

# **ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS**

**Cooperative Extension Service  
Purdue University**

**Federal Fiscal Year  
2000**

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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 2000. 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 first year 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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## INDIANA FY 2000 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

#### Executive Summary:

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 5,952 contact days being devoted to this important issue, and resulted in 95,892 direct people contacts. Through statewide and county based workshops, test plots, conferences, and educational materials, extension staff concentrated on crop and animal production systems, marketing, and risk management strategies that improves production efficiencies, makes producers more competitive, and adds value to Indiana agricultural products.

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 2,305 days to programs that exposed 263,007 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. 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. 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. Our education and outreach programs on crop diversification reached 127,900 people. In the southern region of the state, the tobacco producers have lost nearly 70% of their allotted acreage support over the past four 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 agriculture 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 254 days and made

4,356 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. Several ongoing research and extension programs are addressing the issue of the corn rootworm problem that has developed in Indiana and Illinois, and the economic and environmental inputs and farmer acceptance of genetically engineered corn and soybeans over a large area of the North Central Corn Belt.

Several examples of the success and impacts of these Extension programs will be given in the “Key Theme” section of Goal One accomplishments and results. However, a highlight of a few of the outcomes of some of these issues will be described. In southwestern Indiana, local producers were able to show an increase in profits of \$40/acre averaged in their corn and soybean production, due to the local Extension Educators testing crop varieties and identifying those that were tolerant to the various plant diseases that are prevalent in that region. Another Extension Educator started a Marketing Club with 72 producers and taught them how to use options and manage risk in marketing their grain. This has led to an estimated annual \$500,000 improvement in their profits for the past three years. The establishment of regional digital diagnostics labs in County Extension offices is better meeting home and gardening needs. This allows plant, disease, and insect samples to be quickly sent to campus via the computer for rapid response and recommendations.

Purdue Extension feels that the accomplishments we are making 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, while we are noticing intermediate outcomes of adoption of practices and technology changes with the other three identified issues of Goal One.

### **Resources:**

Approximately \$4,526,000 and 79 FTEs have been invested in this Goal. This is a best estimate and these are not presented as auditable numbers.

### **Key Themes**

#### **Key Theme: Adding Value to New and Old Agricultural Products**

“Ways To Grow-Supplemental Enterprises for Farm Families in Southeastern Indiana”

a. *Description:* In 1997 with a Value-Added Grant from the Office of the

Commissioner of Agriculture, the Ways to Grow Steering Committee began the process of identifying producers who were considering the selection and development of a Supplemental Farm Enterprise. Once identified, these farmers attended a "Farm Based Enterprise Institute" as well as a number of related field days and workshops on a variety of specialty crops and were provided with reference materials appropriate for their chosen enterprise. A Field Coordinator was hired to schedule and make on-farm visits to provide program participants with practical one-on-one advice and assistance throughout the growing and harvest seasons. Over the 2½ years that the program has been in operation, the fundamental priority has been to provide accurate and timely information to producers about their new enterprise and to help them minimize risk through effective production and marketing techniques.

- b. *Impact:* As a result of the "Ways to Grow" initiative over 100 families have explored at least one supplemental farm enterprise. Participation has grown from 24 in 1998 to 42 in 1999 and now 65 families in 2000 representing 16 counties of Southeastern Indiana. As of this writing, there are 23 enterprises at the investigation stage, 28 at an experimental production level, 24 in expanded production and 10 involved in expanded marketing efforts. Enterprises chosen are as diverse as the participants involved and include: prawns, tilapia, corn mazes, pumpkins, cut flowers, grapes, vegetables, berries, pastured beef, eggs, goats, specialty hay and even compost.

Success stories include:

- A mother of two that wanted to avoid off-farm employment. Her cut flower enterprise has grown to 11/3 acres that she direct markets to area florists. Additionally, she produces and markets 4500 mums directly to customers and to 9 southern Indiana Supermarkets.
- A hog and tobacco farmer wanted to find additional uses for their tobacco transplant float-beds that sat idle 8 months of the year. Their production of hydroponic herbs and specialty salad greens is sold to several chefs in Louisville, Kentucky and are now being shipped via air freight to five other states.
- A pumpkin farmer that needed additional marketing opportunities. This farmer solicited the help of the Jennings County Farm Bureau and North Vernon Parks and Recreation Board to develop and publicize a new Farmers' Market in Jennings County. The 2000 market has been open 2 days per week and serves 150-300 daily customers and 80 growers throughout the season.

c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* State Specific

### **Key Theme – Agricultural Competitiveness**

“Genetically Engineered Corn and Soybeans: Economic and Environmental Impacts”

- a. *Description:* Data were collected from Kansas, Iowa, Illinois, and Indiana on corn borer infestation levels and yield losses. These four states represent about one-half

total U.S. corn production. Bt adoption in 2000 was 26% of the corn acreage in Kansas, 25% in Iowa, 14% in Illinois, and only 7% in Indiana. A computer-based decision tree model was developed using an Excel spreadsheet to calculate the expected benefits and costs of corn borer infestations taking into account the probabilities of each of three generations per growing season and the expected associated physiological and mechanical damage.

- b. *Impact:* It was found that the adoption of Bt corn is not economically viable for most Indiana farmers since the probability of European corn borer infestations that might cause economic damage is less than one out of every four years. However, in Southwest Kansas, Bt corn is a very attractive alternative to normal insecticide control programs. If farmers adopt Bt corn, they must plant a 20% refuge. This will increase farmer's variable costs about 2-3% per acre. The most economical option is to plant strips of 6-8 rows across the field. However, to avoid potential pollen contamination to meet the demands of some food processing and export buyers for "GMO-free" corn, a block in the field is preferable, although slightly more costly.
- c. *Source of Federal Funds:* Smith-Lever and Hatch
- d. *Scope of Impact:* Multi-State Research with KS, IA, IL

### **Key Theme – Agricultural Competitiveness**

“New Crop Production Chemicals and Methodologies, Including Area-wide Management for Corn Rootworms Show Promise”

- a. *Description:* Purdue Pest Management Program personnel are cooperating with the agricultural plant protection industry and the United States Department of Agriculture (USDA) Agricultural Research Service (ARS) to test new rootworm control products and management approaches that provide low cost, safer, and dependable replacements for potentially-lost options. We are currently testing genetically engineered corn and FQPA-sensitive chemical seed treatments that promise to drastically reduce pesticide exposure to Indiana farmers and the environment. New application techniques for old and new products, and new lower-rate, safer products that meet FQPA requirements are being compared and tested at multiple Indiana sites. A USDA ARS-funded program to test the feasibility of suppressing corn rootworm beetles to lower rootworm larval damage in the subsequent year has shown encouraging results. In this program, we are testing low-rate bait mixtures that use one-tenth the labeled insecticide rate to control beetles. Preliminary results show that the impact of this pest due to this program has been reduced to below economically damaging levels for the past two years. Also, we tested trapping methods for the variant rootworm beetle and determined population levels that are likely to be economically damaging. This information is vital for the proper management of this pest. In addition to the corn rootworm, other economically important pests like the European corn borer, potato leafhopper, and alfalfa weevil are targets for research to provide expanded management options. Again, insect resistant crops and novel

chemical control products and methods are being evaluated for their potential as future control options.

- b. *Impact:* These new pest management tactics and products, if fully implemented over the next ten years, will save Indiana (Midwestern) farmers millions of dollars through reduced insecticide use and misuse. In the 11,000-acre area-wide site alone, producers have the potential to save approximately \$130,000 per year on insecticide costs for rootworm control.
- c. *Source of Federal Funds:* Smith-Lever and Hatch
- d. *Scope of Impact:* Multi-State Research with IL

### **Key Theme – Agricultural Profitability**

“Risk Management by Agricultural Producers”

- a. *Description:* A stratified, random sample of crop producers in Indiana, Mississippi, Nebraska and Texas were surveyed. Follow-up surveys were conducted for hog producers in Indiana and Nebraska, beef producers in Nebraska and Texas, and limited-resource farmers in Mississippi. Preliminary analysis has been conducted.
- b. *Impact:* Not unexpectedly, prices and yields were considered the primary sources of risk faced in their operations for producers in all four states. However, there were substantial differences in the use of different responses to risk. Producers in Indiana and Mississippi made much less use of crop insurance than producers in Nebraska and Texas. There are also sharp differences among producers with respect to their likes and dislikes for government farm policy. Producers in all areas were most interested in learning more marketing and marketing techniques. However, it was also found that many producers were unwilling to accept lower prices or yields to avoid risk. This suggests that programs need to help producers understand the risk-return trade-off. Materials developed by experts which farmers could use when they wished were more popular than in-depth training programs and both were considerably more popular than Internet-based education. However, popularity of Internet-based education was inversely related to age.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* Multi-State with MS, TX, NE

### **Key Theme – Agricultural Profitability**

“Corn and Soybean Variety Plots Yield Valuable Results”

- a. *Description:* For over 30 years the County Agricultural Extension Educator, along with other area Extension Educators, specialists, local farmers and seed dealers plan,

plant, observe and harvest replicated variety plots. In 2000 the plot consisted of 71 yellow corn and 25 white corn varieties replicated 4 times and 80 soybean varieties replicated 3 times. At harvest time, a Plot Breakfast is held to present the results of the corn yields and to look at standing corn and soybean plots as well as to conduct timely educational presentations to help producers keep current on issues and concerns with harvest, handling, storage and marketing of the grain. Since 1996, samples of corn and soybean varieties have also been analyzed for grain composition in order to build data for farmers to more effectively select varieties for specific uses and markets. Corn and soybean plots have been evaluated for insects and diseases as well as observed for standing ability of the plants.

- b: *Impact:* A survey of farmers indicate that they have been able to earn as much as \$40 per acre more due to the marketing information presented. Over 200 people attend a Plot Breakfast annually to hear timely agronomic information, grain harvest, drying and handling recommendations and the Ag Marketing Outlook. Attendees have the opportunity to evaluate potential hybrid selections by observing the standing replications with the published yield data. The plot trial demonstrated over 60 bu/ac difference in corn yield and over 25 bu/ac difference in soybean yields. This is \$125 per acre difference in potential return to the producer. White corn data is of particular interest to several producers in southwestern Indiana because of the premium price that it often brings due to its use in the food industry. Over 1,000 copies of the plot results are distributed to the farmers and seed dealers. Due to the uniformity of plots and the replicated procedure, this plot is considered one of the most reliable sources of data. These plots are not the only criteria that farmers use to select hybrids, but is used as a major input into their variety selections. Grain composition analysis for all corn and soybean varieties is also available and is used by farmers and grain merchants to sell specific varieties for an additional 20 to 30 cents per bushel. There are only a few plots that provide composition analysis data.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Agricultural Profitability**

#### “Ag Marketing Club”

- a. *Description:* Beginning in 1997, a Purdue 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. About \$6,000 from 22 members was collected to practice trading. All transactions were restricted to avoid margin calls. The other club focused on outlook presentations, market reports and any topic relating to price risk management.
- b. *Impact:* 72 people were involved in attendance at the meetings of which 40 meetings

total were held each of the 3 years. Farmers gained through the following: 1) An estimated 75% of the attendees improved their net farm income through improved price risk management practices. One farmer said, "The marketing club completely turned my operation around. Over two years I've increased my sales by over \$150,000 through the use of options as a hedging tool". "My net farm income increased 30 to 40 %". Another farmer said, "The Farmersburg Commodity Traders Club benefited me by my decision to forward contract corn and soybeans, and using putt options to protect my corn price at the \$2.50 level. My market gain is about \$27,000, so far this year". The third farmer said, "Commodity trading has helped our net farm income by nearly 25% or \$150,000 through the purchase of Call options, used to protect early hedging programs"; 2) The C.E.S. Ag Educator estimates a conservative \$500,000 per year has been gained in improved marketing practices of its club members over the last three years because of the two marketing clubs; 3) 22 gained expertise in OPTION trading skills and increased their net farm income; 4) 35 gained knowledge on collecting Loan Deficient Payments when grain is forward priced; 5) 55 obtained outlook predictions from Extension specialist; 6) 21 are informed on how to store grain using Farm Service Agency's low interest storage facility loans; 7) 310 farmers received newsletters that were mailed giving information on marketing techniques, also useful to speculators; 8) An estimated 30 farmers at least developed marketing plans; 9) An estimated 75% of the attendees improved their net farm income through improved price risk management practices; 10) 35 attended Chicago Board of Trade tour to allow them to see the importance of timeliness when corresponding with brokers and how brokers react to requested trades. Impact Type: Economic Cooperators: Purdue Cooperative Extension Educators and Specialist, Farm Service Agency, First Farmers State Bank, Fifth Third, DTN, ADM Investor Services, Graham Grain, ADM grain elevator, Pattison Commodities, Stewart Peterson Group, Springer Insurance and others. Main contact: Larry Watson, Purdue Extension; additional contacts: Brad Ferree, Farmersburg Commodity Traders Club President; and Jeff Mann, Sullivan Marketing Club President. Region affected: Indiana counties of Sullivan, Clay, Vigo and Greene. Summary: Participating farmers improved their bottom line net farm value through improved marketing skills. Activities of the two clubs drew attention from *Indiana Prairie Farmer* magazine, who did an article. The Ag Educator gave a presentation to a few Indiana Ag Educators and approximately 50 NACAA Educators at the National Convention in Jackson, Mississippi.

- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Animal Production Efficiency**

“Rotational Stocking Can Improve Dollar Return to Cow-Calf Enterprise”

- a. *Description:* This research was conducted in 2000 at two sites at the Feldun-Purdue Agricultural Center, Bedford, Indiana. Stocking rate was similar between the 2-paddock and 8-paddock systems. With the stocking rate utilized, one cow-calf pair



per 1.5 acres, and an exceptional forage production year, forage consumption by the cattle was not limited on either system. At weaning, October 11 and 12, average calf weights were 659 and 636 lbs for the 2- and 8-paddock systems, respectively. The 8-paddock system was credited with producing 0.47 ton of hay per acre during the grazing season and 40 more grazing days in the autumn. No hay was harvested on the 2-paddock system.

