow the membership to carry the bulk of the load in organizing their annual conference. IOWPA is becoming much more widely recognized by the industry around the state and has provided an organized voice for pumpers and haulers and system installers to provide feedback on regulatory issues at the state level and to work with county health departments to organize training programs on the county and regional level. Neither would have happened without a strong, recognized state onsite wastewater organization.

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

Key Theme: Wildlife Management

Landscaping for Wildlife

The counties of southern Indiana adjacent to the Louisville Metropolitan area are experiencing rapid growth and an increasing level of land development for residential and commercial use. This land in many cases is altered in such a way as to diminish its use as wildlife habitat. Wildlife, which persists in this environment, often becomes a nuisance to the suburban landowner through its activity in and damage to lawns, gardens, landscapes and structures. Suburban homeowners seek information on wildlife damage control, but increasingly are looking for accurate and timely information on methods of enhancing their property's potential as wildlife habitat. In a partnership with the local SWCD, the Floyd County Extension office identified key topics of importance to this audience (Needs of Wildlife; How to Provide Appropriate Food and Cover; Attracting Bats, Birds and Butterflies to the Landscape; Wildlife and Water; and, Nuisance Wildlife) identified competent presenters for each topic, and scheduled/promoted a five part series entitled "Landscaping for Wildlife." Participants were provided with basic information gathered from several states and agencies in addition to the five scheduled presentations. Each participant was asked to complete a wildlife and habitat inventory and map of their property. They were then expected to develop an individualized wildlife management plan for future improvements to their habitat. Management plans were reviewed by a team of Master Gardener volunteers, and suggestions offered on each. For those seeking certification of their habitat, a site visit was scheduled during which the SWCD and Extension Educator toured the site, verified the accuracy of the plan, and offered comments and suggestions.

Impact: The five part educational series, "Landscaping for Wildlife", was attended by 45 participants from 6 counties of southern Indiana and Kentucky who control over 300 acres of potential wildlife habitat. Acreage certified ranged from a small intensively managed backyard of 8,000 sq.ft. to portions of a 100 acre farm. Of the 45 participants attending all completed a habitat inventory, while 30 completed an individualized wildlife management plan. Thirty site visits were made upon completion of the program, and all received certification of the habitat and appropriate signage and certification to verify that they are taking measures to provide beneficial and sustainable habitat for wildlife. Upon completion of the series, 85% of participants had a goal of increasing the quantity and diversity of wildlife that have access to their property, 96% of participants indicated that they intended to increase the quantity and diversity of plant material, 100% of participants planned to select and use pest control options and landscape maintenance plants and practices with the least impact on the environment, and 91% of participants felt they had a better understanding of wildlife damage, processed a variety of ways to appropriately prevent and control it and were familiar with resources available in the event wildlife became a nuisance. Of those answering, 75% planned to share their knowledge with neighbors and would work to develop neighborhood wildlife "corridors." When asked the most important thing that they had learned, some of the comments were as follows: “working with neighbors in a concerted effort to improve and diversify habitat,” “careful landscape plant selection, which includes the consideration of native species to provide year-round sources of food, cover and nesting sites,” “identification and selection of those landscape tools, techniques

and plant materials that have the most positive impact on the environment," "water is essential in the landscape for the benefit of wildlife," "planting food for wildlife is often more important than just providing a hand-out," "wildlife's ability to survive on its own has been greatly impacted by our alteration of their environment and that there can be a mutually beneficial interaction between humans and wildlife with careful planning and planting."

Source of Funds: Smith-Lever, State

Scope of Impact: State Specific

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

Purdue University 4-H/Youth Development programs reached 606,338 youth in Indiana during FY2001. Through youth development programming, Purdue University purposefully seeks to meet youth needs and build youth competencies relevant to enabling them to become successful adults. Positive youth development practices help to recognize the contributions of youth to community and build assets in youth to help them meet challenges. *Through the Four Fold Model of Youth Development*, 47 skills have been identified that have been combined into sets of skills to help youth develop as confident, capable, caring, and responsible citizens. The Model combines four existing models into one comprehensive model focusing on all four aspects of the individual: head, heart, health and hands. This Model enables faculty and staff to design curriculum and programming to encompass these 47 skills.

Several examples of the successes of 4-H/Youth programs will be provided in the Key Theme section of Goal Five accomplishments. Briefly, youth 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. School enrichment audiences are our fastest growing. In Marion County in central Indiana, 11,052 youth in 474 classrooms participated in *4-H in the Classroom* during 2000-2001 academic year. This number has increased by 19 percent from 1999-2000. This is also the largest school corporation in the state. The teachers in the participating classrooms reported that students gained life skills in the areas of thinking, caring, relation, managing, and working.

In addition to school enrichment programming, we are in the schools in many counties teaching about sexual assault and rape to junior high and high school classes. These facilitator-lead discussions have helped to avoid future violent situations and prevented many rape/date rape situations. In one central Indiana county alone, 4,500 students and 300 adults have been reached with educational programs about rape, sexual assault, dating violence and healthy relationships. In this county that is 36% of the junior high/high school student population. All six county school corporations have adopted this program.

Youth programming continues to be an important audience and segment of our Extension programming. We continue to reach out to new audiences and to reach far beyond the club program. Much of the success is the outreach being done county to county and in collaboration with other organizations—helping to find the 4-H/youth niche in the programming arena. Extension staff in Indiana have reported 11,246 days of activity addressing issues related to youth development.

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 has responded. The Resilient, Self Reliant, Strong Families Plan of Work group offers a diversity of programming 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 63,569 direct contacts have been made with programming focused to strengthen families in 2001. These contacts represent 2,974 contact days of programming effort. The media has been used to reach an additional 286,169 individuals with information. Parenting skills development programming has reached 18,917 individuals throughout the state. Positive personal development and relationship skills have been taught to 37,689 Indiana residents. The *It's My Child Too* program continues to reach non-custodial fathers with critical information on parenting. This year, in response to current events, an entire web site and related materials was launched to address children and how to communicate with them about terrorism and violence.

Financial management programming in Indiana encompasses many different aspects of both personal and business financial management. Specialists and educators reached 32,793 individuals with financial management programming. These contacts represented 2,846 programming days. Of these 32,793 individual contacts made, 4,453 were youth. How important it is to teach youth important aspects of personal finance at an early age. A new specialist has led the effort to increase programming focus in this area. Programming efforts in Financial Management range from *Income Tax Schools* and *Farm Business Management* classes to *High School Financial Planning* program and *Money 2000Plus*, a program for low income families to begin saving for the purchase of a home, car, or additional education. This year with special appropriations from the Director of Extension, a web based educational tool on *Planning for a Secure Retirement* has been developed. The instructional effort combined the expertise of an Extension Specialist and research/teaching faculty. A team of Purdue Extension staff will be attending the national conference on *Planning for a Secure Retirement*.

Purdue Extension plays a role in the development of a stronger, well-qualified workforce for both our state and the nation. Programming in the area of "Work Readiness, Career Development and Life Skills" has reached 29,800 in FY2001. Purdue Extension staff report 837 days of work in this area. Programs include career description and modeling for high school students in 4H workshops, basic life skills instruction of time management, employer expectations and job interviewing strategies, and job skill development through continuing education.

Indiana's communities are engaged in a continuing struggle to retain human capital. A cadre of well-informed and trained citizens who have the desire and the ability to make life better in their community are vital to positive community change. Through the educational programs offered

by Purdue Extension, individuals gain the confidence, skills, knowledge and ability to make a difference in organizations and the community. After completing leadership training, people move into leadership positions in the community and the state and become involved in important community efforts. During FY2001, Purdue Extension devoted 5,268 contact days to leadership development issues and reached 140,373 people with these efforts.

Well-educated community leaders provide the community with people who make good public judgment, allowing the community to develop in ways that address the rapid changes it faces with public issues. Purdue Extension offers programs at both the state and local level that provide the knowledge and opportunities for elected officials and citizens to become more knowledgeable in resolving their public issues and needs. These programs address issues such as taxation, education, growth and development, community visioning, consensus building, and economic development. Purdue Extension, at the local and state level, reported 876 days worked in community development issues, and reached 18,176 people in FY2001.

Resources

Approximately $12,603,062 and 196 FTEs have been invested in Goal 5. This is a best estimate and these are not presented as auditable numbers.

