FY 2000

Annual Report of

Accomplishments and Results

to

Cooperative State Research, Education and Extension Service (CREES)

University of Illinois Extension – Office of Extension and Outreach
-and-
Illinois Agricultural Experiment Station – Office of Research

College of Agricultural, Consumer and Environmental Sciences

University of Illinois at Urbana-Champaign

March 1, 2001

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A. Programs

Note on Key Themes reported by Goal: Illinois has chosen to report on some key themes that were not specifically named in the state's original Plan of Work. This is done because of the interest that the federal partner has expressed by listing all of the themes found in the respective plans of the states and territories.

CSREES GOAL 1: An agricultural production system that is highly competitive in the global economy

Technology advances provide the underpinnings for many of the College of Agricultural, Consumer and Environmental Sciences (ACES) initiatives, which includes both Research and Extension. The emerging controversy regarding the safety of biotechnology has led to several efforts on the part of the College of ACES to help inform this debate.

Biotechnology and Public Issue Education

As biotechnology has moved from the laboratory, the level of public discussion concerning its costs and benefits has increased. The College of ACES is helping to inform citizens on all views of this issue. Working with faculty researchers and Extension Specialists, the College of ACES produced a 12-page newspaper "The Promise of Biotechnology." Topics included basic genetics, "What is DNA?", GMO's, cloning, regulatory oversight as well as a review of the College's biotech research projects. Distributed under the signatures of the Dean of the College, the Director of the College's Office of Research and the Director of Extension, 90,000 copies were distributed to key agricultural leaders in the state through *Farm Week.* Local Extension offices distributed an additional 40,000 news media copies.

"Illinois Research Teaching Outreach" (IRTO), a magazine produced quarterly by the College, featured in "In the Eye of the Beholder: Views on Biotechnology" outlining many of the issues surrounding the "biotechnology debate" as the featured cover article. This publication is distributed to 14,000 influentials in the state.

Positioning the College of ACES for Research and Outreach in Biotechnology

In 2000, the College appointed an Assistant Dean, Biotechnology and Outreach who also serves as Associate Executive Director of the University of Illinois

Campus Biotechnology Center. Outstanding among the College's many web sites in the area of biotechnology are:

University of Illinois at Urbana-Champaign Biotechnology Clearinghouse:
http://www.aces.uiuc.edu/research/biotech/bio-news.htm

Other project-based web sites such as the Illinois Soy Foods Center:
www.soyfoodsillinois.uiuc.edu

The College is establishing a Genotyping Center to enable the University of Illinois to continue its 100-year leadership in the development of superior cultivars, especially in the area of corn production. This facility promises to increase the productivity of all plant breeders and geneticists by increasing their capacity to do state of the art research. The Center will focus on traits to increase yield, enhance disease resistance, and modify seed composition to benefit producers, processors and consumers.

The University of Illinois has partnered with the University of Missouri and Southern Illinois University under the federally funded Illinois-Missouri Biotechnology Alliance (IMBA). Other cooperators include Iowa State University, USDA-ARS, Northwestern University and commercial firms. Some promising areas of research include increasing the total oil content of soybeans, combating sudden death syndrome (in soybeans) and soybean cyst nematode (SCN). With support of IMBA, scientists are assessing the efficacy of adding isoflavones to corn foods as a way to reduce the incidence of breast tumors.

The results of specific biotechnology initiatives are reported under the Transgenic Swine Program and the Beef Genome Project. Additional biotechnology issues are reported under the other GPRA goals.

Other Initiatives

Green Industry

A 1999 survey whose results have just been released has shown that the Illinois green industry is larger in gross sales than corn production or soybean production. It is even larger than beef and pork production combined. Preliminary estimates show that, in 1999, the product and service sectors of Illinois' green industry generated nearly $2.9 billion in sales. The results of this survey have implications for alternative enterprises for producers of traditional agricultural commodities and for the state's urban IPM program.