- b. *Impact:* Value of the hay produced and extra grazing days in the autumn with the 8-paddock system is, conservatively, a credit of \$45 to each cow. Value of the calf at weaning was \$20 less per cow in the 8-paddock system, as weaning weight was slightly lower as compared to the 2-paddock system. Therefore, the 8-paddock system resulted in \$25 more return per cow.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Animal Production Efficiency**

“Washington County Quality Beef Partnership” (QBP)

- a. *Description:* Discussion meetings were held to determine the level of interest in forming a local beef alliance. Once it was determined that there was strong interest in establishing an alliance or a beef partnership, goals were identified by the cooperating producers, a name was chosen, a Board of Directors was selected, By-laws were approved, committees were formed (marketing, purchasing, nutrition, long range planning), initial delivery dates were selected, and arrangements were made for custom weaning at a local feeding facility.
- b. *Impact:* There are 18 producers participating in the partnership. These producers own approximately 2700 brood cows representing various genetics and breeds. In this the first year of the QBP Partnership, 900 calves will be marketed as QBP calves (most are being sent to custom feed lots in Iowa with the producers retaining ownership on their calves). Nearly 500 calves were brought to the custom weaning facility where they receive exactly the same health program (vaccines and parasite control), are fed exactly the same preconditioning feed, and are individually weighed going into the feedlot and weighed when they leave for the custom feedlots. The initial purchase of vaccines and parasite control products (nearly \$23,000) saved the QBP members over \$3500. Ear tags were purchased in volume, resulting in additional savings to the members. This first year, the Partnership has purchased 225 bred heifers and 29 herd bulls selected for carcass merit and quality. The Partnership goals are to produce calves that are of uniform quality that meet the needs and desires of the consumer, purchase the supplies as a group, and be marketing nearly 3000 calves through the Partnership within five years.
- c. *Source of Federal Funds:* Smith-Lever

- d. *Scope of Impact:* State Specific

### **Key Theme – Animal Production Efficiency**

“Milk Quality Programs Make Dairies More Profitable”

- a. *Description:* A series of seven milk quality workshops were delivered at 7 dairy farms around Indiana. This program was planned in cooperation with the Indiana Board of Animal Health, Indiana milking equipment dealers, and milk cooperatives, and was funded in part by a grant from the USDA Food Safety and Inspection Service. Dairy farm employees, managers, and dairy farm professionals learned better techniques for milking cows, managing mastitis, and producing very high quality milk. Spanish translation was provided at 3 locations to provide learning opportunities for a growing Hispanic labor force. A distance learning module on production of high quality milk that is being designed as a tool for dairy producers to use in training milkers, or for anyone who wants to learn about the production of quality milk. Other occasions such as the Animal Sciences Workshop for Youth, allow young people to learn about the importance of proper milking procedures and to enhance milk quality. The first Indiana Milk Quality Conference was held April 26 and 27, 2000 in Anderson, Indiana, in cooperation with Creamery License Division, Indiana Board of Animal Health, and state dairy cooperatives.
- b. *Impact:* Improvement of milk quality and reduction of mastitis provides consumers with more wholesome and safer dairy products; benefits dairy producers through increase milk quality incentives, lower costs of veterinary care, and less discarded milk; and enhances the well-being and longevity of cows. Since initiation of milk quality programs in 1997, somatic cell counts have dropped 32,000 per cow, which results in an additional \$2100 of income on an average sized dairy farm. Sixty-five dairy industry professionals, including dairy farm inspectors, cooperative plant and field specialists, and veterinarians attended the Milk Quality Conference and have contact with virtually every dairy producer in Indiana.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Home Lawn and Gardening**

“Indiana Master Gardener Program”

- a. *Description:* Participants are recruited from the general public in participating counties and surrounding areas. Participants undergo several weeks of training covering a range of topics including plant science and nutrition, soil science, pesticide safety, plant problem diagnosis, gardening and landscape maintenance techniques and yard waste management. Participants are required to pass a final comprehensive exam

in order to remain active as Master Gardener "Interns". Upon completion of one hour of volunteer service for each hour of training received, Interns then graduate to become full-fledged Master Gardeners. Responsibility for program management lies with the county educator, with support services from the State Coordinator.

- b. *Impact:* In the 1999 calendar year (January – December), approximately 3000 volunteers from 59 counties participated in the program. The total volunteer service from these participants is estimated to be 105,000 hours; the equivalent of approximately 52 FTEs. Volunteer service provided by Master Gardeners and Interns varies from county to county. Common projects include teaching courses to new participants, providing lectures to local gardening and civic organizations, preparation, planting and maintenance of demonstration gardens (often on Extension office or fairground property), responding to phone requests for information, and information booths at fairs and other events. Some participants assist in mass media programs, program planning and organization, and special events such as sponsorship of garden shows. Most Master Gardener groups form formal or informal associations to fund and promote local programs. Thus, an added benefit includes development of leadership and employment skills to serve local communities and businesses.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Home Lawn and Gardening**

#### “Master Gardener Horticulture Hotline In Marion County”

- a. *Description:* An e-mail list of Master Gardeners was initiated on a trial basis in 1998. Because of the tremendous response, the Marion County Master Gardener Horticulture Hotline began a full year of operation in 1999. Each week, one to seven educational messages were sent by e-mail to Marion County area Master Gardeners. An evaluation was conducted in 2000 by e-mail to determine the effectiveness of this communication tool. There were 44 responses to the evaluation, almost 29 percent of the total number sent. Seventy-five percent of these responses received 100 or more of the e-mail messages, indicating they were placed on the list during the first half of the year.
- b. *Impact:* Master Gardeners received 225 educational messages by e-mail during 1999 via the Marion County Master Gardener Horticulture Hotline. The number of Master Gardeners receiving Hotline messages almost doubled from 77 in January to 152 in December. As a result, 26,556 contacts were made with Master Gardeners to help increase landscape and garden expertise and facilitate volunteer activity. Although it would not have been possible to send this many Hotline messages by regular postal mail, a savings of over \$8,700 would have been achieved, due to postage costs alone, using the electronic format. Results of the e-mail evaluation determined that 25% of the Master Gardeners "read each message thoroughly" while another 61% "read each

message thoroughly and/or by skimming." Another 7 percent "read over 75% of the messages received," and the rest (7%) "read between 50 to 75% of the messages." No one read less than 50% of the messages received. Of the responses, 100% indicated the Hotline "helped them to answer questions from other people," and 95% said that the Hotline "helped them to become a better gardener." There were 73% who mentioned that they "changed some gardening and/or pest management practice based on information from the Hotline." The Hotline also had a "multiplying effect" since 64% of the Master Gardeners forwarded or otherwise copied the information to other people. The evaluations indicated that 137 different people were contacted numerous times, resulting in 2,599 educational contacts with people who were not Master Gardeners. This did not include 10 additional messages that were sent in newsletters to teachers in 46 public schools. The evaluation indicated that the Hotline benefited Master Gardeners in many specific ways. Responses included: "Felt more confident when answering peoples questions." "Had a better lawn." "I did a better job spraying and fertilizing my roses which resulted in more blooms." "Saved money." "The hotline provides that timely reminder." "Better lawn (my neighbors are impressed)." "Eliminated a chipmunk problem." "Saved about 70% of my pachysandra ground cover." "Used safer chemical handling practices." "I had a much nicer lawn." "Kept me up to date on MG activities." "Felt I was correctly doing my lawn treatment—better for the environment." "Gave me self-confidence in my gardening."

- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Urban Gardening**

#### “Urban Garden Program”

- a. *Description:* Extension's “Urban Garden Program” provided garden education to low income youth through 2 after-school programs with the YMCA at Indianapolis Public School 43 and 5 summer camps – Northwest Community Summer Camp, YMCA summer camp at Indianapolis Public School 43, Parkwood Learning Center's summer camp, Edna Martin Christian Center's summer camp and Citizen's Multi-Service summer camp. Master Gardener volunteers assisted with the after-school programs and three summer camp programs. In all programs the youth were taught about composting, seeds, plant parts, soil, insects, herbs as well as other topics. The first after-school program was 7 weeks and met twice a week for an hour. Garden lessons were reinforced with grow lab and craft activities. The second after-school program was 4 weeks and met once a week for an hour. This group of students received hands-on garden lessons while planting a garden at Indianapolis Public School 43. One summer camp brought a different group of youth, ages 5-10, to the garden each week for 6 weeks. The other four summer camps lasted 7-10 weeks and brought the same youth to the garden each week, ages 4-17. In the gardens, lessons were held as well as hands-on experience such as planting, weeding, harvesting, insect identification

and fertilizing.

- b. *Impact:* The youth learned about and experienced gardening in a positive and fun way. Pre and post test scores for the first after-school program's four youths increased from an average of 60% to an average of 83%. 145 youths from Northwest Community Summer Camp, Edna Martin Christian Center's summer camp and Citizen's Multi-Service Center's summer camp demonstrated increased gardening knowledge after their programs. Pre and post test scores from 12 youth from the Parkwood Learning Center increased from an average of 52% to 90%. The 140 youths from the YMCA camp at Indianapolis Public School 43 average test score increased from 56% to 79%. Fresh produce from the summer camp gardens was donated to the Edna Martin Christian Center, 150 pounds and 30 pounds to neighbors of Indianapolis Public School 43. Other benefits include increased pride in problem neighborhoods and beautification of neighborhoods from flowers planted in the garden.
- c. *Source of Federal Funds:* Smith-Lever
- d. *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**

### **Executive Summary:**

Food safety and quality education provided by Purdue Extension has focused 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 ultimately prepare food and, ultimately to all consumers. The emphasis that Purdue Extension puts on this important issue is reflected by the 1,592 days of effort reported on this topic by campus and field staff, and the 124,649 direct contacts made with educational programming. Of those 124,649 contacts, over 20,000 were youth.

The major areas of emphasis of food safety programming for Purdue Extension are to the food industry, food service and to the general public with emphasis on youth. Production food safety programs are reported elsewhere under pesticide application programs, integrated pest management programs, grain storage programs and agricultural competitiveness programs.

In the area of food industry, Extension Food Safety specialists have designed a curriculum on the web for food industry managers to institute HACCP and Good Manufacturing Principles in their facilities. The program was developed with input from industry managers and piloted before

revision and final posting on a website. Constant updating of this electronic form of education is possible.

For the food service audience, two exemplary programs are ongoing in Indiana. The National Restaurant Association is *ServSafe* program reaches food service staff around the state. With FDA Food Code changes and adoption in Indiana, Extension is seen as the source of certificate training for food service sanitation. Local Extension Educators work with their county Departments of Health to teach the course. A shorter curriculum, also for food service workers, *Food Safety Day* is available from Extension educators throughout the state. The 3-hour curriculum introduces important concepts of appropriate personal hygiene, food storage, avoidance of cross-contamination and cooking techniques in a shorter, condensed format from *ServSafe*.

A new curriculum, *Essentials of Food Safety and Sanitation* is being used to educate staff of grocery chains, restaurants, vending, and institutional settings on sanitation and food safety principles. The 8 or 16-hour program leads to a certificate developed with the National Registry of Food Safety Professionals. Purdue Extension educators have received training on the program and will begin implementation statewide in 2001.

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. 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.

### **Resources:**

Approximately \$721,000 and 13 FTEs have been invested in this Goal. This is a best estimate and these are not presented as auditable numbers.

### **Key Themes**

#### **Key Theme – Food Safety**

“5TH Grade Food Safety”

- a. *Description:* With the high number of food borne illnesses that occur each year, food safety education is needed. Today's consumers are becoming more aware, but many people don't have the information and knowledge they need to eliminate food borne illness in Delaware County. Starting with children is not only a starting point but many times is a direct avenue to educating the parents.
- b. *Outputs:* The CFS Educator contacted the twenty-four county Elementary principals and 5th grade teachers. A 30 minute Food Safety program that includes the "Poison

Panther" video and discussion of the Temperature Danger Zone, proper food handling, along with hand washing techniques were covered. 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 plays into food poisoning, and temperature danger zone, and proper food storage. Participants increased awareness of the importance of proper hand washing for 20 seconds, of the importance of time and temperature in controlling bacterial growth, and knowledge of cross contamination.

c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* State

### **Key Theme – Food Handling**

“*ServSafe* Training for Food Service Supervisors”

- a. *Description:* Each year, millions of people become ill from food borne illness. A food borne illness is a disease that is carried or transmitted to people by food. Americans eat more and more of their meals away from home and depend on others for the safety of the food they consume. In order to serve safe food workers need to be supervised and properly trained in safe food handling practices.
- b. *Outputs:* Extension Educators collaborated with the Vigo County Health Department and the National Restaurant Association to provide ServSafe food safety training and certification for 30 restaurant managers and supervisors. Four Extension Educators facilitated and taught the two-week ServSafe course and then administered the qualifying examination for the food service managers to be certified to supervise and train their food service personnel.

*Impact:* Over 90% of those taking the ServSafe food safety training course felt that they had gained knowledge that would be useful to them in their work. Participants in the course indicated the following ways they would change their food safety practices: have training sessions for their employees and keep a more watchful eye on workers; check food temperatures more carefully, and demand that employees follow proper procedures; teach staff proper hand washing procedures and pay more attention to sanitizing procedures; install better HACCP procedures and be more careful of storage practices. It is impossible to know how many people will NOT

become sick or be exposed to food borne pathogens as a result of the training, but it is certain that the more people who know and practice safer food handling procedures will serve food more likely to be safe and disease free.

- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State

#### “Food Safety Day”

- a. *Description:* Food borne illness continues to be an important concern for consumers nationwide. CDC estimates that between 76 million cases of food borne illness, 325,000 hospitalizations, 5500 deaths, and costs of 7.7-23 billion dollars may occur each year. Many of these reported food borne illnesses have been attributed to retail food establishments. One of the important keys to prevent food borne illness is through effective education and training for retail food establishment employees.
- b. *Outputs:* "Food Safety Day" is a retail food safety program for retail food managers. The project goal was to develop a curriculum that emphasized safe food handling practices for workers in retail food establishments. Indiana employs over 150,000 people in nearly 16,000 retail food establishments, creating a significant state training need that this curriculum is fulfilling. The program is divided into four learning modules: Understanding Food borne Illness, Good Personal Hygiene, Preventing Cross-contamination, and Avoiding Temperature Abuse. The instructor kit, developed by Linton, contains hands-on demonstrations for each module packaged with 58 slides, an instructor's and a student guide. After 30 trained instructors led the one-day event held in Indianapolis, the curriculum was distributed to each Extension and health department office in Indiana. Extension Educators and health departments were then trained via a train-the-trainer program so training could be extended to the county level. The initial audience for this program is health department personnel and Extension Educators in a train-the-trainer program. However, the ultimate audience for this program is retail food managers and retail food workers. The program has also been used extensively for school foodservice and institutional feeding operations. The curriculum is available in Spanish and English as a hard copy curriculum (slides or color overhead transparencies) and is now available for download on the World Wide Web. (<http://www.foodsci.purdue.edu/publications/foodsafetyday/>).

*Impact:* To date, over 14,000 people have been educated using this program that is offered at least monthly throughout Indiana. Additionally, the program is used in several other states as a training resource guide. For example, Maryland has recently incorporated Food Safety Day as part of their mandatory retail food handler training requirements. Several other states have adopted Food Safety Day as a model program for food handler training. Internationally, the program is being widely used in South America and Central America.



c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* Global  
Multi-state – MD

“Essentials of Food Safety and Sanitation”

a. *Description:* The Essentials of Food Safety and Sanitation program was developed as a nationally recognized curriculum and certification program for retail food handlers including restaurant, supermarket, vending, and institutional feeding operations. The program is designed as an 8-hour or 16-hour program for retail food managers and is linked with a retail food certification exam developed with the National Registry of Food Safety Professionals. This program focuses on an audience of retail food managers and retail food workers. The program is also offered to corporate trainers and academic trainers that serve the retail food industry.

b. *Impact:* Within Indiana, the program is offered through the Retail Food Grocers Association. The program is quickly being adopted by several retail food companies and by other University Cooperative Extension staff. The three leading U.S. supermarket chains (Kroger, Albertson's and Safeway), have adopted the program to train and certify their employees. Indiana's largest supermarket chain, Marsh Supermarkets has also adopted the program. This curriculum is currently the top selling retail food safety curriculum used for non-restaurant operations. In total, 14,100 textbooks have been distributed in the United States and 650 have been sold internationally.

c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* Global

“Food Safety: It's in Your Hands”

a. *Description:* A recent survey of Midwest food processing industries identified the strong need to develop a HACCP and Good Manufacturing Practices (GMP's) training program for "front line employees." This audience was specifically acknowledged as non-management employees actively involved in handling food in food processing plants.

b. *Outputs:* As a result of the survey, a planning committee to identify target audience needs and develop a curriculum was assembled. Piloted to the food industry, the curriculum was revised based on suggestions and evaluation data before a train-the-trainer program was implemented. The curriculum contains four learning modules developed in English and Spanish. The learning modules focus on understanding hazards associated with foods, principles of GMP's and sanitation, the concept of

HACCP, and the integrated role of food safety and quality programs. Each module contains visuals, instructor notes, and educational demonstrations to aid with instruction. The ultimate audience for this program is frontline food handlers. However, the main audience, due to the train-the trainer curriculum, is management, quality assurance, and quality control for food processing industries. This program is available and can be downloaded (English and Spanish) from the website at <http://www.foodsci.purdue.edu/publications/haccpgmp/>. A more interactive version is currently being designed directly for the participant at <http://IMSD.bio.purdue.edu/FoodSafety/>.