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 county facilities including courtrooms and jails.

Impact: *On the Scale of Juvenile Legal Attitudes*, administered as a pre- and a post-test for *LEAD* sessions, results showed that *Project LEAD* effectively changed the attitudes of fifth graders. Last year we reached l0,335 youth through this program. At the conclusion of *Project LEAD*, the average student score of the Scale increased by over twenty points in schools where LEAD is taught. Teachers in the classroom also report a positive change in attitude after completion of the program. In some counties, due to the success of the program, grants have been obtained to fund a program assistant who works solely on this effort.

Source of Federal Funds: Smith Lever

Scope of Program: State Specific

Communities Against Rape Educational Program (CARe)

Description: In 1998, there were 2,000 rapes reported in Indiana. The prevalence of sexual assault and rape continues to increase; eighty percent of all rapes are never reported according to the National Crime Victims Research Center. In order to address this issue, the CARe initiative was begun.

The goal is to bring people together and engage them in on-going dialog and assessment of comprehensive sexual assault prevention activities. Through this process the aim is to reduce the incidence of rape and sexual assault; to bring communities together in order that they adopt a zero tolerance for those crimes; and that Indiana is a safer, healthier state. In addition, the cost to victims and society is enormous and is demonstrated by the following: 1) tangible and intangible costs average $86,500 per victim; 2) victim's cost nationwide total $127 billion annually; 3) criminal justice systems costs average $25,000 to $100,000 per trial and 4) prison costs per perpetrator average $15,000 to $20,000 annually.

In thirty communities throughout the state, educational programming is being done through partnerships with schools, community agencies, out-of-school programming, and law enforcement. Supplemental grant funding allowed county Extension Educators to hire program assistants and other resource people to assist in this educational initiative. County coalitions have been formed around this issue.

Impact: In Marion County, in the first six months of 1998, 289 rapes were reported; in the first six months of 1999, 183 rapes were reported, showing a decrease of 106 reported rapes. What makes this interesting is that 118 presentations were made to 4,500 participants during that same time. This correlation may be coincidental or transient, it is encouraging. Statistical analysis shows: "The results of overall statistical analysis show that your program was effective at changing the attendants' knowledge of and attitudes about rape myths and domestic violence. The mean scores for eight out of the ten questions showed statistically significant differences between the pre- and post-tests."

Three communities in the state have formed youth and adult partnership teams which work together to create plans for rape and sexual violence prevention based on the needs of their community. The Youth Council members are in the process of creating an interactive youth *CARe* web site so they can reach and educate a wider audience about the myths and realities of rape and sexual violence. Involvement in the Youth Council fosters interpersonal communication and critical thinking skills, the development of personal goals and high expectations, respect for self and others, well earned pride in accomplishments, and an understanding of how accomplishments can lead to expanded career options.

In Indiana, we had 823 days devoted to *CARe* programming reaching 77,924 youth. The prosecuting attorney in Marion County stated, "Clearly this program is having an impact." While it is not always possible to prevent rape, awareness education is the best method to empower teens against this act of violence.

Source of Funds: State funds

Scope of Program: State Specific

Life After Incarceration

Description: Nationally there is an estimated 1.9 million children under the age of 18 with a parent incarcerated in a state or federal correctional facility. In Indiana there are 20,125 adult offenders and 1,382 juvenile offenders in correctional facilities. The majority of these individuals return to families and communities, but without rehabilitation efforts. The issues faced by offenders prior to incarceration will challenge successful reintegration and subsequent incarceration. Extension 4-H/Youth programming targets pre-release adults and juvenile offenders in order to promote successful reintegration in to the family and community, while reducing recidivism and inter-generational incarceration. The program used an integrated program design to teach social, educational, vocational, interpersonal, and parenting skills. An Extension specialist provides training to Extension Educators and other professionals who in turn provide the *Life After Incarceration* program. Professionals receive information for promoting, implementing, and evaluating the program. Pre-and post-program evaluations are returned to the specialist for final analysis, driving program revisions, expansion, and outreach. Sixty professionals from 10 Indiana counties completed training in October 2001. A partnership established in October 2001 with Indiana University-Purdue University Indianapolis moves the *Life After Incarceration* program into the hands of 35 professionals providing the pre-release program to juveniles in detention centers across the state.

Impact: Following the 12-week program, 88% of participants (N=93) agree or strongly agree that they know how to reduce stress in their lives and 97% can identify two good ways to cope with stress compared to pre-program scores of 46% and 67% respectively. Eighty-three percent of post-program participants, compared to 58% of pre-program participants, report that they know how to handle conflict effectively. These changes support the ex-offender's ability to react less impulsively and to exhibit higher self-control, thus supporting successful reintegration and reduced recidivism.

Source of Funds: State Funds

Scope of Program: State Specific

Harrison County Juvenile Diversion Program

Description: Harrison County, a growing rural community bordering a large metropolitan area with increased growth, has seen an increase in the incidence of juvenile crime. Harrison County Cooperative Extension Service has worked with other agencies to address youth issues and form a team. Through the efforts of the team, funding was secured to begin a *Juvenile Diversion* program. The program focuses on first time offenders and their parents in a five-week program. With successful completion of the program, the first offense is dropped. Program information

includes communication skills, decision-making skills, self-esteem, conflict resolution, goal setting, parenting skills, and substance abuse prevention.

Impact: Since April of 2000, 64 youth and 76 parents/guardians have completed the program. Of the 64 youth, only three have had repeat offenses. Evaluations point out that communication has improved which has opened the door to improved family relationships. Follow-up services are provided for families and tracking is being conducted by the County Probation Department.

Source of Funds: Harrison County Community Foundation, Indiana Criminal Justice Institute

Scope of Program: State Specific

Key Theme: Youth Development 4-H

Description: Fifty-two Extension Educators and Extension Specialists submitted 52 reports on long-term involvement with youth, primarily through the *4-H Club* program. Indiana has 2,593 4-H Clubs with enrollment of 73,028 youth. In addition to involvement with youth in the club setting, Indiana has *School Enrichment* programming and community programming including after-school programming, and camps/day camps.

Impact: In the objective area "Youth learn, take action in life and science skills, work force preparation, subject matter competency in order to impact the community." Indiana devoted 6,170 days and reached 405,790 youth and 63,134 adults. In the objective area "Adults will learn and take action to create environments and facilitate the healthy development of youth." Indiana devoted 2,040 days and had 12,170 contacts with youth and 36,296 adults. In addition to the above numbers, Indiana reached 192,548 youth through *School Enrichment* programming.

Source of Federal Funds: Smith Lever

Scope of Program: State Specific

Key Theme: Character Education

Description: Character education is a foundation of the *4-H/Youth Development* program. Several counties have identified the issue as the number one concern of parents, schools, and the faith based community. Schools are faced with growing discipline problems; the number of youth who need alternative school; number of students who are not responsible in areas of library book returns and home work assignments; and lack of respect for the property of others.

In one small central Indiana city with a population of 18,000, an effort was coordinated by the Cooperative Extension Service in partnership with schools, community leaders, churches, day care providers, and youth group leaders to institute programming in schools focusing on the six pillars of character education. Each month the community is focusing on one of the pillars.

Teachers receive a packet of materials including skits, plays, discussion guides, art projects, "hands-on" projects, worksheets, and heroes to research.

Impact: 100% of the respondents indicated that knowledge of the six character traits was gained. These are post-tests returned by teachers. Other positive results indicated that 59% of the teachers felt the students argued and fought less; 77% felt the students were more responsible and remembered their homework; 91% felt the students offered to help other students; 68% felt the students were more respectful of school property; and 73% felt the students were more cooperative with each other on the playground.

Source of Funds: Carroll County Youth/4-H Team Council, Step Ahead, Kiwanis, Smith Lever

Scope of Program: State Specific

Key Theme: Parenting

Parenting Programs

Description: Changing family forms and situations are leaving families looking for new skills and resources. There are almost 1.7 million children under age 20 in Indiana, and many of them live with a single parent. In recent years, Indiana has been among the top five states in the U.S. on this indicator. Although the poverty level is comparatively low in Indiana, the employment of parents leads to challenges related to childcare issues and balancing work and family. 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 number of deaths due to child abuse and neglect—both in homes and in childcare settings—has been alarming.