Illinois Agricultural Policy Center

The Illinois Agricultural Policy Center was established at the University of Illinois in order to provide analyses and information for use by stakeholders, policy makers and peers to evaluate the economic and environmental impacts of current or proposed state or federal legislation/regulations. The Center will have two general areas of expertise:

1) Assessment of economic impacts on Illinois producers in terms of commodity prices, income and production.
2) Assessment of non-market, environmental impacts on the state, and how these impacts are realized by producers, consumers and taxpayers.

These foci are based on the belief that many (if not most) policy debates involving agriculture are best informed when both dimensions are covered. A timely example is the Federal Farm Bill legislation.

Indications of the Scope of the Research and Extension Programs under Goal 1 – See Appendix A.

More than 60 percent of the dollars invested in the College's research portfolio addresses Goal 1. Roughly 20 to 25 percent of Extension efforts and budgets are directed to this goal. This does not suggest a discrepancy since much of the Goal 1 research is specific to Illinois and the Midwest. As a consequence, much of the research needed to address Illinois agricultural needs must be based in Illinois. In the last reporting year, Extension staff (which includes faculty who have joint Research and Extension appointments) reported approximately 485,000[1] face-to-face teaching contacts related to Goal 1. Typically this kind of face-to-face teaching results in between 60 to more than 95 percent of the participants reporting improved decision-making capability and/or practice change. If we use a conservative estimate of one-half of all participants demonstrating outcomes, about 242,000 participants were able to improve decision-making capability or in some other way made application of the material presented.

Key Theme: Adding Value to New and Old Agricultural Products

On-Farm Specialty Trials

a. According to industry estimates, specialty grain crops could bring more than $79 million in additional Illinois farm income as producers increase specialty corn and soybean acres over the next five years. The College of ACES is providing leadership in both the necessary Research and Extension fieldwork to help producers realize the projected gains. To make decisions, producers need tools to evaluate contracts and better access to technology and market information.

A multifaceted research project has been launched to capture the potential for specialty crops in Illinois. The effort involves University of Illinois and

[1] These numbers are estimates. Philosophically University of Illinois programming attempts to integrate environmental and sustainability concerns with production concerns. For many of the College's efforts the distinction between Goals 1 and 4 are not clear-cut.

Western Illinois University researchers, University of Illinois Extension staff, and producers and agriculture leaders from around the state. Called the Value Project, short for Improving Farm Incomes and Rural Communities through Specialty Farm Products, this research is funded by the Illinois Council on Food and Agricultural Research and Extension.

One important aspect of this project is on-farm trials. During the 2000 growing season, a team of University of Illinois Research and Extension staff members conducted on-farm trials at 72 locations across the state. This is an increase from 19 sites in 1999. There were 33 specialty corn sites consisting of high oil, nutridense, hard endosperm, waxy, high protein, white, high extractable starch, and conventional hybrids. Thirty-nine specialty soybean sites included tofu, high protein, natto, STS, and conventional varieties. In addition to cooperating farmers, six University of Illinois Agronomy Research Centers hosted the specialty crop trials.

University of Illinois Crop Systems team members identified farm hosts, assisted with planting, data collection, and sampling during harvest. One member, working with the Extension Corn Specialist, coordinated the on-farm trials. Four members served as coordinators for Northern, Eastern, Western, and Southern Illinois.

In addition to yield, corn and soybeans are analyzed for quality traits (protein, oil, etc.) and soybean samples are analyzed for presence of diseases.

The results will enable producers to utilize the yield, quality and economic analysis data as a way to predict performance and potential economic returns of these specialty grains within their own farming operations.

Additional research underway includes work to carry out "asset mapping" throughout Illinois in order to develop a strategic plan for value-added agriculture in each eco-region of the state.

b. Impact - Potential of $79 million in increased farm income.
- Farmers growing specialty corn and soybeans in Illinois increased their net farm income by an average of 22 percent in 1999 and 26 percent in 2000.
- Additional activities included contact with more than 1,000 farmers and the distribution of 14,000 fact sheets to farmers and grain handlers.
- The specialty crops web page receives more than 4,000 hits per month.

c. Source of Funds – Smith-Lever, state and local funding.

d. Scope of Impact – primarily Illinois.