*Impact:* Industry and Extension staffs nationwide are using this program. It is the only program dedicated to teaching non-management level employees that is available at no charge on the Internet.

- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* Global

Multi-state – Virginia Tech

**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

### Executive Summary:

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 habit. 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 4,683 days to nutrition education programming and making direct contact with 80,512 individuals. Of this 80,512, 35,000 were youth in FY 2000.

The Dietary Guidelines for Americans, newly revised and released in 2000, form 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. A statewide evaluation instrument measures the knowledge gained by individuals in nutrition education programs and monitors their food

choices after the program. Data has been collected on 650 individuals with a follow-up survey finding significant increases in knowledge eight weeks after educational contact and a significant change in behavior in the number of times people looked at serving size on a food label when choosing foods.

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 thousands in Indiana. Currently, the curriculum is under revision to incorporate the 2000 Dietary Guidelines for Americans.

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. The Family Nutrition Program continues to grow, adding counties to the program with each contract submission. EFNEP was cut back in Indiana in 2000, due to federal funding pressures. A strategic planning process was followed to determine the exact areas to cut back on staff and how to more efficiently staff remaining county programs. 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. 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 \$1,430,000 and 25 FTEs have been invested in this Goal. This is a best estimate and these are not presented as auditable numbers.

### **Key Themes**

#### **Key Theme – Human Nutrition, Adults**

“Effect of Broad-based Nutrition and Health Programs on Knowledge and Behavior”

- a. *Description:* There are many different Extension programs dealing with nutrition-related health issues. People are very interested in knowing how to make the best

food choices to help lower their chance of developing a chronic disease like diabetes, high blood pressure, heart disease, obesity or cancer. It is important to be able to measure the impact that these Extension programs have on the knowledge and behavior of people. The problem lies in the diversity of programs. While all programs are built around the Dietary Guidelines for Americans, Food Guide Pyramid and/or the food label, the delivery, objectives and focus are not always the same. So, lots of people attend all of the programs, but a smaller number of people may attend any one of the programs. The challenge is to find a common tool to evaluate all of these programs so that their overall impact can be measured.

- b. *Outputs:* We developed a survey of fifteen questions. Six of the questions tested a person's knowledge of nutrition related to the Dietary Guidelines and Food Guide Pyramid. The other nine questions asked about food choices related to the number of times people ate different foods, had breakfast, etc. Prior to a program, the county Extension educator gave the survey to the audience. The educator then mailed the survey with a list of names and addresses of participants to the state Extension nutrition specialist. Eight weeks after the program, a follow-up survey is sent out to the participants. A comparison is made between the survey before the program and the eight-week follow-up survey to see if there are any knowledge or behavior changes that have been retained for at least two months after the program.

*Impact:* Thirty-five programs in eighteen counties were given by ten different educators. They reached over 650 people. Follow-up surveys were sent to 623 people and 261 surveys were returned for a 42% rate of return. For the six knowledge-based questions there was a significant increase in number of correct answers from the preprogram survey to the eight-week follow-up survey. There was also a significant change in behavior in the number of times people looked at the serving size on a label when choosing foods. In programs where the Dietary Guidelines for Americans was a primary focus, people also changed their behavior by increasing the number of times they read food labels to select lower fat or lower calorie foods. These results show that Extension programs on nutrition-related health issues are having a positive effect on people's knowledge about nutrition and their food choices.

- c. *Source of Federal Funds:* Smith-Lever

- d. *Scope of Impact:* State

“Expanded Food and Nutrition Education Program (EFNEP) Leads to Changes in Food and Nutrition Practices”

- a. *Description:* Limited resource families in both rural and urban settings require practical knowledge and skills to start them on the path to self-sufficiency. Families continue to be at risk due to limited resources despite employment.
- b. *Outputs:* EFNEP utilized 44 (26 FTE) indigenous trained paraprofessionals (Family Nutrition Advisors) in FY 2000 to teach a series of food and nutrition topics, which

led to behavior change of limited resource families in their home or community sites. Topics included food safety, meal planning, food resource management, selection and purchase of nutritious foods, and nutrition for pregnancy, lactation and early childhood. Lessons included food preparation skills, food budgeting skills and skills for feeding children. EFNEP collaborated with Workforce Development to present a series of lessons on food and nutrition skills, parenting and financial management skills to their clients. Collaborations also occurred with WIC, Food Stamps, Step Ahead, Healthy Families, Healthy Start, Head Start, Maternal and Child Health and local agencies such as food pantries, hospitals, and schools.

*Impact:* The EFNEP program in Indiana continues as it has for 31 years to make a difference in the lives of limited resource families. In FY00, Indiana's EFNEP program reached 2414 families, representing over 8,410 persons with a series of food and nutrition lessons leading to behavior change. Over 15,700 lessons were taught and the majority of these families were taught over a 3-6 month period.

- 91% improved their intake of nutritious foods,
- 88% improved their nutrition practices such as making healthy food choices, preparing meals without added salt, children eating breakfast and reading nutrition labels,
- 82% improved their food resource management skills such as planning meals, comparing prices, not running out of food and using lists when shopping,
- improvement in food safety practices such as hand washing, thawing and storing foods properly was also determined
- food costs were decreased by \$50-100 per month as stated by participants
- 2040 youth, ages 4-19 participated
- 382 volunteers assisted in youth and adult program.

Two participants in Eastern Indiana had been thawing their meat by placing it into the microwave (not turning it on, just placing it there for several hours). Through EFNEP, they learned how to properly thaw meat. A participant in Southern Indiana stated, "That really makes it worthwhile to have the family working together as a unit. I all around feel smarter about the way we should run our home based on what I've learned". Owners of a local factory in eastern Indiana stated that EFNEP participants were more likely to show up to work on time and to show pride when discussing what they were learning in the program. The Indiana Beef Council provided instant-read thermometers to EFNEP participants during the food safety lesson. Several participants in Southern Indiana and Indianapolis commented how often they have used this thermometer to measure the temperature of their hamburgers and other meats. A participant in Southern Indiana stated that by planning her menu ahead she was able to stretch \$50 for two weeks. This was important because her car had broken down, and money was needed to fix it instead of for food.

c. *Source of Federal Funds:* Smith-Lever

- d. *Scope of Impact:* Clark, Crawford, Delaware, Floyd, Grant, Harrison, Howard, Lake, Madison, Marion, Orange, Scott, Vigo, Washington, Wayne counties

“Family Nutrition Program”

- a. *Description:* To empower food stamp recipients and food stamp eligible persons with the knowledge of the link between diet and health. The Indiana Family Nutrition Program provides nutrition education to food stamp eligibles and food stamp recipients to help participants select more nutritious foods, to stretch their food dollars and food stamps, and to provide a safe meal environment.
- b. *Outputs:* During fiscal year 1999-2000, forty-three FNP Assistants in approximately forty-three Indiana counties provided free nutrition education lessons to food stamp recipients and food stamp eligible persons. The lessons were provided to individuals in their homes or in another preferred location. Group presentations were also provided in agencies serving limited resource audiences, such as WIC clinics, Adult Reading academies, food pantries, food banks, Head Start, Step Ahead meetings, school settings, where 50% or more of the children receive free or reduced school lunches, homeless shelters, community centers, and more. During this time, 22,838 persons attended a series of group lessons and 7,243 persons had individual lessons in their homes. Additionally, 19,343 persons attended a single group presentation. 116,649 informational pamphlets and 142,611 nutrition newsletters were distributed to FNP clients.

*Impact:* A combined qualitative and quantitative study was used to measure and to identify knowledge, behavior, and attitude change among Family Nutrition Program participants. Data sources consisted of pre-post-test surveys (n=367) and seven focus groups and six one-on-one interviews (n=91) with program participants who completed five or more lessons. The guiding research questions for the qualitative component were: (a) In what ways does the Family Nutrition Program impact our clients' lives? (b) How do the clients describe their experiences with this program? (c) How can this program be changed to better meet the needs of the clients effectively? The guiding research questions for the quantitative component were: (a) Do program participants experience a change in their behavior because they participate in the program? (b) Do participants learn to prepare more nutritious foods (evidenced through food selection) and preparation and have the confidence (self-efficacy) that they can select, purchase, and prepare these foods for their families? (c) Do participants become more confident they can perform the behaviors following completion of the program lessons? (d) How do clients' attitudes change regarding their perspectives in stretching their food dollars and food stamps, and their perspectives in determining the nutritional needs of their family?

Focus groups and interviews provided evidence that when the Family Nutrition Program helps meet the clients' needs and they have positive program experiences, the program helps to facilitate behavior, attitude, and nutrition

changes. The Family Nutrition Program can help participants make positive behavior changes in the areas of meal planning and preparation, shopping, stretching food dollars/food stamps, selecting more nutritious foods, and improve food safety practices. In both the interviews and focus groups, participants reported in the area of meal planning, they are now shopping with a list and they are less likely to just "grab" food without giving some thought to their purchases. In the area of food preparation, many of the participants bake or grill their food now, instead of preparing fried foods for them or for family members. Many participants changed their food preparation from frying to baking. Participants improved their shopping behavior by comparison shopping, using store coupons, checking the prices, buying generic as opposed to brand names, and reading the food labels. Many participants stated they did not know how to read the food labels and did not read the labels before the program. Participants stated they purchased less junk food, some eliminated it, and they were purchasing more fruits and vegetables. Many reported their children were eating more fruits and vegetables and less junk food as a result of the program lessons. Many food safety procedures changed after program lessons.

The more frequently reported change was defrosting food in the refrigerator now, as opposed to defrosting food on the counter top before FNP lessons. set out longer than two hours." Many participants reported they were out of their food dollars and food stamps after about three weeks, but after the lessons they were able to stretch their food dollars and food stamps to last until the end of the month. One participant stated she no longer made trips to the food pantry to receive additional food items. The Family Nutrition Program helps participants make positive changes in their selection and preparation of nutritious foods for them and for their family. Some participants stated learning the low-fat shopping and cooking lesson, reading the food labels, using the recipes, and using the Food Guide Pyramid, helped them to select, purchase, and prepare nutritious foods. Also, many participants stated they now eat breakfast or they make sure their children eat breakfast before they leave the house.

The Family Nutrition Program helps participants increase or improve their confidence in serving nutritious foods, serving safe foods, and stretching their food dollars/food stamps to last until the end of the month. After reviewing the focus groups and interviews, the majority of the participants stated they were more confident in their abilities to serve safe food, prepare and serve nutritious foods, and stretch their food dollars/food stamps to last until the end of the month. Even if they were aware that a bill may come up or some unexpected expense, they expressed more confidence in their ability to make their food or their dollar stretch until the end of the month. For the quantitative data, paired-difference t-tests were used to determine whether or not there was a statistically significant change for each survey question, from the clients' pre-test responses to their post-test responses. As a result of participating in the program, participants experienced a significant change ( $p < .0001$ ) in their behaviors and attitudes and in fact, improved their food shopping, food selection, food safety, nutrition, and

money management practices. In conclusion, the Indiana Family Nutrition Program has a positive effect on program participants' lives and helps to facilitate the voluntary adoption of positive behaviors and attitudes related to the areas of nutritious, food safety, and money management.

- c. *Source of Federal Funds:* USDA, Indiana Family & Social Services Administration
- d. *Scope of Impact:* 43 Indiana counties

## **Key Theme – Human Nutrition, Youth**

### “Nutrition Lessons Brought to Youth”

- a. *Description:* Youth are faced with an increased need for accurate information in making food choices. Single parent families, parents working outside the home, and latch-key kids have children increasingly involved in food preparation and food choices. As children face these decisions, they need accurate, current information on the relationship between general health and daily dietary requirements, in order to make wise food choices. Research has shown that children depend increasingly on fast food, convenience foods & vending machines for their daily diet. It is critical that they learn to make wise choices to limit fat, sugar, salt and empty calories in favor of grains, fruits and vegetables as stated in the USDA's Dietary Guidelines for Americans.
- b. *Outputs:* Purdue University Cooperative Extension Service has developed Exploring the Food Pyramid with Professor Popcorn, developed for 1st through 6th grade youth. The program is designed to fill the void by teaching nutrition in a fun, innovative way to help our youth learn to make wise food choices. The curriculum contains seven lessons designed to help youth explore the food pyramid with the aid of the Professor Popcorn character. Activities are "hands-on" and designed to make children think about the food choices they make every day. The curriculum includes activities, experiments, games and exercises to deliver the message of healthy eating and lifestyle choices. The program can be delivered by a trained Extension educator or teachers may check out materials and follow the curriculum at their own pace with students. Lessons are divided into three levels for elementary youth so the skills required are age appropriate.

*Impact:* The program includes many thought provoking activities to make children think about the choices they make with regards to food and lifestyle. 410 youth participated in the program this past year. Teachers appreciate the opportunity to have students learn healthy food choices through activities and interactions, rather than the same old book method. Youth respond with enthusiasm for the Professor Popcorn character and activities spark in-depth classroom discussions. The program includes a pre and post test with basic nutrition questions to measure knowledge gained by



students. Analysis of scores indicates the program's success in changing attitudes about food choices and nutrition. Student test scores rose an average of 18.8 percent. Exploring the Food Pyramid has been shown to be effective in changing attitudes of our youth concerning healthy food and lifestyle choices. The results indicate the youth enrolled learn skills they can use to make wise decisions in the future.

- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State

“Kids Get A Good Start In Life - Day Care Training”

- a. *Description:* In Marion County, over 30,000 children under age six are in need of childcare as all caregivers in the home are working. Today, day care isn't just about providing a safe and nurturing environment for kids. Day care providers must also ensure that kids are receiving safe, nourishing meals and snacks. In order to maintain licensing, day care providers must attend yearly trainings in nutrition education, meal patterns, food safety and record keeping. Purdue Extension - Marion County has recognized the need for quality educational programs by trained professionals who keep up on the latest health and nutrition issues and food safety recommendations by the FDA and county health departments. By partnering with the Marion County Health Department, Purdue Extension - Marion County, specifically the Foods and Nutrition Program, is committed to providing quality educational programs for day care providers to fulfill their continuing education needs.
- b. *Outputs:* Nine educational programs were presented for the day care providers of Day Nursery and Nutrition Inc. A total of 222 participants attended the trainings. By attending the continuing education trainings, day care providers learned how even young children can eat according to the Food Guide Pyramid; how the Dietary Guidelines are a guide to healthy eating and living; and what are the current food safety issues when preparing meals for young children. The three topic areas, nutrition education, meal patterns and food safety, were covered. Individual sessions were repeated to provide ample opportunity for the day care providers to attend and receive educational credit.