Outputs: Ten counties in Indiana provided parenting education programs in 2000-2001 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. This report includes those impacts. Extension educators from Clinton, Daviess, Fayette, Greene, Henry, Madison, Marion, Newton, Posey, and Warrick counties delivered various programs to 169 people. Some of the key objectives of the program were increasing parents f self-confidence, increasing their knowledge of children fs development, and increasing their skill levels. Purdue Extension Parenting

Program Evaluation Response (PEPPER) forms were distributed before and after to the people attending the program. 157 pre-tests were returned, and 60 post-tests were returned. 44 of those could be matched with pre-tests for comparison.

Impact: Demographics of participants gender: of the 157 participants who returned pre-test forms, 73% were women and 27% were men (7% did not respond). Participant's age: 11% of the participants were between the ages of 19 and 24; 27% were between 25 and 30; 43% were between 31 and 40; and 18% were older than 40 years of age (7% did not respond). Child's age: of the children who lived with the participant, 34% were between the ages of 0 and 2; 39% were between 3 and 5; 40% were between 6 and 8; 28% were between 9 and11; 23% were between 12 and 14; 10% were between 15 and 18; and 4% were older than 18 years of age. Number of children: on average, the participants had 2 or 3 children. General feelings about being a parent and how parents describe themselves: More parents said they would describe themselves as "understanding" as a parent on the post-test than on the pre-test (significant at p=0.05; pre-test: 68%, post-test: 84%). In addition, fewer parents reported that they were often gfrustrated h as a parent on the post-test than on the pre-test (significant at p<0.05; pre-test: 54%, post-test: 36%). Self-confidence as a parent: Parents f feelings of self confidence as a parent improved from the pre-test to the post-test. Parents were more likely to agree with the statement "For the most part, I am happy with my parenting" on the post-test than the pre-test (t=8.53(44); p<001). Parents also were more likely to agree with the statement gI can list ten things I do well as a parent h (t=2.63(44); p<05). Participant's thoughts about program knowledge learned: Of the 53 respondents completing this question, 57% reported that they learned either "lots" or "some" new information during this program. Behavior change: 49 of the 52 participants completing this question (94%) stated that they either "definitely" or "maybe" changed their behavior because of this program. Comments by participants responding to the following question: If you learned something new, what did you learn? Examples: gThat I do have many more choices for parenting than I thought before. h gTools for effective parenting. h gI learned how to better understand my children to be more patient, loving, caring lend a helping hand, an ear, and not to be angry. h gThat there are better ways to deal with kids than by yelling. h Another question for participants: If you have changed your behavior,

what are you doing differently? Examples: gI have goals that I have never thought of before. And I fm going to start addressing them as a parent. h gI am listening more and watching better as my kids grow up. h gI fm not hollering as much. I fm more talkative and use different punishments. h gListening more, putting myself in my child fs place, praising her more. h

Source of Federal Funds: Smith Lever

Scope of Program: Clinton, Daviess, Fayette, Greene, Henry, Madison, Marion, Newton, Posey, and Warrick counties

Terrorism and Children

Description: On September 11, 2001, the United States suffered tragic attacks that were discovered to be related to terrorism. These events were overwhelming to adults and children alike. The news reached families around the world within minutes. As one mother said, "My son watched about 40 minutes of this at school yesterday, and he saw the towers go down. He was traumatized by it. He has been asking highly intelligent and sophisticated questions about it all. I had to go to school yesterday at 1:00, he was so upset." Another parent said, "Some teachers let the kids watch TV, but did not say anything about it. A co-worker told me that her children came home cand one [young boy] was scared and crying cand her other [teenage] son went home and straight to his room and started reading his Bible." Parents and teachers felt very unprepared for this event. They needed to talk to their children, but didn ft know what to say. As one parent said, "As the mother of three children (ages 3, 6, 8) – my husband and I are completely taken aback by how unequipped we are to talk about this." Another parent said, "Adults who are in the position of teaching and mentoring to children – need to understand. Yes, the situation is shocking to all, but at the same time we are in a position to help kids better understand the situation at hand."

Outputs: Within two hours after the first attack, the Extension Human Development specialist sent a fact sheet called Talking with Children when the Talking Gets Tough to Extension staff in Indiana and to two other e-mail lists. A few hours later, a website was launched that provided a fact sheet written specifically for this event, information about

talking to children of different ages, and links to other information about stress and developmental stages. Broadcast-quality audio clips also were included. The availability of the website was announced to several e-mail lists. Over the next several days and weeks, additional information was added, including answers to frequently asked questions, video clips, a follow-up fact sheet, and translations of two of the fact sheets into Spanish.

Impact: Teachers, professionals, and parents around the world accessed the website. The day after the attacks, almost 7,000 visitors accessed the site. Over the first two weeks of its existence, 31,387 visitors reviewed the information. The average user spent more than five minutes logged into the site, and most looked at several pages of information when they visited. The author was invited to participate in television, radio, newspaper, and magazine interviews around the world, including Sydney, Australia; Hong Kong; Germany; and at home in Lafayette, Indiana. She participated in a radio interview with National Public Radio, and the information appeared in USA Today. Those who received the original e-mail announcements felt that the information was valuable enough to pass to others. They created links to other websites and forwarded the message to other listservs, to professionals, and to family members. In Indiana, 68 Cooperative Extension Educators responded to a survey about using the website. All of them had been aware of the site. All but one (99%) had used it in some way. Of those who used it, 64% had printed the material to hand out to someone, and 58% had distributed information to the media. The most common uses by county Extension staff were with newspapers and newsletters. Several users shared comments about the usefulness of the information. One Extension professional from another state said, "I wanted to especially thank you for your first communication that you sent on Tuesday, September 11 cI was able to attach that two-page piece cto all Kentucky Extension Family and Consumer Sciences agents. Several of them replied that they had received calls from parents, teachers, and the media right after the news broke and were very glad to have such useful information to give the questioners. I really appreciate your speedy reaction to help us help so many folks." Another Extension professional said, "Having the information almost immediately enabled us to share it with Extension agents and with media across the state [Tennessee]. Being able to respond with timely

information, especially information that we could put directly in the hands of parents, was extremely helpful and made Extension look good. There has been lots of media interest in this topic, and this has given us an opportunity to make persons more aware of the many resources that the Extension Service has to offer. Thank you for sharing your expertise with all of us." Other professionals reported, "Thank you so much for the information that you sent out. I am a pastor. In helping people deal with this tragedy, I realized that what you were saying also applies to adults in some regard. We do need to talk about our feelings, the situation, and a sense of hope. Your words have been a great guide for me." A teacher in England said, "Thank you so much for your paper about talking with children. I have sent it to lots of friends and colleagues here in Britain, and some of them have already forwarded it to all the schools in their area. Many hundreds of people here already have reason to be grateful to you, and many thousands of children will benefit. Your paper is very fine, calm, beautiful, powerful."

Source of Federal Funds: Smith Lever

Scope of Program: Indiana (all counties) U.S., Germany, India, Hong Kong, Great Britain, Australia, Canada

It's My Child Too

Description: It fs My Child Too is a short-term parenting education program designed to help young non-custodial fathers learn how to support the healthy development of their preschool children. The program content focuses on fathers f roles, children fs health and behavior, responsible decision-making, and co-parenting relationships. This report summarizes results of program evaluation data collected between January 1998 and December 2000 to assess the extent to which the program is increasing fathers f parenting knowledge and skills.

Outputs: Program impact was assessed by examining changes in fathers f knowledge of parenting and perceived parenting skills. All fathers included in the program evaluation completed two questionnaires, one immediately before the program began and the second one at the conclusion of program participation. Program participants in 18 Indiana counties voluntarily completed pre-program questionnaires. Responses to both

pre- and post-program questionnaires by 187 fathers in 15 counties who completed the It fs My Child Toφprogram were analyzed in this evaluation.

Impact: Fathers f pre-and post-test scores on parenting knowledge and skills improved significantly in three major areas: basic skills in caring for child, confidence in providing an appropriate environment for child, and competence in dealing with difficult childrearing situations. Fathers f demonstrated significant improvement in 21 of 24 items.