Branded Lamb Project

a. The majority of livestock are sold into a commodity environment. A team of Illinois Extension field staff and campus-based researchers felt that by working within the Illinois livestock industry it might be possible to develop branded products which would help fill unmet niches in the market and increase the likelihood of long-term sustainability for Illinois livestock producers. Lamb was selected as a test model. The team used market profiles on current lamb consumers, identified target retail markets with an ethnically driven demand for lamb and identified consumer product preferences for lamb. These data enabled them to develop production and carcass specifications which producers and processors could use to meet customers' demands.

A branded lamb product was introduced last year under the Heartland Lamb trademark. In less than two years sales have grown from two lambs per week to approximately 40-50 lambs per week. The branded product realizes a 10 percent premium in targeted retail outlets and now accounts for 3.5 to 4 percent of the entire Illinois lamb crop.

This pilot project has become the basis for educational programs and technical assistance to more than 600 producers, educators and industry representatives throughout Illinois and the Midwest.

b. Impact – Six hundred producers, educators and industry representatives better informed about branded product development.

c. Source of Funds – Smith-Lever, state and local funding.

d. Scope of Impact – Illinois, the Midwest.

Key Theme: Animal Genomics

Beef Genome Project

a. University of Illinois researchers partnering with researchers at Texas A & M University have a comparative map of cattle DNA which shows that 83 percent of the identified genes are identical to those of humans. This is the third most extensive mammalian map and has both medical and agricultural value. This research will help benefit humans nutritionally. The bovine map will also help identify health traits so those higher-producing animals can be bred with greater disease resistance. This could lead to a reduction in the use of antibiotics in animal feed and lessen

concern about the development of antibiotic-resistant microorganisms. Completion of the bovine genome map is expected soon with practical significance in the areas of food safety, animal health and the competitiveness of the United States beef and dairy industries.

b. Impact – Safer food.
- Increased beef and milk production efficiency.

c. Source of Funds – Hatch Act, USDA Research Initiative, state funds.

d. Scope of Impact – International.

Transgenic Swine Program

a. The transgenic swine program seeks to introduce "value-added" characteristics into livestock (specifically swine) through the introduction of specific genes from one species to another. Currently the University of Illinois leads the nation in the production of transgenic swine. Two lines of swine have been produced with improved lactation and another four lines with the Human Growth Factor I. Milk composition and milk yield account for 44 percent of the pre-weaning growth of piglets. The growth hormone impacts subsequent animal performance by improving the yield of piglets from a litter that are large enough to wean to move into the grower and finishing stages. Early findings from these added characteristics provide evidence that transgenic approaches can result in enhanced production. University of Illinois transgenic swine now exist in sufficient quantity to confirm the practical significance of these improvements.

b. Impact – Preliminary findings suggest transgenic livestock may deliver real world benefits.

c. Source of Funds – Hatch Act, state research funds.

d. Scope of Impact – Illinois, other swine producing states, international.

Key Theme: Animal Production Efficiency

Beef Production for the Next Century

a. Survival in any business means meeting customer demands. This is true for the beef industry as well. University of Illinois researchers and Extension staff have partnered to identify strategies and programs that address problems of quality and consistency in producing beef to meet

consumer needs. University of Illinois research has focused on problems specific to Illinois as well as broader issues. The result is a top-flight educational program that has provided more than 300 Illinois beef producers with practical experience to meet emerging consumer demands. Elements of these programs include factors influencing product quality and grade, evaluation of live animals to determine quality and yield grade potential, taste tests and consumer evaluation, and research to improve beef quality and consistent production.

b. Impact – More than 300 Illinois beef producers with increased knowledge and skill.

c. Source of Funds – Smith-Lever, Hatch Act, state funding.

d. Scope of Impact – Illinois.

Key Theme: Diversified/Alternative Agriculture[2]

Rural Route 2 Leads to the
Ag Entrepreneur Development Initiative

a. Modeled after Illinois' highly successful Rural Route program of the 1980's, Rural Route 2 uses a toll-free number to provide financially stressed producers with confidential counseling and help with financially related problems. This time around, the program also used the WWW and 24 "master volunteers" trained in economics, evaluating and managing the farm business, addressing financial stress, and handling counseling situations. Since its inception the service has responded to more than 750 requests for assistance.