*Impact:* Evaluation of Purdue Extension - Marion County's day care training programs was by a simple 4 point evaluation card. Participants responded to whether: 1) expectations were met; 2) I will use at least one idea from the program; 3) Overall, this workshop was...ranking varied from very valuable, "5" through "1", and not valuable; One thing I will do as a result of this workshop is.... Out of 222 participants, 65% (or 145) completed evaluation cards. Sixteen percent found the educational programs to be very valuable; 46% rated them a "5" and 33% rated them a "4". Sixty-five percent said that they would use one idea from the workshop. The participants generously shared what one thing they would do as a result of the training. Responses include, "Share more with parents; instruct parents"; "Use more

fruits and vegetables" ; "(pay attention) to (kids) serving sizes" ; "Eat variety of food"; "Let children choose (the food they want to eat and how much to eat)"; "Wash hands; wash children's hands"; "Use a thermometer/buy a thermometer"; "Cook foods to proper temperatures".

c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* State

## **Key Theme – Human Health**

“Have A Healthy Baby”

- a. *Description:* Pregnant adolescents and limited resource adults are at an increased risk of delivering low birth-weight (LBW) babies. Babies born at LBW are more likely to die during the first 28 days after birth (neonatal mortality) and also at risk for costly health complications. In 1998, 7.9% of all Indiana babies were born at LBW and 11.9% of babies born to adolescents age 17 and under were LBW. Infants born to black women and adolescents were more than twice as likely to be LBW (13.5%). LBW babies tend to stay in the hospital after birth and often require higher healthcare costs. Estimates are that 60% of LBW and pre-term births may be preventable. Lifestyle habits such as smoking as well as secondhand smoke, and nutrition habits can affect the babies health. Approximately 25% of Indiana pregnant women smoked during their pregnancies.
- b. *Outputs:* Through the *Have A Healthy Baby* program, a series of lessons aimed at changing nutrition and lifestyle behaviors, was taught throughout the state. Participants were taught by EFNEP and FNP paraprofessionals, by grant funded Program Educators and by Extension Educators. The March of Dimes provided funds to test a version of the curriculum in physician's offices and a USDA grant allowed for the development of a program to address food safety concerns of this audience. Both initiatives are currently being evaluated.

*Impact:* During the time period, January 1 through December 31, 1999, 1235 pregnant adolescents and limited resource adults participated in the *Have A Healthy Baby* program. 42% were in EFNEP, 37% were taught by Program Educators hired by small one-time grants, 14% were taught by Extension Educators, and 6% by FNP. Births were reported for 673 single births in addition to several twin births. The low birth-weight percentage continues to be lower for participants compared to the state average, despite working with at risk audiences such as adolescents, and limited resource minority adults. One neonatal death was recorded. Of the 673 births recorded, 235 were to teens at or under the age of 17, or 35%. This is compared to state data from 1998 showing that 4.6% of all births were to teens in this age group.

*Anecdotal Impact:* "I have quit smoking, I started eating more healthy foods, and

taking better care of my body." Mary age 16 "I have woken up earlier to eat breakfast. I have realized that unhealthy behavior hurts me and the baby." LaShanda, age 16 "This program gave me answers to questions I needed and wanted to ask and helped me make some valuable decisions." Stephanie, age 28.

c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* State

**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

### Executive Summary:

There is an increasing need for education programs that will equip producers with information and decision-making strategies that enable them to produce food and forest products in an environmentally benign manner, yet be socially acceptable to the general public. The quality of air, soil, and water resources is critical to the overall well being of the entire ecosystem of the state. In Indiana, water quality is an increasing concern for both animal waste and residential waste issues. 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 provides education and outreach programs that allow the public to reach sound judgments regarding the use of natural resources. Purdue Extension is developing and delivering educational information that provides all Indiana citizens the opportunity to analyze and adopt useful emerging technologies, which will maintain family farms, protect the waters of the state, and provide an acceptable wildlife habitat for future generations. A large part of Purdue Extension's efforts is to make farmers and the general public aware of the issues and consequences, from lack of action, to the land and the environment. During FY 2000, Purdue Extension devoted the efforts of field and campus staff to environmental stewardship issues, and recorded 4699 contact days and 192,432 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 (water and solids), odors from livestock facilities, 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, from within the state and with collaboration with other states, 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 awareness of the problems of septic systems failure. Purdue Extension has initiated a series of programs for 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. A new method of installation involves a mound system that handles 30 to 40% more waste without plugging the septic system. Homeowners have been highly satisfied with this new system; it is becoming the system of choice for some contractors.

With the rapid growth of rural populations, animal waste odors from large concentrated livestock and poultry facilities is causing an emotion-charged public response and demand for stricter regulations on odor and gas emission. To help with these issues, Purdue Extension is studying these problems by measuring emissions to determine thresholds and by studying diet manipulation to reduce swine manure, nutrients, and odors.

Agricultural and industrial pollutants are increasingly found in Indiana's underground water systems. Purdue Extension has a water quality team that is involved in several aspects of water quality work. A volatile organic compound, used as a fuel additive to reduce air pollution, was reported in water wells in Northwestern Indiana. A local Purdue Extension Educator, working with the local Soil and Water Conservation District, started a countywide private well testing program for county residents. Of the 377 wells tested in the county, none reported a significant health hazard for volatile organic compounds. With more than 500,000 private wells in the state, Purdue Extension initiated a program to make private well owners aware of potential drinking water problems in the state. Publications and displays were developed for a statewide outreach program. A website was designed that contained downloadable assessment worksheets and drinking water information. This site receives an average of 100 visits per day.

Indiana landfills are running out of space to receive solid waste. Purdue Extension, working with other state agencies, initiated several recycling programs to collect and recycle many different types of solid waste, ranging from paints to pesticides. These programs have saved local towns and counties large sums of money for dumping fees.

The Purdue Land Use Team was formed to respond to the increasing requests from communities regarding land use. In SY 2000, Purdue Extension spent 1134 contact days on Land Use issues, making 20,565 direct contacts. The Purdue Land Use Team has served as a model for other states including North Carolina, Ohio and Illinois. The materials developed by the Land Use Team have been distributed and used in several other states. Each year, a multi-state meeting is held with Michigan, Wisconsin, Illinois, and Ohio in Indiana to share programs, materials, and research efforts.

Livestock producers in Indiana are required to have confined feeding approval from the state environmental management agency if they exceed a threshold number of animals. Most producers require assistance in completing the forms and providing the necessary information to comply with these laws. Purdue Extension field staff led an effort to assist producers in submitting the required manure management plans to the state.

The state's forestry industry is not as large as the crops and animal production industry; however, this sector of the state is seeing many changes as rules and regulations impact the way forest and wildlife habitats are managed. Purdue Extension devoted both field and campus staff to forest and wildlife issues in FY 2000. This effort recorded 48,570 direct contacts and accounted for 616 contact days being dedicated to this issue. Forest landowners are faced with complicated federal and state tax laws, which affect their willingness to properly manage forestlands. One reason landowners find tax laws difficult to follow is because of the constant changes in the details of the laws. Purdue Extension partnered with the U.S. Forest Service to develop a comprehensive timber tax website as a single source of information for tax professionals researching detailed tax issues. This website has become the standard source of information on timber tax issues with the Internal Revenue Service, state extension systems, and the U.S. Forestry Service.

Producers are often reluctant to take acreage near streams out of production because of loss of income, even though this area may be subject to erosion or allows livestock to enter the stream. Purdue Extension personnel have helped conservation agencies in other states design research and demonstration projects for filterstrips and windbreaks that not only provide environmental improvement, but also provide for potential income from the sale of ornamental and floricultural species growing in these set aside areas. This concept was implemented on Amish family farms in Lancaster County, Pennsylvania in 2000. With Indiana's large and growing Amish population, and with the need to develop filterstrips and windbreaks in Indiana, this concept will be attractive to Indiana landowners.

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 \$2,157,000 and 38 FTEs have been invested in this Goal. This is a best estimate and these are not presented as auditable numbers.

### **Key Themes**

#### **Key Theme – Agricultural Waste Management**

“Diet Manipulation to Reduce Swine Manure Nutrients and Odors and Sustain Pig Health”

- a. *Description:* In intensive research studies with cannulated pigs, reducing the crude protein of diets and supplementing with synthetic amino acids and 10% soybean hulls or dried sugar beet pulp reduced the excretion of total nitrogen in fresh manure from

42 to 50%. In addition, with the lower protein and synthetic amino acids alone (11% crude protein), nitrogen excretion was reduced by 38% compared to a standard diet (15% crude protein). Ammonia emissions were reduced 39% and 64% in stored manure with low protein and soy hulls or beep pulp diets, respectively, compared to a standard diet. In group feeding nursery trials, addition of 5% fructooligosaccharide in nursery diets improved feed efficiency with similar weight gains in pigs compared to those fed an antibiotic control diet. Fructooligosaccharide increased colonization of Bifidobacteria and reduced E. coli in the intestinal system of the weanling pig. These specific oligosaccharides added to weanling diets may help sustain pig health during the transition of the pig from milk diets to dry feed and other normal stresses of a weaning in the production environment.

- b. *Impact:* It appears that balancing the available amino acid profile in pig diets and the addition of small amounts of specific fiber to the diet will dramatically reduce nitrogen excretion and reduce odors. This will reduce the amount of land for manure application, reduce the threat of adversely polluting water and reducing the offensiveness of odors providing a means for pork production to be compatible with rural residents. Since most manure odors come from fermentation of proteins, reducing the precursors of odorous compounds will reduce odors. Alternatives to antibiotics in pig diets is likely to become a major need in the very near future. Due to the threat of antibiotic resistance in pathogenic bacteria, regulators are screening existing approved antibiotics and several have been removed for use in animal diets. Non-antibiotic alternatives, such as oligosaccharides have promise for controlling the microbial ecology of the intestinal system of the pig and reducing the threat of pathogenic diseases. Diet manipulation has promise as a practical and effective solution to significantly reducing odors, the whole farm nutrient overload (imbalance) in pork operations and maintaining pig health.
- c. *Source of Federal Funds:* Smith-Lever and Hatch
- d. *Scope of Impact:* Multi-State Research with OK, PA

## **Key Theme – Agricultural Waste Management**

### “Manure Management Plans”

- a. *Description:* A Purdue Extension Educator lead an effort in Southwestern Indiana to assist producers in submission of an IDEM required Manure Management Plans (MMP). Six MMP workshops were held involving producers from Dubois, Spencer, Perry, Martin, Vanderburg, Warrick and Gibson Counties. The workshops helped producers provide the necessary information to comply with the law, without unintentionally committing to unreasonable management plan. Assistance was provided by NRCS and SWCD's who assisted landowners in obtaining the proper maps to document manure application areas. In addition to the workshops the educator assisted producers through phone calls email and personal consultations.

- b. *Impact:* This series of workshops was attended by 103 producers. 134 producers in Dubois County have submitted their MMP's. Failure to submit an MMP would put the producer in violation of Indiana's Confined Feeding Control Law. This effort allowed livestock producers in Southwest Indiana to comply with IDEM regulations and operate in a legal manner. Six area producers were assisted in developing applications for confined feeding approvals for new and remodeled facilities. All approvals were granted by IDEM.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Biological Control**

#### “Biological Control of Insect Pests”

- a. *Description:* My lab has investigated the basic ecology of pests and their natural enemies (the predators, parasites and pathogens that kill pests). We have also developed outreach and continuing education materials and programs, and we have taught Purdue courses in biological pest control.
- b. *Impact:* Our basic research has identified new natural enemies to use against a major insect pest, the Colorado potato beetle. Use of these natural enemies could significantly reduce the use of insecticides in potatoes and significantly lessen environmental impacts and reduce economic costs in this system. In basic studies, we have developed new insights in pest and natural enemy biology that will help pest managers better control pest outbreaks in any number of crops. In outreach efforts, we taught homeowners how to use biological controls that resulted in up to 50% reductions in pesticide use in home gardens, and a similar percentage adoption of alternative control options. And in the classroom we taught students from throughout the Midwest the latest techniques in biological control for them to apply in a number of cropping systems. Included in our teaching efforts was a short course on biological control taught in Montpellier, France. In teaching overseas we exposed our students to the international dimensions of biological control and developed working connections to major international research institutions.
- c. *Source of Federal Funds:* Smith-Lever and Hatch
- d. *Scope of Impact:* Multi-State Research with IL, IA

### **Key Theme – Forest Resource Management**

#### “National Timber Tax Website”

- a. *Description:* A partnership was created between the Us Forest Service and

Department of Forestry and Natural Resources, Purdue University to develop a comprehensive timber tax website. Initial funding was provided by the Southern Forest Experiment Station of the US Forest Service. Follow-up funding has been provided by Northeastern Region, State and Private Forestry, US Forest Service. The National Timber Tax Website at <http://www.fnr.purdue.edu/ttax>. The website is a single source of information appropriate for someone with no knowledge at all and for tax professionals researching detailed tax issues. It is highly interactive. Users can provide basic input and have the site make the complicated calculations necessary to report timber sales, recover the costs basis of timber sold, calculate the excludible portion of cost-share payments, and the amount of reforestation tax credit and amortization deductions.

- b. *Impact:* The National Timber Tax Website has become the standard source of information on timber tax issues within the Internal Revenue Service, within the Cooperative Extension system of the states, and for the service provided by State Foresters to landowners. Over the last year the site has been visited almost 15,000 times by taxpayers in all 50 states and four foreign countries. In addition to forestland owners the site is used by accountants, attorneys, consulting foresters, and tax preparers. Because of the general lack of understanding of the tax savings opportunities available to forest landowners, it can be assumed that the increased knowledge obtained from the site saves the average user correctly saves at least \$100 per year in taxes paid. This would provide a total benefit of at least \$1,500,000. Additional benefits would occur from reduced time to find answers to questions. It makes the IRS customers assistance program much more efficient by giving customer service representatives easy access to information and a source to refer taxpayers to for details. The information provided on state tax laws on income and property tax provides additional tax and time savings.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* Multi-State with WA

## **Key Theme – Land Use**

“Purdue Land Use Team”

- a. *Description:* In 1996, the Purdue Land Use Team was formed to respond to the increasing requests from communities regarding land use. The Team is composed of 11 field staff who serve on county plan commissions and 8 campus specialists who provide the necessary research. Ten educational programs and 15 refereed publications were developed by the Team. Nineteen regional training workshops, in partnership with Ball State University, have been held reaching over 1200 elected and appointed officials. A collaborative state wide conference held each year has reached over 1000 people. Educational programs have been delivered in 66 of the 92 counties in Indiana. In the year 2000 alone, 18,947 direct educational contacts were made; 77 radio and television interviews were conducted; 189 news stories were printed; 19,729 newsletters were distributed; 1850 students in grades 5 through 12 were



involved in land use educational program; over 20,000 of the *Indiana Land* publication were distributed.