Source of Funds: Indiana Fathers and Families Initiative of the Indiana Family and Social Services Administration

Scope of Program: State of Indiana

Key Theme: Family Resource Management

MONEY 2000plu$

Description: The need for enhanced financial management skills is evident in today's world. Americans are saving only 1.1% of their income. Fewer than 23% of American credit card holders pay the entire balance they owe each month. In the last ten years bankruptcy rates have doubled in Indiana.

Outputs: MONEY 2000plu$ is designed to increase the financial well being of Indiana residents through increased savings and reduced household debt. This statewide initiative provides financial education and the improvement of money management skills. Subscribers to the program have received newsletters, record keeping materials and the option of running PowerPay. They learned goal setting, good financial record-keeping techniques, budget planning and balancing, common credit pitfalls and how to correct them, ways to save money and save on household expenses. Educators of the MONEY 2000plu$ Design Team have made available 3 power point programs: Money Traps, Do You Need Plastic Surgery, and Planning for a Comfortable Retirement, for educators to use.

Impact: 8 counties participated in and reported data for MONEY 2000plu$. There are 185 subscribers the second year in Indiana reporting the following: the amount of increased savings this year was $36,554, and the amount of decreased debt this year was $50,102. The amount of cumulative increased savings is $210,632. The cumulative decreased debt is $186,695. Total cumulative impact for the MONEY 2000plu$ campaign is $397,327 (21 counties contributed to this total). One woman had a goal to reduce her debt by $500. She met that goal and has set a new goal of paying off one VISA card. She has established an Emergency fund with $500, a Christmas club account, and reduced the number of her creditors from 23 to 2! Another participant upon receiving a raise at the beginning of the year banked the extra salary money in a savings account using automatic payroll deduction. Another couple set a goal to save $2,000 and reduce debt by $2,000. They report to be on track for meeting their goal. Their children are helping find ways to save and the family is following a monthly spending plan.

Source of Federal Funds: Smith Lever

Scope of Program: Allen, Grant, LaPorte, Marion, Newton, Vigo, Warren, and Whitley counties

Improving the Financial Literacy of Youth

Description: Basic competency in personal finance is important to everyone. Unfortunately, an understanding of personal finance principles is a life skill that too many of our youth are missing out on. In studies measuring 12th graders f knowledge of personal finance basics sponsored by the Jump$tart Coalition for Personal Financial Literacy, students would have received failing grades in both 1997 and 2000. And, in 2000 the scores were lower than in 1997. Broadly, the principles include knowledge related to: income, money management, spending and credit, and saving and investing. Parents, educators, employers, and communities all have a role – and an interest – in improving the financial literacy of youth.

Outputs: Work on addressing this issue is still in the beginning stages. However, in the 2000-2001 program year, several efforts were launched. First, Purdue Cooperative

Extension fs involvement with the High School Financial Planning program sponsored by the National Endowment for Financial Education was renewed. Second, Purdue Cooperative Extension is represented in the newly formed Indiana Jump$tart Coalition and its Executive Committee. Third, a professional development opportunity for Purdue Cooperative Extension staff was offered.

Impact: Through displays and presentations, 150 educators and financial services representatives were introduced to the High School Financial Planning program. More than 20 agencies and organizations are represented in the Indiana Jump$tart Coalition. Thirty-four Purdue Cooperative Extension staff members attended a one and a half day training symposium in March 2001. Of those who returned evaluations, the average rating for the overall symposium was 4.43 out of 5 and the average rating for the usefulness to the participants was 4.11 out of 5.

Source of Federal Funds: Smith Lever and National Endowment for Financial Education

Scope of Program: Indiana

Planning for a Secure Retirement

Description: More Americans will face a longer period of retirement than ever before. A recent survey by the Employee Benefit Research Institute (EBRI) found that fewer Americans are saving for retirement, fewer are confident they will have enough money to live comfortably in retirement, and fewer have tried to calculate how much money they need to save for later life. Retirement planning involves complex issues for which many people have received little formal education. Furthermore, research also shows that people who have tried to calculate how much they need to save for retirement, have altered their savings behavior, have saved more, and were on track or ahead of schedule with their savings. It appears that doing these calculations gives people a goal.

Outputs: Planning for a Secure Retirement is a web-based retirement planning course that was developed to increase awareness of retirement planning and to encourage users to develop their own plans. The target audience is people 25 to 55 years old who receive little retirement planning education at work or those without a formal retirement plan such as farmers, self-employed workers, and employees not covered by a retirement plan. Anyone with a computer and internet access can participate in this retirement planning education program that is available 24 hours a day, seven days a week. Planning for a Secure Retirement (www.ces.purdue.edu/retirement) includes 10 learning modules. Users can select the modules that respond to their needs and proceed in the order of their priorities. Each module addresses an issue related to retirement planning, such as income needed, sources of income, retirement readiness, Social Security, and Medicare. The web-based course includes 29 interactive links that allow users to access current retirement planning information. Educators have also used Planning for a Secure Retirement as part of workshops focusing on retirement planning. One series of workshops targeted farm families while another targeted anyone interested in retirement planning. In Utah the web course was used with a women's financial information group.

Impact: Between November 13, 2000 and July 15, 2001, over 4,900 people accessed Planning for a Secure Retirement. Other states have requested links to the web course. A voluntary evaluation is included in the web-course. When asked what they learned as a result of the course, users have written:

- " I need to get my credit under control if I am to have any money left when I retire."
- "I can not retire early. I have got to put more into my savings".
- "I learned about IRAs."
- "There are lots of resources available that I need to check."

When asked what they planned to do as a result of the program, users have said:

- " Take a closer look at my retirement plans,"
- "Review with my financial advisor my yearly savings plan,"
- " Make changes to increase my retirement benefits and to better prepare for retirement."

Source of Federal Funds: Smith Lever and 21st Century Initiative Funds from PU

Scope of Program: Indiana, US

Key Theme: Leadership Training and Development

Whitley County Learning Services

The Purdue Extension Service has identified a need to increase life skills, work readiness and career development in communities throughout Indiana. Whitley County ranks 43rd in the state of high school graduates going on to higher education. A recent employer survey by the Whitley County Economic Development Corporation cited the following needs by employers: recruiting and retaining good employees, basic math and teamwork skills, computer skills, positive life strategies and better oral and written communication skills. According to Purdue University research, earnings for high school graduates continue to fall relative to earnings for individuals with advanced education and skills. Those with skills to adapt and to use the advances of technology are in greater demand and have seen their pay rise. Those without skills have seen their pay stagnate and fall. In March of 2001, a program coordinator was hired to develop learning services programs for the community. This included distance learning opportunities, workforce development and personal improvement offerings. At the same time, community leaders were meeting to develop a CAPE grant proposal that would institute a countywide learning center concept. Whitley County Extension Service staff became integral members of the CAPE grant steering committee, providing input and valuable guidance in the developmental process. Several pilot programs were initiated to determine the success of learning service offerings within the county. These programs included: *Breeding Herd Management*, a 4-week distance learning course for area pork producers; *Discover Your Computer*, a 2-day introductory computer course; *Microsoft Word Basic*, a 2-day computer course on the Microsoft Word program; *Program Development in Agricultural and Extension Education*, a 3 credit graduate level course offered via ATM 2-way technology from Purdue; and *General Health and Safety Education*, a 3 credit graduate level course offered via ATM 2-way technology at the request of Indiana State University.

Impact: To date, a total of 27 people have benefited from the course offerings of Whitley County Learning Services. Five area pork producers learned enhanced management practices and profitability opportunities from the four-week Breeding Herd Management Course. Twenty people (10 per class) upgraded their computer skills by participating in the computer classes. Of these 20 students, 5 represented local government offices, 3 were from area businesses, 1 was employed at a social service agency and at least 6 out of 10 in each class would be classified as "seniors." Response to the computer classes was tremendous, with a waiting list of 10 and several requests for additional classes including Excel, Internet and web site development. Evaluations indicated that participants enjoyed the local offering of classes at a reasonable price. Two "for credit" graduate level courses were offered at the Whitley County Extension Office in the fall of 2001. The initial offering of these courses and involvement in the CAPE grant planning process has shown the following benefits: increased awareness of lifelong learning, as a

means to increase work readiness and/or improve personal development; additional educational opportunities for Whitley County residents (and neighboring counties), both credit and non-credit; maintaining and increasing partnerships among decision makers, schools, employers and others in the community to expand awareness, address community needs and barriers and enhance resources; increased career options as well as enhancing work place stability and productivity; and improved technology, communication and leadership skills.