- b. *Impacts:* As a result of the Land Use Team efforts, plan commissions were formed in two rural Indiana counties which previously did not have planning and zoning. Public meetings were conducted to actively involve the public in the process and to answer their questions and concerns. Newly appointed plan commission members attended several training opportunities offered by Purdue. The Comprehensive Zoning Ordinances were passed unanimously by the newly formed Plan Commissions and subsequently by the County Commissioners. The set of zoning ordinances, also adopted by the community, put restrictions on divisions of land, old mobile homes, junkyards and various other undesirable land uses identified by the community. In over 30 other counties in the state, comprehensive plans and ordinances were updated with assistance of the local educator and the programs, materials and training offered by the Land Use Team. Plan Commission operating procedures have been revised and improved as a result of Purdue's educational efforts.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* Multi-State with MI, WI, IL, OH

### **Key Theme – Recycling**

“Scott County Special Recycling Program”

- a. *Description:* The local Scott County Office of the Purdue University Cooperative Extension Service helped to establish a recycling Program, and educate local residents on how to properly prepare the recyclables for acceptance. Special Spring and Fall recycling events were also coordinated through the local Extension Office, to accept other recyclable items like freon-containing appliances, tires, mercury, used motor oil and car batteries.
- b. *Impact:* The Special Spring and Fall Recycling Days held in Scottsburg this year saved precious landfill space. It also involved 70 volunteers taking in the recyclables representing over 13 different organizations. They received recyclables from over 611 vehicles such as: over 2 tons of old scrap metal appliances, along with 35 air conditioners, 45 refrigerators, 15 deep freezers, 1 large ice freezer chest, plus another  $\frac{3}{4}$  of a semi load of refrigerated appliances, a ton of scrap iron, sixty pounds aluminum, 2  $\frac{1}{2}$  tons miscellaneous scrap materials, 1400 gallons oil, diesel and kerosene, 1650 automotive tires, 1 tractor tire, 65 car batteries, over 5 Gaylord boxes of newspapers, over 6 boxes of cardboard, 1 box of magazines, some mercury items including 3 cases of fluorescent tubes, along with regular recyclables of plastic, glass, tin and aluminum cans. There was a gentleman that recycled a 4 oz. jar of pure mercury and he commented, "I've had this for over 20 years because I couldn't find a reasonably-priced way to dispose of it, nor did I want to just dump it on the ground."

It was good that he didn't improperly dispose of it, because only 3 grams of mercury can contaminate a 60-acre lake and still be detected. Since SASCO began its recycling program they have saved hundreds of thousands of dollars in collection and landfill disposal costs, diverting waste and money. An Austin Town Councilman reported, "We had money to buy a new police car, and now our fleet is in good shape. We blacktopped another 1½ miles of town streets this year, and made good on our pledge to the Austin Kids Place. That was all money that we used to spend to dump our trash in the landfill."

c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* State Specific

### **Key Theme – Recycling**

“Re-Cycling Pesticide Containers”

a. *Description:* Benton County and several other cooperating counties along with the Indiana State Chemists Office initiated an alternative re-cycling program for farmers and chemical dealers in strategic locations throughout the state. A collection site is normally set up in September at the Benton County Fairgrounds to collect the 2½-gallon pesticide containers. Benton County has participated in the re-cycling program since 1994.

b. *Impact:* As a result of the program during the past 7 years it is estimated that 19,000 to 22,000 pesticide containers have been removed from the environment. These recycled containers are chipped at the receive site and then later made into fence posts, pallets, and park benches. The number of containers collected this year has decreased. This is mainly due to the different pesticides being formulated and the disposable packaging that is being used in the industry. Even though the number of containers received is down, the re-cycling program will be offered again next year. Many farmers are still using the old pesticide formulations and will need a suitable place for disposing the containers.

c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* State Specific

### **Key Theme – Sustainable Agriculture**

“Vegetative Filterstrips that increase Wildlife Habitat and Provide Income”

a. *Description:* A research and demonstration project was initiated in 1990 to determine if planting designs could be developed for filterstrips and windbreaks that improved

wildlife habitat and provided a source of income. All tree and shrub species planted provided potential income by selling branches sought for their ornamental characteristics to the floriculture trade. Initial numbers indicated income potential exceeding \$13,590 per hectare. In the Spring of 2000 Dr. Moser and Myself were contacted by the NRCS and the Alliance for the Chesapeake Bay to get assistance in planning and establishing plantings on family farms in two areas in Penn. We provided the project personnel with data and literature obtained from our studies, provided advice through phone consultations, and traveled to the farm locations planned for planting to give onsite advice. Training was provided for agency personnel involved in the project.

- b. *Impact:* The income producing filterstrip concept we developed was implemented on several Amish family farms in Lancaster County Penn in the spring of 2000. The average Amish family farm is 40 acres. This land typically supports 40 dairy cows, the horses needed to farm and some pasture and crop land. In order to clean up the Chesapeake Bay, NRCS worked with farmers to fence cattle from the streams running through their farms. In doing this, 1-2 needed acres were taken out of production. Planting income producing shrubs in these filterstrips improves the wildlife habitat and quality of the streams and provides the families income from this acreage. In Lancaster County, there is heavy tourist traffic and numerous shops and roadside outlets where Amish produced and crafted goods can be sold. A vocational horticulturalist (Marie Janson) is hosting workshops and working with families to determine what to grow, how to add value, and how to market their products. In addition three plantings were established in the Kishacoquillas Valley. One of the farm wives is a Penn State forestry grad and plans to operate a roadside stand in front of their farm. Another farm wife runs a florist shop with her sister and has selected species she can't get elsewhere. Measurable impact in terms of dollars produced for the farm family will be available in approximately three years. Summary: The technology developed at Purdue is now being applied in an area of the country where water quality sensitivity has reached a high level, and where producers needed additional income from filterstrips in order to make water buffer strip practices practical on their farms. Use of these designs will improve wildlife habitat, improve water quality, and provide additional income to farm families.

c. *Source of Federal Funds:* Smith-Lever

d. *Scope of Impact:* Multi-State with PA

### **Key Theme – Water Quality**

“Mound Systems for Waste Management”

- a. *Description:* Computer programs to design and program systems were given to two installers in the area. They worked thru the schematics and programs to design systems for area agricultural residents. Purdue resident educators worked in conjunction with the local agriculture and natural resources educator.

- b. *Impact:* Systems were installed. They handled 30 to 40 % more waste and did it without getting plugged. They were employed in problem situations. The cost addition was modest, but was outweighed by the efficiency and maintenance advantages. Owners are highly satisfied. They are serving as resource pools for future development in this area. Depths to limiting layers and soil texture have certainly made this model a choice that is becoming an option for area agriculture cooperators.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Water Quality**

#### “Improving Onsite Residential Wastewater Treatment”

- a. *Description:* Onsite residential wastewater problems can be resolved only by a strong regulatory community working in concert with knowledgeable people who design, install and maintain properly sited systems. Purdue University has worked to develop a strong industry group that can be a progressive force for ensuring proper performance of systems. We co-sponsored, with the Indiana Onsite Wastewater Professionals Association (IOWPA), a conference for county regulatory personnel, designers, installers and tank pumpers and cleaners. IOWPA is a nonprofit industry organization with the goal of improving the capabilities and professionalism of their members. The focus of the two-day conference was on education and training and the goal was to help organize a strong industry group that is critical to protecting the public health. A tradeshow was also organized to bring in vendors from across the US and expose IN professionals to innovative systems that are being used in other states.
- b. *Impact:* The conference reached 277 people and attracted 28 manufacturers for the tradeshow. The audience evaluations were overwhelmingly positive with every respondent indicating that they would attend the next such event. The industry group, IOWPA, more than doubled in number of members as a result of their positive exposure and more than 75 county and state regulatory personnel also attended. A number of the attendees indicated this was the first conference they had attended in Indiana where both industry and regulatory personnel participated as members of the audience and indicated that the group discussions were very useful in helping them to understand the other's viewpoint.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Water Quality**

#### “Porter County Private Well Testing Program”

- a. *Description:* The County Extension Director approached the Porter County Soil and Water Conservation District for financial assistance to develop a countywide private well testing program for county residents to test their wells for volatile organic compounds.
- b. *Impact:* A total of three hundred seventy-seven county residents participated in the testing program. The county residents brought their water samples to the fairgrounds where the County Extension Director collected the samples to send to Heiderberg College Water Quality Lab. The test results for Porter County indicated there was no significant health hazards from VOC's in Porter County resident's wells.
- c. *Source of Federal Funds:* Smith-Lever
- d. *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**

### **Executive Summary:**

Purdue University 4-H/Youth Development programs reached 298,000 youth in Indiana during 2000, which is approximately 25 per cent of Indiana youth ages 5-19. Through youth development programming, Purdue University purposefully seeks to meet youth needs and build youth competencies relevant to enabling them to become successful adults. Rather than seeing young people as problems, positive youth development views them as resources and builds on their strengths and capabilities to develop within their own community. To succeed youth must acquire adequate attitudes, behaviors, and skills. 4-H/Youth Development programs seek to build competencies in the following areas: physical, social, cognitive, vocational and moral.

Several examples of the successes of 4-H/Youth programs will be provided in the Key Theme section of Goal Five accomplishments. Briefly, the program is delivered in three methods in 4-H/Youth Development. Those methods are through club programming, through school enrichment programming and through working with community groups such as local youth organizations, collaborations of which 4-H is a part and youth detention centers. However, in school enrichment programming across the state, we see teachers incorporating 4-H/Youth curriculum into math, science, spelling, health and writing activities.

In a north central Indiana county that utilized the chicken embryology project in the classroom, teachers reported that children learned about the life cycle, that children were anxious to return to school each day to see what had happened to the eggs, the students had classroom bonding, the students responded in a caring and loving way "even the tough guys" and that the project "wowed them into learning". In a north east Indiana county school classes were exposed to

"Rockets and Space" in a school enrichment setting. Teachers stated that youth learned applications of science, developed a greater interest in rocketry, spent time with parents on space interests and learned about careers in the industry. In Marion County in central Indiana, 9,296 students in 418 classrooms participated in 4-H in the Classroom. This number has increased by 300% since the 1998-99 school year. The success of this program is the partnership we are developing with the largest school corporation in the state.

Purdue 4-H/Youth Development programming continues to grow and reach more youth outside of the traditional base club programming. Much of the success is the outreach being done county by county to other youth serving agencies and to schools. All indicators suggest that knowledge is gained, that youth understand the basic principles being taught and that positive youth development is being accomplished.

Families form the backbone of the social structure in the United States. Families can be nurturing, sustaining and positive influences on individuals both adult and youth. Families are currently under many stresses that can erode the structure and disrupt the positive influences normally felt. These stresses include: divorce, single parent homes, teenage pregnancy and child rearing, work schedules, and increased demands on income. Purdue Extension address the needs of families through programs for parents of all aged children, grandparents serving as parents to their grandchildren and to fathers who are trying to be a part of their children's lives even though they might not have custody of the children. Purdue Extension reaches families in many different ways. Understanding the increase in time demands of working parents, Extension provides newsletters, on-line web-based materials, evening and weekend direct programming and in-school and after school programming. Extension staff in Indiana have reported 3,513 days of activity addressing issues related to "Resilient, Self Reliant, Strong Families", reaching 68,705 individuals.

Successful partnerships expand the outreach of Extension programming for families. The Indiana judicial system serves as a partner to parenting programs and fathering programs for non-custodial fathers. Some programs are mandated, others are "strongly encouraged". A multi-state project has paired Purdue University Extension with University of Wisconsin—Madison Extension to provide the "Grandparents Raising Grandchildren" program. Grandparents and professionals that work with grandparents, raising grandchildren are reached with this program.

Success of these parenting programs is measured in many ways. Participants report increases in their knowledge of appropriate parenting models, and some report changes in the way they parent their children. Non-custodial fathers find they can play a role in their child's life and cooperate with the child's mother for the benefit of the child. Grandparents gain support networks of others dealing with raising children at an age when they thought that activity was over.

Financial issues can be one of the largest family stresses. Purdue Extension addresses family financial management with an array of programming addressing specific issues. Purdue Extension staff reported 2,727 days of work in the Financial Management area reaching 40,400 contacts in FY2000. The "Women's Financial Information Program", created by AARP, is

offered widely in counties across the state. This program addresses the issues of women facing financial issues for the first time due to divorce, disability, death or separation from their spouse. Successful WFIP classes have led to investment programs and a sense of independence and autonomy for women.

Limited resource families are a central focus of Extension Financial Management programming. Even in a strong economy, some families struggle to be economically sustainable. A 24-month cap on TANF benefits in the state of Indiana limits the cash contributions to needy families over and above the federal guidelines of five years. Families transitioning from welfare to work need assistance through education on how to budget, how to begin saving for the future and how to use their new income wisely. The Indiana programs, “Making Your Money Work” and “Money 2000 Plus”, reach low income Hoosiers with basic money management instruction. The goals of these programs are to provide families with the ability to live within a budget and to begin planning for the future that might include purchasing a home, a car and/or continuing education. Partnerships in reaching low income families are critical. Purdue Extension works directly with the State Division of Family and Children, the Jobs program, and the judicial system to reach at risk families.

Purdue Extension plays a role in the development of a stronger, well-qualified workforce. Programming in the area of “Work Readiness, Career Development and Life Skills” has reached 43, 290 in FY 2000. Purdue Extension staff report 1,345 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.

Purdue Extension is embarking on a new and exciting community outreach agenda. County-based learning networks are being started in key geographic locations across the state. The first and very successful learning network site is in Clinton county. In a relatively rural area with a strong base of manufacturing, staff in Clinton county are providing technology instruction to local industry staff, conversation Spanish classes for professionals, and serving as the site coordinators for electronic delivery of university for credit classes. Purdue University’s presence in Clinton county is as the provider of high quality instruction to a West Lafayette remote site to participants who would not obtain the instruction if they had to travel to the main campus.

Leadership training and development is essential as communities face rapid and complex changes. Leadership is a set of competencies that can be learned and enhanced. Through the many educational programs offered through extension, individuals gain the confidence, skills, knowledge and abilities 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 important community efforts. One county’s program is highlighted in the Key Themes section.

Communities are facing rapid changes. Leaders struggle for information, data analyses, and decision-making processes that assist them in making good public judgments. Extension programs, offered at both the state and county level, provide the knowledge and opportunities for elected officials and citizens to become more knowledgeable in resolving their public issues.

Programs are provided on issues such as taxation, education, growth and development, community visioning and consensus building, and economic development. One example is provided in the Key Themes section of a community coming together to develop a community learning center to address the needs of its adult population.

### **Resources:**

Approximately \$10,862,000 and 189 FTEs have been invested in this Goal. This is a best estimate and these are not presented as auditable numbers.

### **Key Themes**

#### **Key Theme – Children, Youth and Families at Risk**

“Project LEAD: Legal Education to Arrest Delinquency”

- a. *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.

- b. *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 attitudes of fifth graders. At the conclusion of Project LEAD, the average student score of the Scale increased by over twenty points in schools where LEAD is being taught. Teachers in the classrooms 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.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

#### **Key Theme – Children, Youth and Families At Risk**

“Communities Against Rape Educational Program (CARE)”



- a. *Description:* In 1998, 2000 rapes were 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 these crimes; and that Indiana is a safer, healthier state. In addition, the cost to victims and society is enormous 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 system costs average \$25,000 to \$100,000 per trial. 4) Prison costs per perpetrator average \$15,000 to \$20,000 annually.

In thirty counties 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 be able to hire program assistants and other resource people to assist in this educational endeavor. County coalitions have been formed around the issue.

- b. *Impact:* Attitude change is evident in a recent conviction on a marital rape case in a southern Indiana county. "Police and prosecutors receiving better training and the Sexual Assault Nurse Examiner program, along with the CARE program are hopefully changing attitudes and helping us more effectively prosecute these cases" states a local prosecutor. Hundreds of people throughout the state have directly received educational programming. Others have received information through written materials.

In a central Indiana 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 rapes reported. This happened during the same time period that presentations were made to over 4500 participants in both school settings and out of school settings. Survey data responses include statements such as, "Today I really understood the meaning of rape. Statistics are outrageous." and "I think every minute of this program was needed." In pre- post-data, the evaluator states, "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 of the ten questions showed statistically significant differences between the pre- and post-tests."

In another central Indiana county, a teen theater troupe was formed to perform interactive theater around the issues of rape, violence, alcohol and drug usage as well as controlling behavior. Drama plus education equals a powerful learning experience for teen performers and audiences. The troupe worked with more than 1000 youth. They laid the groundwork for a growing awareness of the attitudes and behaviors that

can lead to sexual assault and rape as well as factual information about date rape drugs, date rape and peer pressure. Written responses for post-test assessment of attendants had the following comments: "I didn't know if you were drunk, it was still rape." "I'm glad you went over rape issues. I am a rape victim." "This was very easy to relate to real life, especially college lifestyle. It gave me an idea to remember next year at college parties. Thanks."

- c. *Source of Funds:* State funds
- d. *Scope of Impact:* State Specific

### **Key Theme – Character Education**

“Character Education”

- a. *Description:* Character education is a foundation of the 4-H/Youth Development program. The issue has been identified by several counties as the number one concern of parents, schools and the faith-based community. Schools are faced with growing discipline problems; the number of students who need alternative school; number of students who are not responsible in areas of library book returns and homework assignments; and lack of respect for the property of others.
- b. *Impact:* A small central Indiana county with a population of only 18,000 coordinated through the Cooperative Extension Service a meeting of 18 community leaders who represented schools, local Department of Family and Children, library, probation, faith community, day care providers and youth group leaders. Through a collaborative effort, programming was instituted in schools including bulletin board reminders about the components of good character; in-class curriculum about character education; church bulletins focusing on character; children's sermons focused around the components of character education; pre-school programming. At the conclusion of the effort, schools reported 87.5% positive behavior change as evidence by positive behavior noted by bus drivers; students returning homework on time; students sending thank you notes to one another; students serving community through collecting "pop tabs" for a local restaurant; students using the words respect, caring, trustworthiness, responsibility, fairness and citizenship.

In another Indiana county, 12 weekly sessions in classrooms helped to focus the need for character education as it relates to reduction of violence and anger control.

- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

### **Key Theme – Parenting**

“P.L.A.Y. (Parents Learning About Youth)”

- a. *Description:* Child Abuse and neglect, teen pregnancies, school dropouts, alcohol and drugs, and violent crimes can be the result of a lack of positive parenting skills. Raising healthy, well-adjusted children is one of the most important jobs, but parents receive the least amount of training and education.
- b. *Outputs:* The CFS and 4-H Youth Extension Educator developed the P.L.A.Y. (Parents Learning About Youth) program with the circuit court judge, probation officer, OFC director, Step Ahead representative, mental health social workers, and school at-risk coordinator. A program consisting of four parenting workshops a month was established, with a different series every month. One series is for parents with young children, and one for parents with children 5 to pre-teen, and one for teenagers. The workshops include subject matter related to parent stress, communication skills, effective discipline techniques, parenting skills, development of the child, and building self-esteem. Also, a grand parenting session has been added for grandparents raising grandchildren. The workshops include many hands-on situations, question sessions, and homework which encourages the participant to practice the skills taught in the workshop. Participants are referred to the Extension Service by caseworkers, from OFC, courts, schools, and mental health social workers. The P.L.A.Y. workshops are offered at different times of the week throughout the month to help accommodate as many parents as possible.
- b. *Impact:* 500 parents have attended the educational parenting sessions. All respondents found the program to be helpful. Two comments: A participant stated that this is a great support group, now she knows that there are other parents out there with teenagers that are having similar problems. Another participant commented that this is a great program because it has brought out more awareness on sex and drug abuse in Martin County. Judge Joseph Howell said, "As judge I have observed firsthand the positive impact that P.L.A.Y. has had upon the community and parents generally. Parents, teachers, law enforcement officials, child welfare caseworkers, and concerned persons now have a ready source of information or a referral agency when a parent, child, grandparent, custodian, or care giver needs assistance. A combination of educational or informational sessions, regular newsletters, resource materials, and knowledgeable staff makes P.L.A.Y. invaluable. It truly is a model for any community needing to provide basic parenting and living skills for persons raising children in today's world." 82% of parents that attended were not court ordered to come. 90% of clientele followed through with court orders by attending the parenting classes. A Parenting 101 newsletter subscription rate increased by 10% in 1999-00year. The Parenting 101 newsletter reaches families that find it difficult to attend workshops offered by the Extension Service.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

“The Informed Parent Source (T.I.P.S.)”

- a. *Description:* During the Purdue Extension/Johnson County's Plan of Work meetings, community leaders voiced concern for families lacking parenting skills. As a member of the Johnson County Step Ahead Council, during the past decade, I realized there are many agencies, churches and non-profits offering parenting education; but those in need have difficulty finding these parenting resources. The real issue is communication of available resources in the parenting arena.
- b. *Outputs:* During the past year, the CFS Educator has had the opportunity to work with others interested in creating awareness for parenting resources in the Johnson County community. As a part of the Leadership Johnson County class, the CFS Extension Educator collaborated with community leaders from industry, ministry, academia, child care and juvenile corrections to identify parenting resources. A survey was developed and distributed to agencies, churches, and family counselors to identify resources available to Johnson County parents. News releases in the local paper were used to identify resources. The survey resulted in over 30 community resources being identified in the parenting arena. Resources were identified for a variety of family situations and audiences, from the expectant parent to the parent of adolescence to the divorced parent.

*Impact:* A brochure and web site has been developed called T.I.P.S., The Informed Parent Source. The brochure, T.I.P.S., identifies parenting education resources for the general public, for expectant parents to parents of children age 5 and for parents in special parenting situations. More details on each program are available on the web site <http://www.franklincollege.edu/pr/> including program topics, duration, target audience, cost, financial assistance and contact. Over 2000 T.I.P.S. brochures were distributed to all agencies, churches and family counselors initially contacted as well as, school guidance counselors, family physicians; juvenile, family and adult courts; and family/child oriented agencies. The Johnson County Court System, United Way Information Line and Purdue Extension Service have found this tool very valuable to access resources for clientele.

- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

#### “Grandparents Raising Grandchildren”

- a. *Description:* Although grandchildren living in their grandparents' home is not a new phenomenon, the number and percentage of these children increased substantially from 1980-1990, from 3.6% of all children or 2.3 million to 4.9% or 3.2 million children. Throughout the decade of the nineties, the number and percentage continued to increase although not as dramatically, to 6% or 4 million children. Although grandparents report satisfaction from their caregiving role, they face major challenges in multiple areas of their lives. Professionals who work with these families

recognized that they needed information, skills, and resources and other kinds of support to better serve this population.

- b. *Outputs:* In 1999, the videoconference Grandparents Raising Grandchildren: Implications for Professionals and Agencies was broadcast to 234 sites with over 3500 in attendance. In Indiana, Extension was responsible for state coordination and hosted or co-hosted 10 sites, with 87 participants.

*Impact:* A follow-up evaluation was developed for site facilitators to complete on the world-wide web almost one year after the videoconference. Forty-two site facilitators indicated that new agencies had joined an existing group, such as a task force or coalition, and 28 (67%) reported that these new members were a result of the videoconference. In addition, 108 responses indicated that new groups were forming and existing groups beginning or expanding activities regarding grandparents raising grandchildren. Sixty-six (61%) of the respondents attributed the increase to the influence of the videoconference.

- c. *Source of Federal Funds:* AARP , Smith-Lever

- d. *Scope of Impact:* National  
Multi-state -- WI

#### “Grandparents Receive Support in Their Parenting Efforts”

- a. *Description:* Nationally one in ten grandparents assume the primary support and care of a grandchild at sometime in their lives. At the present time six percent of all children live in a household headed by a grandparent. Locally, in Perry and Spencer Counties, at least 20 children are living with a grandparent. These grandparents face a wide range of challenges, such as legal issues concerning custody and guardianship, financial responsibilities on limited incomes, and extreme emotional involvement.
- b. *Outputs:* As a result of being involved in the Steering Committee for the Relatives as Parents Program through the Indiana Family and Social Services Administration, Extension partnered with a local agency to apply for grant money to form a support group for grandparents raising their grandchildren. The agency and Extension were awarded one of the three \$1000.00 grants given across the state. The initial support group meeting was planned and presented with a panel of community agencies and groups participating. Regular meetings have been held on a monthly basis. The Junior Leader Organization in Perry County provides child care services and learning activities for the children whose grandparents attend the support group.
- c. *Impact:* Five to eight grandparents attend the meetings each month. All the participants report that they are grateful to have to have the opportunity to share with others in similar situations and gain information that will help them in parenting their grandchildren and improve their lives. As a result of the meetings one grandparent has gained the courage to terminate her daughter’s parental rights and initiate legal

custody of her grandchildren; another grandparent has begun to initiate adoption proceedings; one set of grandparents learned about the Head Start program and have enrolled their grandson because they had concerns about his social development; they also learned about a weatherization program and are now on the list to have their home weatherized which will lower their utility costs. As a result of collaborating with a local family support agency and FSSA, grandparents in Perry and Spencer Counties now have support in their efforts to parent their grandchildren. Monthly support group meetings have helped grandparents initiate custody/adoption proceedings, enroll a grandchild in Head Start, and lower household utility costs. One hundred percent of the participants report the information they have received has been useful in their parenting efforts and are grateful for the opportunity to share with others.

- c. *Source of Federal Funds:* Indiana Family and Social Services Administration , Smith-Lever
- d. *Scope of Impact:* State Specific

“It’s My Child Too”

- a. *Description:* Teen males and their partners are responsible for more than 1 million unplanned births annually. According to the National Center for Health Statistics, the percent of births to unmarried women in the United States was approximately 32% in 1997-98; 12.8% of births were to teen mothers. Public policy changes call for states to increase paternity establishment and child support collection in an effort to support custodial parents and children. Promoting responsible fatherhood has been a key issue for the Clinton/Gore Administration with \$255 million proposed to help low-income non-custodial parents and working families support their children. These efforts help state and local agencies reach out to fathers and make a difference in the lives of children and families.
- b. *Outputs:* It's My Child Too is a research-based parent education program for young fathers in need of parenting knowledge and skills associated with competent parenting. The program consists of 15 highly interactive sessions. Educators and fathers choose six to ten sessions to best meet the parenting needs of fathers in the group. On-going technical assistance and evaluation is provided through the Center for Families at Purdue. Building community collaborations and networks of support is emphasized to promote supportive father and family communities across Indiana and beyond.

*Impact:* Seven regional trainings have been offered across Indiana. Sixty county teams have completed training to implement the It’s My Child Too program. One hundred and eighty educators and professionals have completed It’s My Child Too training. Twenty-four counties have provided the It’s My Child Too program to at least one group of young dads. More than 200 fathers have attended an It’s My Child Too program. Fathers who complete the program report that they gained parenting

knowledge and skills, feel more confident in their parenting roles, and recognize the importance of positive co-parenting relationships. Since November 1997, It's My Child Too has been purchased by over 50 organizations in twenty-two states. The It's My Child Too program is the proud recipient of the 1999 United States Department of Agriculture Secretary Honor's Award for an outstanding Extension program.

- c. *Source of Federal Funds:* Indiana Family and Social Services Administration, The Indianapolis Foundation, The Indiana Parent Information Network, Smith-Lever
- d. *Scope of Impact:* National

#### "It's My Child Too"

- a. *Description:* Senate Resolution 322, June 13, 2000, includes the following information: 40% of children who live in households without a father have not seen their father in at least 1 year, and 50% of those have never visited their father's home. 50% of all children born in the USA spend at least ½ of their childhood in a family without a father figure. Children who are apart from their biological father, in comparison to other children are: five times more likely to live in poverty, and more likely to bring weapons and drugs into classrooms, commit crime; drop out of school; be abused; commit suicide; abuse alcohol or drugs, and become pregnant as teenagers. These issues are true nationally, and in Clark and the surrounding counties of Southern Indiana. In 1995 there were 92 CHINS cases filed in Clark County. 1990 statistics revealed 2,711 single mother households, and 4,629 people living in one-parent families.
- b. *Outputs:* During the Fall of 1996, when then Governor Byah began the Restoring Fatherhood Grant, Purdue Extension Educator in Consumer and Family Science in Clark County wrote a grant proposal to hire a Program Educator. This person was to coordinate the establishment and teaching of the It's My Child Too curriculum produced by Purdue University, to young, non-custodial fathers. The education program, funded by grant monies, was to be offered in a variety of settings, including high schools, at no cost to the attendees. A Program Educator was hired in May 1997.

*Impact:* The Program has been taught in Clark and surrounding counties for the past three years with the following information reported: 21 sessions of IMCT were completed 107 individuals began the sessions 89 individuals completed the sessions with certificates awarded. Also reported were the following results: 13 fathers were permitted visitation, 2 fathers retained custody of their children (5 children), 4 fathers were granted custody of their children; thereby removing them from foster care (these children were not taken directly by the fathers from the mothers). Foster Care costs savings can only be approximately projected to be \$14,184 for a six-month period for those four children. One father married the mother of his child (the process began after the unit on communications with the mother), one father was granted visitation, and one father began the arduous task of recovering his daughter who had already been brought into foster care. Another father who was denied his paternity, began the

process of recovering his daughter from foster care while that adoption was in process. The grant now has been expanded to include teaching the PREPâ (Prevention and Relationship Enhancement Program) from Denver University, as a marriage education course.

- c. *Source of Federal Funds:* Governor's Restoring Fatherhood Grant funded this program, Smith-Lever
- d. *Scope of Impact:* State Specific

## **Key Theme – Family Resource Management**

### “Women's Financial Information Program”

- a. *Description:* Many women are discovering that they face different challenges than their mothers did when it comes to preparing for their later years. Women must think in terms of providing for themselves in their later years. Women typically live six years longer than men do. Seventy percent of baby-boom women are expected to out live their husbands. Many can expect to be widows for 15 to 20 years. Nearly a third of single women over age 75 are living in poverty, having less than \$700 a month to live on. A recent survey revealed that only 40% of women believe that saving and investing is the most effective strategy for wealth building. Women must learn the ins and outs of money management including investing and preparing for long-term independence.
- b. *Outputs:* Purdue Extension offers the Women's Financial Information Program to increase participant's financial knowledge and confidence in their financial decision-making skills. This seven-week series uses expert speakers and small group discussions led by volunteer facilitators to address topics related to personal finance. Sessions cover setting goals, record keeping, managing credit, managing risk, investing, planning for retirement, and preparing for being alone. Participants receive a workbook and supplemental materials. Extension educators work with community coalitions that include volunteers from non-financial groups in the community to implement the program. This program was offered in 4 Indiana counties in Fall 1999 and 9 counties in Spring 2000. There were 220 participants.