Source of Federal Funds: Smith Lever, State

Scope of Program: Whitley County, Indiana

Key Theme: Community Development

LaGrange County - Planning for the Future

In early fall of 1999, LaGrange County's Millennium Committee, Community Foundation, and Step Ahead Council called together agency and community leaders. Their need was to conduct a comprehensive issues identification process that could guide plans of action for the county's various agencies, community groups and governmental bodies. Purdue Extension coordinated the process modeled after the *Take Charge* program that has been effective in many communities around the state. Extension educators organized a steering committee of community leaders to map out the process. Three visioning workshops were held in early 2000 to discuss common concerns, build consensus on critical issues, and initiate a process for future study and action planning. Leadership and Community Development Extension Specialists facilitated the workshops. Approximately 140 people from all segments of the county participated in at least one of the three sessions. Task forces were formed to address five major issue areas: Planned Growth, Youth and Recreation, Empowerment for Family and Youth, Government Accountability, and Preserving Natural Resources. They gathered information, made recommendations, and in some cases took action. Additional public information meetings were held on Comprehensive Plans, county manager roles and responsibilities, asset building for youth development, and groundwater quality and related environmental issues.

Impact: A report to the public was produced by LaGrange Publishing which was included in a weekly newspaper to approximately 10,000 households. Committee members distributed multiple copies to key offices and businesses around the county, and in exhibits at various county events. Planned Growth Task Force met with potential planning consultants, secured a partial funding commitment for the Chamber of Commerce, and brought their information to the Plan Commission, which has gathered bids from consulting firms to begin the process of developing a Comprehensive Plan. Empowerment for Family and Youth Task Force compiled and distributed a community services directory. A Youth Assets Council (YAK) has been formed through the LaGrange County Community Foundation to bring together all youth-serving groups in the county to assess and improve the community's youth development assets. Government Accountability Task Force joined with LaGrange County Chamber of Commerce's Resource and Development Committee to produce a guide for county officials, listing all board and

commissions that appoint members and includes the terms of membership. The guide also includes Indiana codes relating to the various county government departments. The county recently created and filled a county manager position.

Source of Funds: Smith Lever, State

Scope of Program: LaGrange County, Indiana

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 statewide Program Leaders. From the 92 reports, the Program Leaders classified the many issues into 16 priority issues that form the statewide 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, staff from K-12 education, and business as well as community leaders. 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 in November at the 2001 State Conference: Childcare: Meeting the Needs of Indiana Families; Basic Animal Research in Agriculture; Nanotechnology; Innovative Education; Four-Fold Youth Development Model: Designing and Evaluating Effective Youth Development Programs; Biosecurity in a New Era; Farm Policy and the Farm Bill; Talking the Talk: Communicating Effectively with Your Elected Officials.

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 effectively and efficiently deliver relevant educational information to a spectrum of audiences, Purdue Extension is obligated to continually focus on three major tasks. Purdue Extension must 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 three years, Purdue Extension has aggressively addressed the responsibility of delivering information to new audiences and new information to traditional audiences. Audiences being engaged vary from traditional family, youth, community and agricultural groups to new populations such as Hispanic communities, from targeted groups such as participants in funded nutrition education programs to under-served audiences such as families with small farms, and from traditional families planning retirement to single fathers, from youth in 4-H projects to after-school children involved in enrichment programs. In the past three years, Purdue Extension has become much less tradition bound and more capable of reaching audience 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 have completed several days of staff development regarding the utilization of this tool. All Extension (and research and teaching) staff participated in training in the past year to prepare them to effectively and efficiently evaluate their educational programs using the LOGIC model.

Goal 1: Agriculture remains a prominent industry in Indiana even though the demographics of Indiana's population are significantly changing as a result of rapid growth during the decade of the 1990's. Profitability resulting from a strong competitive position remains a key to the continued strength and integrity of Indiana's farm families. However, emphasis by Extension on diversification of ag enterprises and value-added production and marketing has increased so farm families may evaluate more alternatives for increasing their net farm income.

With the rapid growth of the state's non-farm population, Extension has increased emphasis on 1) urban gardening, 2) environmentally benign methods of pest management in lawn, turf, and garden, 3) Master Gardener programs, and 4) producer-to-consumer marketing and farmers' markets. While the proportion varies by county, as much as one-half of the extension resources devoted to "agriculture" may focus on the "green" industry associated with non-farm populations.

Goal 2: Food safety and quality education programs are included in many aspects of Purdue Extension. HAACP training is provided throughout agricultural production, processing, and

marketing educational programming as well as at the point of contact with consumers. Much of the educational efforts of extension staff involved in agricultural production focus on the production of high quality and safe food products. An increasing proportion of food consumption occurs in restaurants or the food is provided for ready-to-eat, take-home consumption. Handlers of food in these businesses must understand that it is their responsibility to provide consumers with a safe food supply. Purdue Extension has reached out to a spectrum of audiences with its message of safe food handling.

Goal 3: A healthy and well-nourished population is essential to the establishment of a high quality of life in any family and community setting. Purdue Extension has reached to audiences across a breadth of age groups and resource levels in its educational programming

Goal 4: With knowledge provided by Purdue Extension, all citizens will potentially be better stewards of the environment and surrounding natural resources. Whether agricultural producers or homeowners, relevant information is effectively provided for all citizens to use in decisions that affect how they will impact their environment.

The industry associated with forest crops and products manufactured from timber are a significant segment of Indiana's economy. With Indiana's population growth, decisions regarding the use of land are becoming increasingly contentious. Seventy-two of the county extension staff are voting members of County or Area Plan Commissions. A team of staff, the Land Use Team, was developed in 1996 to provide a focused resource to assist communities in better understanding and participating in the process of arriving at public decisions. The team was selected for the prestigious Dean’s Team Award in January 2002.

Goal 5: Relevant decision-making information is essential for citizens to address issues that affect their families, youth, communities, and businesses. The 4-H and Youth Development program has a long tradition of successful youth and adult participation. With the increasing complexity of issues faced by youth, traditional 4-H programs are being augmented with topics as such as Character Counts, conflict resolution, and after-school enrichment activities, and through the establishment of community partnerships with other youth serving organizations. In addition to traditional youth audiences, Purdue Extension is also providing information to enable local youth organizations to better serve at-risk youth audiences and their parents.

As a part of the National 4-H Centennial Conversation Program Initiative, Purdue Extension will support the 4-H Youth State Conversation and the delegation to the National Conversation as a part of the 4-H’s gift back to America in celebration of the Centennial of 4-H. The Conversation at the state level will help in setting a youth agenda for the state of Indiana. Data will be shared with stakeholders, funders, supporters, and policy makers to summarize what has taken place with hundreds of youth and youth serving adults in the state.

Purdue Extension is also focusing increased programming on workforce development and welfare to work programs. In addition, learning centers in rural communities are being developed by Extension collaborating with community partnerships that include private industry, community leaders, and other youth and adult educational entities. A variety of not-for-credit

and for-credit educational opportunities are increasingly available to local citizens through these centers.

With the many changes that have taken place in the demographics of Indiana's population in the decade of the 1990's, community leaders and elected officials are seeking advice on methods to accommodate population growth and diversity.