*Impact:* Pre-and post-assessments were conducted to learn what participants had done as a result of participating in this program. Sixty-six percent of the participants reported they set goals during the program. Thirty-six percent said they began or increased regular savings. Fifty-three percent said they discussed financial matters with other family members. Thirty-nine percent said they determined retirement income needs and how to meet them while 40% indicated they planned to do that in the future. Participants also described their feelings about their confidence in managing money before and after the program. Before the program, 53% agreed or strongly agreed that they were confident about managing money. After the program,



87% agreed or strongly agreed that they were confident about managing money. Before the program, 44% said they agreed or strongly agreed that they had the knowledge, skill, and ability to affect their financial position in a positive manner. After the program, 92% agreed or strongly agreed that they had the knowledge, skill and ability to affect their financial position in a positive manner. Comments from participants include "Because of this class, I have become aware of what needs to be done to get my affairs in order. Not only has it helped me-it helped my children." "I have reviewed my husband's and my will and made changes as necessary. He is so pleased at my progress! I feel as if I could manage if something were to happen to him." "I think this course was the first step in taking control of my life. Certain concerns that I had were brought to light and now I am actually doing something about them. This weekend I reviewed my financial situation and determined that I am living beyond my means. I realized that I do not want to change my lifestyle. Therefore, I must increase my income, tighten up my budget, save and invest more. Today I went to my boss; I told her I felt as though I am an asset to the company and that I wanted a raise!" "This program did provide the catalyst to improve my organization of material. It also stressed the importance of being very detailed in organizing the material for the executor. When done, I expect a peace of mind about our financial future."

- c. *Source of Federal Funds:* American Association of Retired Persons , Smith-Lever
- d. *Scope of Impact:* State Specific

“Improving Debt Repayment through Money Management Course “

- a. *Description:* Poor management of personal finances has caused individuals and families to fall behind on rent and utility payments. One housing development corporation was concerned about the lack of financial knowledge of it's tenants. They had reported an increase in delinquent rent payments.
- b. *Outputs:* A group of 14 clients from the Housing Development Corporation in St. Joseph County met once a month for six months to learn more about money management. Using the curriculum Making Your Money Work, the group spent time each month tracking expenses, and determining the next month's expenses. Other topics covered included goal setting, understanding credit, being a wise shopper, saving for the future and record keeping. Because the group was together for six months, it was much easier to measure behavior change and observe an increase in their knowledge of making sound financial decisions.

*Impact:* As a result of their participation, 70% of the individuals reported an increase in the amount of money set aside for future wants and needs. 60% have developed and use a spending plan for their monthly expenditures. 50% have improved on paying bills on time, and 50% have a better understanding on the cost of buying on credit. As a result of gaining a better understanding of making financial decisions, the

- participants have improved on paying their monthly rent on time.
- c. *Source of Federal Funds:* Smith-Lever
  - d. *Scope of Impact:* State Specific
- “MONEY 2000plu\$ “
- a. *Description:* The need for enhanced financial management skills is evident in today's world. Indiana residents are saving only 2.6% of their income. Fewer than 40% of American credit card holders pay the entire balance they owe each month. In the last ten years bankruptcy rates have doubled in Indiana.
  - b. *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 receive a bi-monthly newsletter, record keeping materials and the option of running PowerPay. They learn 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. This is the first year of a four year program that runs through 2002.
- Impact:* 67 counties participate in MONEY 2000plu\$ with 35 of the counties reporting data. There are 230 subscribers in Indiana reporting the following:
- The amount of cumulative increased savings for the first year - \$174,078.
  - The amount of cumulative decreased debt for the first year - \$136,593.
  - With \$310,671 of total impact (19 counties contributed to this total).
- c. *Source of Federal Funds:* Smith-Lever
  - d. *Scope of Impact:* State Specific

### **Key Theme – Workforce Preparation – Youth and Adult**

“Clinton County Workforce Development Committee”

- a. *Description:* The Clinton County Workforce Development Committee identified changing educational needs for workforce development, lifelong education and higher education. Educational needs identified included computer literacy, skills for coping with rapidly increasing diversity and opportunities for higher education at a time and place convenient for the non-traditional student. New technology, student services and expansion of educational opportunities is making it possible for Clinton county to compete in the new economy with a highly educated and skilled workforce as opposed to a low wage workforce.

- b. *Outputs:* The Learning Network has built an infrastructure for a system that will enable participants to work toward progressive professional and personal development. This system allows adults to access a variety of educational and training opportunities at multiple levels including personal development, certificates of technical achievement, continuing education units, associate degree programs or a bachelor/master degree. This initiative includes providing both staff and technology to not only teach and train workers for a more technically sound workforce, but also to make available educational opportunities for teachers, volunteers, social service workers and community members through the use of technology and related innovations.

*Impact:* Under the supervision of the Extension Educator as the acting coordinator a planning group was convened to develop the idea, conduct a needs assessment, give presentations to widely attended meetings, and sponsor a large community event, the Job and Education Fest. Through these efforts and a well-informed media, the Learning Network of Clinton County was presented to the community. A Learning Network board was then established that has a broad based community representation. This board has continued to assess the community's assets, and needs. They have developed a strategic plan and vision for the Learning Network. They have worked together to gain a common understanding about what is wanted, needed and possible for Clinton County. A 21st century grant from Purdue University Extension provided the Learning Network with sixteen laptop computers that will outfit a mobile computer lab which will facilitate a "teach anywhere, anytime" concept. Also, provided in the grant was a t-1 line, an Indiana Higher Education Telecommunication System (IHETS) receiver and an audio/video two way unit, all of which enables the Learning Network to deliver distance education available from colleges and universities all over the state. Since the first class in March through October of 2000, 114 people have had 16 hours of Spanish instruction, 8 people have had English as a Second Language, and 230 have participated in a series of computer trainings. We have also enrolled our first distance education graduate student. The Learning Network has been described by the president of the Clinton County Chamber of Commerce as "the most exciting thing happening in the Clinton County today."

- c. *Source of Federal Funds:* Clinton County Foundation, Clinton County Partners in Progress, Clinton County Economic Development as well as several corporate and private donations Smith-Lever
- d. *Scope of Impact:* State Specific

## **Key Theme – Leadership Training and Development**

“Leadership Training and Development”

- a. *Description:* Numerous opportunities for leadership exist in most communities yet there is increasing difficulty in identification and recruitment of individuals to serve in

leadership positions. Many are hesitant because they do not feel confident in their organization and people skills. Purdue Extension offers several educational programs geared to enhancing the skills, knowledge and abilities of local people to better serve their communities. One of these programs is the community leadership development program. This program is designed to increase knowledge of the county, enhance personal and organizational leadership skills, and motivate to serve, thus expanding the leadership pool. Educational programs include personal assessments, public speaking and other communication skills, group dynamics, teamwork, collaboration, developing a vision, and information about the community and its issues.

- b. *Impact:* In one rural county, forty-six men and women completed the program in its first three years. As a result they have completed group projects such as a brochure that lists vocational education opportunities, a “Kids Book of Stuff” listing activities for kids, a parent education video, a model housing development plan, and sourcebook for homebuyers. Graduates of the program have moved into leadership positions on the library board, Council for a Drug-Free Community, sorority area convention chair, Junior Achievement Board, National Day of Prayer coordinator, Healthy Families county board, Step Ahead family preservation and support chair, and domestic violence program board. One graduate said her involvement has expanded to statewide committees and advisory boards. Alumni of the program report that they use their knowledge and skills gained in the program in their work, that they recognize problems before they develop, and know how to organize teamwork, access resources, network and maximize people’s strengths.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

## **Key Theme – Community Development**

### “Community Development”

- a. *Description:* Communities are facing rapid changes. Purdue extension has responded to many community issues including taxation, education, growth issues, and economic development. One example of how extension has been involved in community development takes place in a rural, southern Indiana county that offers few opportunities for its residents to obtain any formal training after high school.. There is no organized effort to provide post-secondary training for job skills enhancement or retraining to meet area employers’ needs. Purdue Extension worked with local leaders and officials to help fill this void. Three years ago, a group of people came together, led by a county councilman, to explore the possibilities for a vocational school that would offer training to high school dropouts and graduates that needed to retrain or refine their job skills. Funds were secured to conduct a survey to identify community needs. Educational programs were offered by extension regarding what a community learning center could do – what programs and services could be offered. A plan for a community learning center was developed and presented to the

local county decision makers.

- b. *Impact:* As a result of the initial committee's plan, the County Commissioners formed an official post-secondary education committee consisting of representatives from the 4 local school corporations, the county council, a county commissioner, and other key leaders in the community. The committee was charged with the responsibility of establishing a new community learning center. The county was designated as a site to receive new distance learning equipment from a state-wide initiative. This year, the County Council appropriated \$109,000 to hire a program coordinator and establish the learning center. A new educational corporation is now being formed to receive and manage the newly appropriated funds.
- c. *Source of Federal Funds:* Smith-Lever
- d. *Scope of Impact:* State Specific

## **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 Board, 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 discussion 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. The format of the Conference is to provide an opportunity for obtaining input in a facilitated and structured manner. During the 1999 and 2000 Conferences, topics discussed included: New Enterprise Development, Economic Development and Land Use, Genetically Modified Organisms and International Trade, Lifelong Education, Exploring the New Science of Genomics, the Changing Structure of Agriculture, Leadership, Environmental Stewardship and Quality of Life, and Distance Learning Technology. Many of these related to the 16 issues included in the Statewide Plan of Work.

Presenters from outside Purdue lead discussions in each topic area. Then the participants, in facilitated table-top groups, discussed the topic and the roles that research and education might have in addressing their concerns and needs. Reporters at each table recorded the discussion. A composite set of notes was developed and shared with staff associated with research and extension.

Input from these discussions is being utilized in the development of proposals seeking internal and external funds. In early 2000, input from these processes guided the allocation of nearly \$1.5 million of internal funding to projects that were related to the 16 issues in the statewide Plan of Work. In addition, the issues prioritized in the Plan of Work are used in decisions regarding staffing at the campus level of Extension.

These processes have provided a continued opportunity for input by citizens into the identification and prioritization of the issues concerning them. Organized input from citizens is a key to research and extension being able to address the needs of citizens in a timely and relevant manner.

### **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 two 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 two years, Purdue Extension has become much less tradition bound and more capable of reaching audiences in a variety of high touch and high technology manners.

The process of program evaluation is being improved through the on-going adoption of the LOGIC evaluation model. Extension staff associated with the 16 Plan of Work Oversight Issue teams have completed several days of staff development regarding the utilization of this tool. Plans are underway for all Extension (and research and teaching) staff to be prepared 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 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. Increased emphasis is being placed on human health by developing a position for a campus specialist that will be jointly funded by the Schools of Consumer and Family Science, and Agriculture.

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.

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.

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. Effective programming is being identified and directed through a Hispanic Task Force and a Diversity Task Force within Extension.

## **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:  **Multistate Extension Activities**  
 **Integrated Activities (Hatch Act Funds)**  
 **Integrated Activities (Smith-Lever Act Funds)**

Title of Planned Program/Activity	Actual Expenditures			
	FY2000	FY2001	FY2002	FY2003
Manure Mgmt Planner	13,931			
Pork Industry Handbook	6,790			
Nat'l Swine Registry STAGES Prog	6,884			
IN-IL Turfgrass Short Course	10,569			
Volunteer Garden Research	11,563			
Midwest Veg Prod Guide for Comm Growers	13,959			
Comm Tree Fruit Spray Guide	4,928			
Biological Control of Purple Loosestrife by 4H Volunteers	8,349			
Midwest Plan Service	3,966			
Nat'l 4H Comm ATV Safety Design Team	7,261			
Farm Income Tax School	15,358			
<b>Total</b>	<b>103,558</b>			

David C. Petritz      February 28, 2001  
 Director

Form CSREES-REPT (2/00)

## MULTISTATE EXTENSION ACTIVITIES BRIEF SUMMARIES

### “Manure Management Planner”

Manure Management Planner (MMP) is a Windows-based computer program developed at Purdue University that is used to create manure management plans for crop and animal feeding operations. The user enters information about the operation's fields, crops, storage, animals, and application equipment. MMP helps the user allocate manure (where, when and how much) on a monthly basis for the length of the plan (1-10 years). This allocation process helps determine if the current operation has sufficient crop acreage, seasonal land availability, manure storage

capacity, and application equipment to manage the manure produced in an environmentally responsible manner. MMP is also useful for identifying changes that may be needed for a non-sustainable operation to become sustainable, and determine what changes may be needed to keep an operation sustainable if the operation expands.

MMP currently supports 13 states (IN, IL, IA, KS, MI, MN, MO, NE, ND, OH, PA, SD and WI) and generates fertilizer recommendations based on each state's Extension crop nutrient guidelines. MMP uses manure nitrogen content, time and method of application, soil properties, and long-term weather data to estimate the amount of manure nitrogen available for crop uptake. MMP currently uses information from the USDA/NRCS Map Unit Interpretation Record (MUIR) soil database as part of the manure spreading priority setting scheme throughout the plan period.

### **"Pork Industry Handbook"**

The "Pork Industry Handbook" is updated/revised continuously to keep producers and agricultural personnel updated on the best management practices for swine production and swine farm management strategies that include handling and utilization of animal waste.

In keeping the Handbook current, there were 11 fact sheets published during the last year. Of the 22 authors/coauthors, 18 (82%) were from 8 states excluding Indiana. There were 28 reviewers of which 23 (again, 82%) were from 14 states besides Indiana. Of the video/animations added to the CD-ROM, 67% were contributed by 3 other states.

### **"National Swine Registry STAGES Programs"**

The STAGES genetic evaluation programs have been developed and made operational on the National Swine Records (NCR, West Lafayette, IN). Performance records from purebred producers from the United States are analyzed and expected progeny deviations (EPD's) calculated. Technical support has been provided in the data analysis, summarization of results, calculation of indexes, development of STAGES website and development of educational materials. From the STAGES website, users can find the EPD's for the highest indexing sires and dams and young pigs off-test. Pigs with specified birth dates and EPD or indexes values can be identified. Quarterly National Sire Evaluations are published.

There is participation in a five-member STAGES genetic advisory committee and coordinated with Michigan State University, a national cooperative sire-sampling program. This has resulted in the very highest boars being quickly used in multiple herds. Assistance was provided in the planning of a day long "STAGES Roundtable" in which program enhancements and new research results are discussed. In the past year, a STAGES Maternal Futurity was initiated as part of the World Pork Expo. This year the highest indexing Landrace and Yorkshire boars born in a two month period will be displayed at the World Pork Expo and five boars selected per breed will be sampled via artificial insemination.

The end-result is that substantial genetic progress has been realized by the purebred herds participating in the STAGES program. Currently, the additional calculations of pork quality traits and EPD's are being discussed.

### **“Indiana-Illinois Turfgrass Short Course”**

The objective of this week-long course is to provide instruction in fundamental turfgrass science principles to turfgrass professionals, many who have little formal training. The emphasis of the short course is to provide information for understanding turfgrass growth and management principles, thereby enabling them to manage turfgrass systems more effectively while minimizing inputs. This course is coordinated by Purdue University and the University of Illinois. Seven specialists from the two universities participate in this course, producing a text book, quizzes, and other training materials on an annual basis. The course has been well-received by the turfgrass industries of Indiana and Illinois operating at near capacity (50 participants) since initiation. Participants from as far away as California have enrolled in the course.

Attendance and Impact of Indiana-Illinois Turfgrass Short Course:

- Attendance (1997-2000): 198 (50 avg.)
- 98% of respondents “felt better equipped to do their job more effectively and efficiently”.
- 95% of respondents “felt better able to manage turf in a more environmentally friendly manner”.
- 72% of respondents “felt that they would be able to save their company or organization money”.

### **“Volunteer Garden Research”**

Integrated Pest Management in Home Gardens

Home gardens receive more pesticides per acre than many crops. With do-it-yourself gardeners in 67% of all households, the indiscriminant application and disposal of pesticides by untrained homeowners pose substantial risks to the environment and public health. Despite interest in using non-chemical alternatives to pesticides, home gardeners have relatively few options that have been proven cost effective.

In Indiana and Illinois, 200 Master Gardeners were trained between 1998 and 2000 in pesticide alternatives and experimental methods. Of these gardeners, 90 (45%) conducted a series of 4 experiments in their home gardens. Surveys were completed for pest management practices before and after each workshop, and up to 3 years after the first workshop was conducted.

The percentage of gardeners who did not use insecticides increased from 15% before training workshops to 42% after training. Likewise, the percentage of gardeners who "usually" or "always" relied on conventional insecticides dropped from 42% before training to 10% after training. More importantly, once adopted, these changes in pesticide use persisted for at least 3 seasons after the initial training. Fifty-one percent of gardeners trained in the spring of 1998 continued to refrain from using insecticides as their primary management tool in their 2000 home garden.

This program greatly increased the proportion of garden researcher using biological control (to 70%), but failed to increase rates of adoption among non-researchers

Two years of funding (NCS-3 IPM) was just received to expand this program regionally and to cover alternatives beyond biological control in the home garden.

### **“Midwest Vegetable Production Guide for Commercial Growers”**

Extension vegetable specialists in the Midwest are required to make recommendations regarding a number of different vegetables due to the diversity of crops grown in the region. Since it is difficult to remain current on all of the crops, it was decided that pooling efforts by specialists from neighboring states would allow higher quality recommendations for growers. Initially, Purdue University’s efforts were combined with the University of Illinois, but were later joined by Iowa State University, the University of Missouri (and Lincoln University), and the University of Minnesota. Now, the specialists from all five states work together to produce the “Midwest Vegetable Production Guide for Commercial Growers.” In 2000, there were 2,500 copies of the guide printed and distributed to growers, extension personnel, and industry representatives throughout the Midwest.

### **"Commercial Tree Fruit Spray Guide"**

The "Commercial Tree Fruit Spray Guide" is a cooperative effort of extension specialists from Indiana, Illinois, Iowa, Kansas, Kentucky, Missouri, Ohio and Wisconsin. The spray guide is extensively revised and updated yearly as new products enter the market while others are withdrawn. Additionally, regulations concerning the use of products change, and these changes must be incorporated into the guide. Over the past year, the section on growth regulators has been rewritten and expanded. Virtually every commercial producer of tree fruits in the eight cooperating states uses the “Commercial Tree Fruit Spray Guide” as their primary source of reference for pesticide and spray recommendations.

### **“Biological Control of Purple Loosetrife by 4-H Volunteers”**

Curriculum for high school aged 4-Hers has been developed. Workshops to introduce 4-H leaders to the curriculum and the project were held in Illinois and Indiana in 2000. The curriculum was pilot-tested in Illinois, Minnesota, and Indiana. The curriculum is currently undergoing revisions based on feedback from 4-H leaders, youth, and technical experts.

Through this project, 4-H youth learned about exotic species issues and the problems of purple loosetrife, while actually working to solve the purple loosetrife problem through biocontrol. The concepts also will be presented to high school students; the curriculum is being used by the LaGrange County (IN) Purdue Extension Educator in Vocational Agriculture classes within the county. Eight 4-H Leaders have been involved this project with their youth during the first year. In Indiana, 49 youth were involved in the project and approximately 6,400 beetles were released at 10 sites (no data yet available from the other states).

The media has been quite interested in this project. A news release in March, 2000 by Purdue's Agricultural Communications generated a radio spot on WASK with Jim Shank (aired 3/27/00), a noon interview on Channel 18 Television - Live at Noon (West Lafayette; aired 3/28/00), and articles that appeared in the Lafayette Journal and Courier (4/23/00), the Indiana Agrinews (3/24/00), and Purdue's Agriculture Magazine (Summer, 2000). Other media coverage included articles in the Kendallville News-Sun (7/9/00) and LaGrange Standard (6/28/00).

### **“Midwest Plan Service”**

In 2000, Midwest Plan Service activity has revised MWPS-18, the handbook that deals with animal waste handling, storage, treatment and land application. This book has been extensively rewritten and has been broken down into four smaller less-expensive handbooks. The intent was to make the specific type of information available to producers while making the entire series available as a package to students and consultants. The first of the series, "Manure Characteristics" was published with the rest in various stages of completion. MWPS has been heavily involved with the National Curriculum, helping the University of Nebraska with coordination and have provided editing of all of the curriculum chapters. This has provided a great deal of new information that is being incorporated into the MWPS-18 series as appropriate. MWPS is also involved with a project that will be funded by the National Center for Animal Waste Management to develop a model national certification program. This effort, involving nine Land Grant universities (ISU, OKSU, UDE, Purdue, NCSU, UMN, TX A&M, MSU and UGA), will be edited by MWPS staff and in return, MWPS will provide an outlet for the printed material produced.

### **“National 4-H Community ATV Safety Design Team”**

The National 4-H Community ATV Safety Design Team was selected by National 4-H to focus attention on the 4-H ATV safety program and to devise a plan for moving the program forward.

Numerous ideas were discussed concerning ways to revitalize the struggling national 4-H ATV safety program. As a result, following items/actions have been taken:

- Development of an ATV safety coloring/activity book.
- Development of a 4-H ATV safety website. The website can be viewed at <http://www.atv-youth.org>.
- Conducted two regional ATV training conferences in 2000 with three more being planned in 2001.
- Developed an interactive online learning activity for youth. The activity may be viewed at <http://www.four-h.purdue.edu/4H/youth/atv.html>.

### **“Farm Income Tax School”**

Under the leadership of the University of Illinois and the University of Wisconsin, 40 states present educational programs for tax professionals. The educational materials, a 700-page book which is revised annually, is developed through collaborative efforts of Extension, IRS, and other professionals involved in teaching in various states. The book is used for teaching, but is also intended as a reference throughout the year.

Programs and materials presented in the previous year, together with tax changes, are reviewed as an initial step in developing the next year's book. As part of the long-run education of tax professionals, some chapters which review basics of tax law are used one year and then replaced by another basic topic. Other chapters cover new legislation and filing procedures. Other chapters focus on typical problems encountered by tax professional and how they can be handled.

In Indiana, 11 two-day programs have an enrollment of about 1150 tax professionals. These individuals prepare about 40,000 Schedule F returns for farmers and nearly one-quarter million non-farm federal returns. One measure of effectiveness of the program is that over 80% of enrollees have attended previous programs and nearly half do not attend any other tax update program. Nearly half have attended for ten years or more.

**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)**

Title of Planned Program/Activity	Actual Expenditures			
	FY2000	FY2001	FY2002	FY2003
<u>Greater Harmony Between Agriculture and the Environment</u>	<u>23,818</u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>Greater Harmony Between Agriculture and the Environment</u>	<u>7,456</u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>Animal Disease, Health and Well-Being</u>	<u>10,149</u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>Animal Disease, Health and Well-Being</u>	<u>16,776</u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>Animal Disease, Health and Well-Being</u>	<u>16,362</u>	<u>          </u>	<u>          </u>	<u>          </u>

Enhanced Economic Opportunity and Quality of Life for Americans	28,997			
<b>Total</b>	<b>103,558</b>			

**David C. Petritz**  
**Director**

**February 28, 2000**

**Form CSREES-REPT (2/00)**

**INTEGRATED RESEARCH AND EXTENSION ACTIVITIES BRIEF SUMMARIES**

**Greater Harmony Between Agriculture and the Environment**

Hypoxia has been identified in a significant area in the Gulf of Mexico. Assessments have projected that a potential cause of this situation involves agricultural practices in the Midwest. The study identified the relative costs and cost-effectiveness of different measures for reducing nitrogen loads to achieve benefits within the Mississippi River Basin. The scenarios considered in assessing options included fertilizer restrictions, land use, wetland-restoration, buffers, etc.

Purdue faculty undertook follow-up work on the assessment of hypoxia in the Gulf of Mexico. This involved analysis for policy makers on costs and likely impacts from efforts to reduce nitrogen flows to the Gulf of Mexico. Current activity includes the design of policies that might be applied to reduce nitrogen losses. Work was initiated on identify and assess potential options to minimize the impact in the gulf, including green payments and other environmental programs that might be part of the coming farm bill legislation.

The formation of policies by responsible parties to try to ameliorate nitrogen flows to the Gulf of Mexico has used the economic analysis in the economic assessment report and subsequent analysis of program costs and impacts.

**Greater Harmony Between Agriculture and the Environment**

Many Indiana soils are wet. About 45% of the soils are wet enough that crops respond to artificial drainage. The most productive soils of the state are naturally wet, and many have been tile drained. Also, wetlands need to be preserved to recharge aquifers, purify water, provide wildlife habitat, and offer recreation. To understand how soils function as wetlands and how they respond to different kinds of drainage systems, we need to know more about how the water table fluctuates in soils, how water moves through soil profiles and soil landscapes, how

saturated soils cause chemical reduction in soils, and how reduction processes are recorded in soil morphology.

One of the study areas is in the Jasper Pulaski Fish and Wildlife Area, where well drained sand dunes rise above a wet sand plain. Measurements included table depths, oxidation-reduction potential, and soil temperature at 15 sites that represent the range in soil hydrology. Surveys were conducted using ground-penetrating radar to extrapolate information from these 15 sites to entire landscapes. This study identified the annual progression of water table depth (WT) under the low-lying sand plain and the dunes that rise above it. In September-November, the WT is at its annual low, is flat, and thus is much deeper under the dune than under the sand plain. In December-February, the soil begins to wet up. It takes more water to saturate the soil under the dune than under the sand plain because of the difference in depth to the WT, so the WT rises faster under the sand plain. Because of this gradient, subsurface water flows from sand plain to dune. In March-May, the WT under the sand plain rises to the soil surface, but not higher because of surface runoff. Under the dune, however, it continues to rise, again becomes flat, and mounds under the dune. In June-August, tree roots lower the WT under the sand plain. Under the dune, however, the WT is below rooting depth so plant water uptake lowers the WT very little. Subsurface flow is from dune to sand plain.

The results of the study increased the understanding of processes in natural wetlands and also help predict how potential agricultural contaminants will behave in wet soils. These research sites are being used to train wetland investigators who will identify wetlands in all part of the U.S.

The information from this project is also used by land planners. Another outgrowth has been the development of a manual for broad use in education, for example, 4-H, classroom, and adult education outreach. Students can consider and project the impact of different scenarios, such as preservation of a wetland, draining for ag production, draining for housing development, etc.

### **Animal Disease, Health and Well-Being**

Researchers discovered that conjugated linoleic acid (CLA) can alter the deposition and usage of other fatty acids in layers, chicks, pigs and rats. Rats were used to test how CLA may work in humans consuming CLA enriched animal products. The addition of 0.5% CLA directly to a control diet containing 15% pork fat decreased feed intake and growth of rats when compared to those fed either the control diet or a diet containing 15% of CLA-enriched port fat from pigs that had received a diet containing 0.5% CLA. When fed to rats, both CLA diets (direct CLA addition or via CLA-enriched pork fat) decreased the protein content of very low-density lipoproteins (VLDL) particles. However, the direct CLA addition also increased the triglyceride content of VLDL particles. CLA was shown to alter the composition of VLDL particles, the primary carriers of triglycerides. This is of significant importance, since CLDL particles are now being implicated to play a much bigger role than expected in coronary heart disease. This study clearly illustrates that CLA affects VLDL protein and triglyceride content. This data from rat studies raises the question about the potential beneficial effects of dietary CLA in humans.



This information is made available to the food industry. There is the potential to have an impact on how food is processed and prepared, thus impacting a primary health issue – coronary heart disease.

### **Animal Disease, Health and Well-Being**

The public perceives milk to be a wholesome and healthful commodity. As consumers become increasingly aware of issues related to food quality and food safety, the dairy industry is stepping up its efforts to provide milk of even greater quality to maintain the public's confidence. Mastitis (inflammation of the udder) remains the most costly disease of dairy cattle, and it costs the Indiana dairy industry upwards of \$27 million per year. The problem was addressed in several ways. Detection methods were evaluated for the identification of short and long mastitis episode duration. A new approach, to detection infrared imaging, showed some potential. The detection studies also identified cows that had not been previously shown to have clinical infections. Thus there might be some promise for an early warning. It was also found that short duration episodes are apparently less regulated by genetics than the chronic, long duration episodes.

Milk quality workshops were planned and delivered in cooperation with the Indiana Board of Animal Health, Indiana milking equipment dealers, and milk cooperatives. Dairy farm employees, managers, and dairy farm professionals received training. A distance learning module on production was developed. The first Indiana Milk Quality Conference was held April 26-27, 2000, Anderson, IN, in cooperation with Creamery License Division, Indiana Board of Animal Health, and state dairy cooperative.

Improvement of milk quality through reduction of mastitis provides consumers with a more wholesome and safer dairy products; benefits dairy producers through increase milk quality incentives, lower costs of veterinary care, less discarded milk, and it also enhances the well being and longevity of cows. Since initiation of milk quality programs in 1997, somatic cell counts have dropped 32,000 per cow, which results in an additional \$2100 of income on an average sized dairy farm.

### **Animal Disease, Health and Well-Being**

There is continued public pressure to stop using growth promotant type feed grade antibiotics in livestock rations to reduce the potential for development of antibiotic resistant organisms. Faculty explored the potential of alternatives to antibiotic use. Conjugated linoleic acid (CLA) has the potential to stimulate an animal's natural immune system. This may serve to enhance a pig's natural ability to fight off typical disease challenges observed in production and may be an alternative to feed grade antibiotics.

Faculty evaluated CLA in nursery and early grow-finish diets as an alternative to feed grade antibiotics. Feed grade antibiotics in rations did significantly improve pig growth rate and feed efficiency. Feeding antibiotics may not be an economical alternative when considering cost per lb. of gain. CLA at 0.6% in diet fed weaning pigs for 9 weeks did not improve growth

performance. CLA did improve the pig's natural response to a bacterial disease, *Mycoplasma hyopneumoniae*.

The use of CLA in combination with a sound vaccination program to enhance the pig's natural immunity and resistance to disease challenges may be a viable alternative to using feed grade antibiotics. Economics will likely be the deciding factor as the pork producer considers the bottom line. Information was disseminated to swine producers and feed formulators via newsletter, Swine Day, etc.

### **Enhanced Economic Opportunity and Quality of Life for Americans**

Insects are often unwanted guests in homes and other buildings. Although most insects entering buildings are just annoying, some do damage or cause health problems.

Studies have focused on the biology, behavior, and control of German cockroaches, the most common insect pest in structures inhabited by people. Pesticides are frequently used to control German cockroaches. Pesticide use in a building also represents a risk. Furthermore, roaches can become resistant to pesticides. The study identified roach food preferences, movement patterns, and toxicity/effectiveness of pesticides. An attractive food base (a bait) with an incorporated pesticide, in a "designed container," and strategically placed provided control in a safe and environmentally benign manner.

Hundreds of pest control operators and home inspectors have been trained this year to identify damaging insects and how to conduct insecticide treatments. A primary outreach for this information is the Annual Purdue Pest Control Conference attended by over 800 professionals who provide service to a broad customer base, including homes, hospitals, factories, and schools.