E. MULTISTATE EXTENSION ACTIVITIES

U.S. Department of Agriculture

Cooperative State Research, Education, and Extension Service

Supplement to the Annual Report of Accomplishments and Results

Multistate Extension Activities

(Brief Summaries Follow the Completed Form)

Institute	Purdue University
State	Indiana

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

Actual Expenditures

Title of Planned Program/Activity	**FY2000**	FY2001	FY2002	FY2003
Development of an Economic Threshold for Western Corn Rootworm in Corn Based on Numbers of Adults in Soybean		51,233		
CystX Technology Developed at Purdue to Combat Soybean Cyst Nematode		4,996		
Environmental Center on Livestock Waste Management		23,844		
Manure Production and Composition from Current Swine Genetic Lines		23,844		
Integrated Management of Arthropod Pests of Livestock and Poultry		32,878		
Tri-State Dairy Management Conference		37,000		
Building a Better Alfalfa Plant		9,144		
Mycotoxins in Cereal Grain		19,722		
Improvements of Thermal and Alternate Processes for Foods		69,958		
Total		272,619		

David C. Petritz **March 1, 2002**

Director

Form CSREES-REPT (2/00)

MULTISTATE EXTENSION ACTIVITIES BRIEF SUMMARIES

Development of an Economic Threshold for Western Corn Rootworm in Corn Based on Numbers of Adults in Soybean

Western corn rootworm (WCR), once considered only a pest of corn, has adapted to the corn/soybean rotation production system in parts of Indiana, Illinois, Ohio, and Michigan, by laying eggs in soybean. Rootworm larvae damage corn planted in the year following soybean thereby diminishing the value of crop rotation as a cultural management technique. This has resulted in increased and sometimes indiscriminant use of insecticides in the affected area. Pherocon AM yellow sticky traps were established in multiple soybean fields over several years to determine WCR adult numbers and subsequent damage by WCR larvae to corn roots. Data were analyzed to determine management threshold values. Test results from studies designed to develop treatment thresholds for corn based on the abundance of adult WCR observed in soybean in the preceding year indicated that the research-based treatment threshold to prevent economic injury to corn in the following year using yellow sticky cards is 8 beetles per trap per day. For extension purposes, however, the economic threshold of 5 beetles per trap per day was selected as the recommended level for farmers based on the fact that > 95% of the first-year cornfields reached economic root damage the following year when this number was attained. Knowing when the economic threshold is reached in soybean in the preceding season allows corn producers to more efficiently manage this pest. The judicious use of soil insecticides intended to protect corn roots in Indiana has the estimated potential savings (preventing unnecessary insecticide applications and protecting crops at risk) of hundreds of thousands of dollars annually. A fact sheet (E-218) was produced and distributed to agriculturalists in affected areas.

CystX Technology Developed at Purdue to Combat Soybean Cyst Nematode

Soybean cyst nematode is the most destructive pest of soybeans nationwide, with an estimated annual loss of $1.4 billion in the U.S. Plant resistance is the main tool for managing SCN. Purdue University's patented soybean germ plasm now known as CystX technology provides the only source of complete and broad-based resistance to SCN with no yield drag that can be easily incorporated into high yielding lines by breeders using conventional methods. In order to make the transfer possible from academia to the marketplace, breeders had to be convinced that the CystX technology would work. Researchers at Purdue and the Indiana Crop Improvement Association (ICIA), developed and demonstrated the efficacy of the new product and Access Plant Technology was authorized to devise the trademarked logo, CystX, and to assume responsibility for promoting and licensing the CystX technology to breeders across the country. CystX technology is becoming a "win:win" scenario for all involved in its development plus the subsequent transfer to the marketplace. CystX is a good example of the development and transfer of timely and useful technology from the academic laboratory to the marketplace.

Environmental Center on Livestock Waste Management

Research and education programs were conducted at the Environmental Center on Livestock Waste Management (ECLWM) on treating swine manure. A small closed loop sequential batch reactor (SBR) serving a 100-head dry sow and boar house was evaluated for treating the waste and recycling the treated effluent for reuse in subsequent manure removal. In addition to monitoring, this system was demonstrated for swine producers and waste management operators during workshops and training program on-site. The efficiency of the system was calculated and biological oxygen demand (BOD), chemical oxygen demand (COD), suspended solids (SS) and total Kjeldahl nitrogen (TKN) were reduced by 98%. A large alternating sequential batch reactor (ASBR) was also evaluated receiving waste from 540 head of pigs at ECLWM to treat the manure. This system was evaluated and demonstrated similar to the small SBR. Reductions in BOD, COD, SS and TKN in the waste effluent were over 95% after treatment in the ASBR compared to the original manure additions. Results of the system will be presented to swine producers, consultants, scientists and managers at the 4th International Symposium on Livestock Waste at Malaysia in May 19 – 23, 2002. The positive results shown from these systems will be effective in reducing pollutants for swine wastes produced in Asia and can very likely be adapted in the US. A paper on The Role of Education and Technology Transfer in Livestock Waste Management will be presented at the 4th International Symposium on Livestock Waste at Malaysia to encourage further implementation of these new technologies on swine production units in Asia.

Jointly with Illinois Institute of Technology, Chicago; Iowa State University, Ames; North Carolina State University, Raleigh; Oregon State University, Corvallis; and National Pingtung University of Science and Technology, Taiwan.

Manure Production and Composition from Current Swine Genetic Lines

A series of studies have been continued to accurate determine the manure production and composition from current genetic lines through direct sampling and whole body mass analysis. Models will be created to accurately estimate manure production and composition from feed nutrient intake and whole body composition. This model is being verified with on-farm field studies and demonstrating current nutritional technologies and feed management practices (such as phytase, reduced protein and synthetic amino acids) that can reduce nutrient excretion from pigs on a farm without adversely affecting animal performance. Results of these studies are presented at extension meetings and scientific meetings for consulting nutritionists to use in the field. Economic analyses show at least a breakeven return and sometimes a positive net return by using these new technologies. A national committee involving scientists from several additional universities is currently active summarizing the most recent scientific data to be used as an ASAE standard for use in designing waste storage facilities and developing Comprehensive Nutrient Management Plans for regulatory purposes in the EPA CAFO rule and voluntary non-regulatory purposes.

Jointly with University of Missouri, Columbia; and Michigan State University, East Lansing.

Integrated Management of Arthropod Pests of Livestock and Poultry

Two fly pests continue to be of concern to cattle producers, face flies and horn flies. These two species are considered the most important pastured cattle insect pests in the United States. Control is challenging because of limited insecticide registrations and the development of insecticide resistance in the pest populations to available insecticides. In confined livestock and poultry operations, the house fly continues to be a major pest, not only to the producer, but as a potential public health nuisance pest. Control is challenging because of limited insecticide registrations and the development of insecticide resistance by house flies.

Continued efforts in examination of cattle fly control has showed several trends. Pyrethroid-based ear tags effectively control face flies but are less effective with existing pyrethroid resistant horn fly populations. Organophosphate tags still effectively control both fly species. Pour-on and dust bag treatments are less effective than ear tags in controlling these two flies. A new granular fly bait being tested containing imidacloprid shows excellent promise as an alternative to methomyl baits in controlling house flies in confined livestock caged egglayer operations. Other promising insecticides and control alternatives are also being evaluated.

With the continuation of evaluating new and alternative control measures for these livestock and poultry pests producers can be kept abreast of the best control components for fitting into their integrated control programs. Participating states include: MN, NH, FL, NM, NE, KY, TN, KS, MO, CA, GA, NY, WY, IL, PA, AR, and TX.

Tri-State Dairy Management Conference

As the dairy industry expands in Indiana, Michigan, and Ohio and the average size of remaining dairy farms grows bigger, there is an increasing need among dairy farmers and industry professionals for up-to-date information about new technologies and dairy management practices. Many traditional family dairy farms have grown to the point of requiring outside labor, this expanded herd size and labor force requires a different management style. Dairy farmers must make the transition from managing cattle to supervising employees and to managing the business aspects of the farm operations.

In response to the need for up-to-date technology and management practices Purdue University co-hosted the first Tri-State Dairy Management Conference in 1999 and subsequent conference in 2001 with colleagues from Michigan State University and The Ohio State University. Topics relating to the advantage of dairying in the Tri-State region, herd management, business management, labor management, animal health, animal well-being and comfort, and the environment were included in the initial conference. More than 650 dairy producers and

industry representatives attended the first two conferences. In response to a post-conference survey, 99.1% of respondents stated that they were in favor of attending a similar conference and the third conference is being planned for 2003. This conference generated more than $100,000 in registration fees and corporate sponsorships in support of the program in the two years it has been held.

The Tri-state Dairy Management Conference has provided timely techniques and applications to more than 650 dairy farmers and industry professionals from IN, MI, and OH, as well as IL, KY, MN, MO, NY, PA, TN, TX, WI, and Canada. Through dairy industry professionals, information is expected to reach nearly every family dairy farm in the entire tri-state region. As a result of these conferences, dairy producers who attended have a better understanding of the importance of the dairy industry to the tri-state region; have a better appreciation of the public issues (environmental management, neighbor relations, and animal welfare) facing US dairy producers; have an appreciation for techniques other successful dairies are using to locate, hire, and retain employees; and have been exposed to the newest techniques for feeding, breeding, and managing the health of dairy cows. Perhaps the single greatest accomplishment of the Tri-State Dairy Management Conference is the opportunity for regional dairy farmers to network with and learn from one another.

Building a Better Alfalfa Plant

Alfalfa yield and persistence have not improved substantially in the last 40 years despite enormous effort put forth by the commercial alfalfa breeding industry. Genomics is thought by many to be more concise approach to crop improvement, but to use these modern tools we must know what processes, proteins, and genes control yield and persistence of alfalfa. Purdue research and extension staff are using an integrated approach that includes physiological, biochemical, and molecular genetic tools to understand factors that influence growth, yield, and persistence of alfalfa. Work is being done in the field with plants selected for key traits (hardiness, growth rates, dormancy) and tissues are being sampled throughout the year, including winter, in order to understand how genes of interest are being influenced by environment or management. Genes have been identified that are consistently associated with excellent winter survival. Work is being initiated to better understand processes and genes involved in rapid shoot growth that results in high yield. Purdue faculty are identifying traits or genes that can be used as selection criteria to improve alfalfa yield and winter hardiness using conventional breeding or molecular genetics. By understanding the biology of alfalfa we will define functions that are key to improved agronomic performance, and ultimately put the "function" in functional genomics.

Mycotoxins in Cereal Grain

Fusarium verticillioides causes an ear rot of maize and produces mycotoxins known as fumonisins, which are associated with a variety of mycotoxicoses in livestock and experimental animals. In this study, we found that fumonisin B_1 production was five times higher in degermed maize kernels than in isolated germ tissue even though fungal growth was similar. The data support published evidence that describes the fate and distribution of fumonisins in contaminated maize when processed by wet-millers. In the wet-milling process, gluten and fiber fractions contain more fumonisins than the germ fraction. However, our data do not agree with those from dry-millers, who have found that the concentration of fumonisins is lower in grits and higher in germ, bran and fine fractions. We hypothesize that the heavily contaminated kernels are

distributed into the fine fractions due to a loss of hardness and integrity. In contrast, wet-milling does not remove severely infected kernels by their physical properties. The research contributed to our knowledge on genetic factors involved in *Fusarium verticillioides* infection of maize and the biosynthesis of fumonisin. If our hypothesis is correct, it is important that data obtained from the processing of grain do not lead to misinterpretation of pathogen growth and fumonisin production in the infected maize kernel.

Collaborating states: Indiana, Michigan, Iowa, Illinois, Nebraska, Pennsylvania, Wisconsin, North Dakota, Missouri, Georgia and Kansas.

Improvements of Thermal and Alternate Processes for Foods

Food processing is an important value-added area for states. In order to be competitive, food processors need up-to-date processes, which provide good taste, long storage life, and food safety.

During the past year, numerous studies were done on how to produce better pasta products. Processing temperature and moisture content were studied to find the effect of these variables on the texture of the pasta. Other studies were made to determine how best to produce lactic acid in fermented products. Also, work was done to improve methods of extraction of various flavor compounds from by-products of the tomato processing industry

Pasta products are major items in the US diet. Texture of the pasta is an important factor in consumer preference. Better understanding of how to control the texture of pasta products will lead to improved products for the consumer. Fermented foods are very common in the US, and include such products as pickles, sauerkraut, certain breads, and so on. Lactic acid is one of the usual acids made by the fermenting process. Lactic acid gives many of these foods their distinctive flavors. Studies of how best to produce the lactic acid will allow food processors to make better and more uniform products. Extraction of various flavor compounds from by-products of the tomato processing industry will improve the profitability of the tomato processing industry.

F. INTEGRATED RESEARCH AND EXTENSION ACTIVITIES

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

Institute	Purdue University
State	Indiana

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

Actual Expenditures

Title of Planned Program/Activity	**FY2000**	FY2001	FY2002	FY2003
Executive Institute for Commercial Producers		31,431		
Analysis of Trade Liberalization, Domestic Policies, and Food Subsidies		23,257		
CystX Technology Developed at Purdue to Combat Soybean Cyst Nematode		3,797		
Improving Safety of Ready-to-eat Meat Products		12,160		
Development of Management Options for the Soybean Aphid: A Potential Pest of Soybean in Indiana		38,956		
Development of an Economic Threshold for Western Corn Rootworm in Corn Based on Numbers of Adults in Soybean		38,956		
Urban Pest Management		41,055		
Modeling the Impact and Use of Ractopamine on Pig Production		20,192		
Building a Better Alfalfa Plant		6,949		
GrainSafe On-Farm Quality Assurance Program		34,044		
Total		250,797		

David C. Petritz **March 1, 2002**
Director
Form CSREES-REPT (2/00)

INTEGRATED RESEARCH AND EXTENSION ACTIVITIES BRIEF SUMMARIES

Executive Institute for Commercial Producers

The current economic environment places significant demands on large commercial producers to position their business for success and take on the role of a general manager. The undirected growth typical of farms in the past will not be acceptable. To do this managers must have a comprehensive set of finance, marketing and strategic tools.

Purdue faculty moved farmers with the potential to be highly successful through a series of seminars over the course of a year. Participants were drawn from leading agribusinesses in the four states (Indiana, Ohio, Kentucky and Tennessee) that Farm Credit Services of Mid-America serves. These seminars introduce and apply advanced business management concepts to the problems confronting the larger and more complex commercial farm and its management team. The classes consist of intensive one-on-one strategic consultation, group work, case study analysis, and computer skill development.

This multi-state effort will continue for the next two years. Visit our website at www.agecon.purdue.edu/ext/eicp

Since the conception of the project in early 2000 there has been 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. Participants have also increased their computer skills and developed a network of peers. The first class (of three) of 23 operations indicated the material presented to be highly useful in dealing with managing their business. On a scale of five, the program has been rated a 4.56. One participant 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.” Future impact of the program will include packaging of the material for extension educators in the four-state region.

Analysis of Trade Liberalization, Domestic Policies, and Food Subsidies

Developing countries often have conflicting objectives in their domestic and agricultural trade policies. Also, the domestic policies may not be attuned to the climatic reality in the country or to accomplishing more holistic rural development objectives. This project is helping these countries to create a more comprehensive set of trade and domestic policies and to developing strategic plans for rural development in the region. There were two major activities and outputs this year: (1)Analysis of the linkages between agricultural policies and climatic reality in Morocco, and (2)Strategic planning for rural development in North Africa and the Middle East. The impact of the research to better align agricultural policies to climatic reality is already being felt in policy formation and implementation in Morocco. There is significantly increased consideration of climate variability in policy analysis. New tools for policy analysis are being

developed to directly incorporate risk analysis into policy decisions. A summary of the tools needed was included in the paper presented in Morocco this year. The immediate impact of the World Bank rural development strategy work has been to reach consensus among participants on the need for holistic approaches to rural development and for active community participation in designing and implementing development projects. Another impact has been that MENA countries have launched their own rural development strategy processes, many using the framework developed for this project. Longer term, as countries implement their strategies, we should see more success in agricultural development programs in the region.

CystX Technology Developed At Purdue To Combat Soybean Cyst Nematode

Soybean cyst nematode is the most destructive pest of soybeans nationwide, with an estimated annual loss of $1.4 billion in the U.S. Plant resistance is the main tool for managing SCN. Purdue University's patented soybean germ plasm now known as CystX technology provides the only source of complete and broad-based resistance to SCN with no yield drag that can be easily incorporated into high yielding lines by breeders using conventional methods. In order to make the transfer possible from academia to the marketplace, breeders had to be convinced that the CystX technology would work. Researchers at Purdue and the Indiana Crop Improvement Association (ICIA), developed and demonstrated the efficacy of the new product and Access Plant Technology was authorized to devise the trademarked logo, CystX, and to assume responsibility for promoting and licensing the CystX technology to breeders across the country. CystX technology is becoming a "win:win" scenario for all involved in its development plus the subsequent transfer to the marketplace. CystX is a good example of the development and transfer of timely and useful technology from the academic laboratory to the marketplace.

Improving Safety of Ready-To-Eat Meat Products

Low levels of L. monocytogenes (LM) on the surface of ready-to-eat (RTE) meats can be life threatening, particularly to immune-compromised individuals, the elderly and unborn fetuses. USDA has issued a zero tolerance for LM in any food product. Thus packaged RTE meat products must be free of all viable L. monocytogenes microorganisms. However, under current manufacturing practices, surface contamination can occur before final packaging via aerosols or handling after the product has been initially pasteurized.
Purdue faculty have developed a post-package pasteurization process for sliced bologna that eliminates the threat of food illness caused by LM contamination. The process will prevent illness associated with LM from commercial sliced, RTE meat food products. In addition, the availability of individually packaged bologna slices, like that in single-serve cheese slices, will be a convenience to consumers. Finally, the shelf life of individually wrapped, post-pasteurized packaged bologna will be longer. This is because the pasteurization also reduces the population of all micro-organisms that could lead to spoilage and because each slice of bologna is protected from contamination until it is opened for use by the consumer.

Development of Management Options for the Soybean Aphid: A Potential Pest of Soybean in Indiana

The soybean aphid (SA) is a recent invasive species in Indiana. It was first found in Northeastern Indiana in 2000, although subsequent surveys late in the 2000 growing season showed that it was present in every county surveyed (46). It is unknown at this point how serious this pest will be in soybean. To address this issue, research plots were established in 2001 to 1) determine if planting date affects SA colonization/soybean injury, 2) determine if cultivar affects SA colonization/soybean injury, 3) begin economic injury level determination studies, and 4) evaluate potential control products. Also, from an extension standpoint we developed ways to address SA concerns and need for information by producers and other agribusiness personnel. Surveys to determine the immediate threat of the SA were also conducted. The propensity to treat Indiana soybean to manage the perceived threat from SA was countered with aphid population survey information that showed little risk in 2001. This prevented unnecessary chemical applications and associated costs to producers estimated to range from $500,000 to $1,000,000 statewide and prevented unnecessary environmental exposure. In those cases were treatment may be justified in the future, field research studies have identified several registered and experimental insecticides that have potential to efficiently manage SA. Additionally, it appears from data generated in 2001 that early planted or early maturing soybean are less likely to experience economic levels of SA. A 4-page color fact sheet (E-217) was also produced and distributed.

Development of an Economic Threshold for Western Corn Rootworm in Corn Based on Numbers of Adults in Soybean

Western corn rootworm (WCR), once considered only a pest of corn, has adapted to the corn/soybean rotation production system in parts of Indiana, Illinois, Ohio, and Michigan, by laying eggs in soybean. Rootworm larvae damage corn planted in the year following soybean thereby diminishing the value of crop rotation as a cultural management technique. This has resulted in increased and sometimes indiscriminant use of insecticides in the affected area. Pherocon AM yellow sticky traps were established in multiple soybean fields over several years to determine WCR adult numbers and subsequent damage by WCR larvae to corn roots. Data were analyzed to determine management threshold values. Test results from studies designed to develop treatment thresholds for corn based on the abundance of adult WCR observed in soybean in the preceding year indicated that the research-based treatment threshold to prevent economic injury to corn in the following year using yellow sticky cards is 8 beetles per trap per day. For extension purposes, however, the economic threshold of 5 beetles per trap per day was selected as the recommended level for farmers based on the fact that > 95% of the first-year cornfields reached economic root damage the following year when this number was attained. Knowing when the economic threshold is reached in soybean in the preceding season allows corn producers to more efficiently manage this pest. The judicious use of soil insecticides intended to protect corn roots in Indiana has the estimated potential savings (preventing unnecessary insecticide applications and protecting crops at risk) of hundreds of thousands of dollars annually. A fact sheet (E-218) was produced and distributed to agriculturalists in affected areas.

Urban Pest Management

Cockroaches, ants and termites are the most serious threats to our property, health and food supplies. Purdue research helped to better understand these pests and develop pest management strategies to reduce their impact on our lives. Thousands of property owners, apartment dwellers and professional pest managers have utilized this research and continuing education programs to resolve their pest problems in an environmentally sensitive integrated pest management program. New technology on traps, baiting, and sanitation has been made available for cockroach, ant and termite management programs.

Modeling the Impact and Use of Ractopamine on Pig Production

The genetics of pigs have changed as has the swine marketing systems. Elanco publicly released ractopamine (Paylean@) July 7th, 2000 with little information on the correct nutrition, duration of feeding, marketing and management of Paylean fed pigs. Ractopamine, only when combined with the correct nutrition (increased lysine/protein levels) and fed the correct length of time and level will result in substantial improvements in the efficiency of lean pork production. Five research trials have been completed at Purdue evaluating the response of current genetic populations of pigs to Ractopamine (Paylean). The research trials have looked at the effect of different lysine levels, the response over time, the interaction with alternative genetic populations, energy levels, and joint response with CLA (conjugated linoleic acid). One trial was completed jointly with the University of Illinois , who looked at pork quality and shelf life. Also, one trial looked at the effect of increasing or decreasing the level of Paylean. The analysis is being used by Paul Preckel and his associates to look at the modeling the optimal use of Paper gram of Paylean fed was increased in magnitude and duration of response by the use of the step-up programs. The results of these trials were put on the Purdue Pork Page website and referenced as the best single source of Paylean information by each major national swine publication, website and electronic newsletter. This information has been used by ELanco in regional seminars they held across the United States The use of Paylean has increased to 20% of the pigs in the United States - resulting in an increased profit of $2.00 to $3.00 per head to the pork producer and the same amount to the pork processor due to the increased percent lean.

Building a Better Alfalfa Plant

Alfalfa yield and persistence have not improved substantially in the last 40 years despite enormous effort put forth by the commercial alfalfa breeding industry. Genomics is thought by many to be more concise approach to crop improvement, but to use these modern tools we must know what processes, proteins, and genes control yield and persistence of alfalfa. Purdue research and extension staff are using an integrated approach that includes physiological, biochemical, and molecular genetic tools to understand factors that influence growth, yield, and persistence of alfalfa. Work is being done in the field with plants selected for key traits (hardiness, growth rates, dormancy) and tissues are being sampled throughout the year, including winter, in order to understand how genes of interest are being influenced by environment or management. Genes have been identified that are consistently associated with excellent winter survival. Work is being initiated to better understand processes and genes involved in rapid shoot growth that results in high yield. Purdue faculty are identifying traits or genes that can be used as selection criteria to improve alfalfa yield and winter hardiness using conventional breeding or molecular genetics. By understanding the biology of alfalfa we will define functions that are key to improved agronomic performance, and ultimately put the "function" in functional genomics.

GrainSafe On-Farm Quality Assurance Program

Purdue faculty started a project to establish an on-farm quality assurance program that will meet the needs of Indiana producers, handlers and processors of value-added grains and oilseeds with respect to food (and feed) safety and end use quality, and to maximize the opportunities of marketing Indiana quality-assured grains and oilseeds with confidence to domestic and international end-users through a voluntary auditable Code of Good Agricultural Practices. Although Indiana farmers already have a very good record of producing safe grain of good quality, the GrainSafe program will provide them with a simple and effective mechanism for satisfying customer requirements for food and feed safety quality assurance. The message to farmers is: "GrainSafe doesn't tell you how to farm, it tells everyone else HOW WELL you farm!" An on-campus working group has been established that is currently developing HACCP-based checklists that identify hazard control points, quality management steps, and corrective action procedures needed to complement best management practices for the production, handling and delivery of quality-assured grains and oilseeds. Throughout this year, the GrainSafe program concept has been presented at numerous meetings and sought reactions and input from producers, grain handlers, equipment and service suppliers, and other agricultural professionals. Their feedback will be incorporated into the GrainSafe program, which will be further developed by a task force representing Indiana stakeholders. This approach will ensure that the first person to benefit from this quality assurance program will be the farmer who implements it. This project continues to stimulate significant discussion among agricultural professionals because certifiable quality-assured crop production is emerging as a hot topic in light of the debate over the impact of genetically modified (GM) crops on domestic and global markets. It is expected that the beneficiaries of the GrainSafe program adoption will include farmers, handlers, processors, marketers, end users, and consumers of Indiana grains and oilseeds.