Ag Entrepreneur Development Initiative

While timely federal intervention has helped ease the immediate financial crisis faced by many producers, it is undeniable that production agriculture is undergoing significant restructuring. To aid producers in transitioning, the University of Illinois created the Ag Entrepreneur Development Initiative. The goal is to provide education and technical assistance to producers who want to incorporate entrepreneurial strategies into their operations. New initiatives in support of this program include development of marketing chains, creation of branded products and

[2] The Rural Route 2 and the Ag Entrepreneur Development Initiative are presented together as both are attempts to address issues of farm survivability as agriculture production is undergoing further consolidation and restructuring.

research to identify the core competencies necessary for producers to incorporate entrepreneurial strategies into their enterprises.

Educational interventions include using a "train-the-trainer" program to help producers utilize financial analysis tools available through Ag Econ Online.[3] Conducting an "Introduction to the Internet for Farmers" provides training on the Internet and exploring e-commerce.

The program also responds to individual requests for technical assistance. Topics covered include organic farming, cooperatives and alliances, branding products, marketing products, and business planning.

c. Impact – 850 inquiries responded to.
- 750 crisis interventions including financial management counseling.
- 16 Master Internet Trainer Volunteers trained.
- 60 producers trained.

c. Source of Funds – Smith-Lever, Hatch, state, local funding.

d. Scope of Impact – Illinois, Iowa.

Key Theme: Plant Production Efficiency

Corn and Soybean Classics

a. Attendance at the most recent series of meetings called "Illinois Corn and Soybean Classics" totaled 1,128 producers and consultants. The goal of these meetings is to improve the process of transferring current research information to the public. This program involves a cadre of Crop Science Specialists, most of whom have joint Extension and Research appointments. The program is planned and executed around Illinois' producers expressed desire to hear about the research being conducted from the scientist who is actually conducting the research. This approach is effective. More than 97 percent of the participants surveyed responded "YES" to the question "Will your attendance assist you in making more informed management decisions?"

b. Impact – About 1,100 producers and consultants making more informed management decisions. This does not include the multiplier effects of impacting on consultants and agribusiness representatives who serve as wholesalers of information.

[3]1 Also see Goal 5, Key Theme Agricultural Financial Management, Farm.doc

c. Source of Funds – Smith-Lever, Hatch, state.

d. Scope of Impact – Illinois.

CSREES GOAL 2: A safe, secure food and fiber system.

The College of ACES addresses food safety and security concerns at a number of levels. Research projects funded by Hatch, state and other funds are exploring ways to reduce or eliminate hazards at their source. For example, University of Illinois researchers are trying to eliminate salmonella in poultry by developing a salmonella vaccine for chickens. University of Illinois researchers and Extension specialists are working to help food processors meet HACCP regulations. A report follows on an applied research project which successfully developed a "model plan" suited for small meatpackers who needed to develop both effective and efficient ways to meet HACCP regulations. University of Illinois research is being conducted to enable food processors to more effectively use plastic packaging, which increases food quality and reduces the amount of energy and effort required to prepare safe and nutritious meals.

To avoid food borne illness once food leaves the processor, consumers and commercial food handlers need to select, store and use food in such a way that its safety and quality is maintained. University of Illinois Extension programs take the research-based food safety information to commercial food handlers and citizens, including youth. Illinois regulations require that at least one certified food handler be on-site wherever food is prepared or served to the public. Consumers learn safe food handling through face-to-face meetings, publications, the WWW, as well as from Master Food Preservers and by asking University of Illinois personnel specific food handling, preservation or safety questions. Some are in response to a crisis (e.g., “Power has been off for two days…what do I do about the food in my freezer?”)

For a number of Illinois citizens, especially children in poverty, the question is not just if their food is safe…it's whether there is sufficient food at all. University of Illinois Extension has addressed this question through poverty simulations, which sensitize citizens to these issues, and by facilitating collaborations with and among local organizations and agencies. The College of ACES also addresses issues of food accessibility through its WWW presence and conferences on world food issues.

Indications of the Scope of Research and Extension Programs under Goal 3

During the last year for which statistics are available, the College had a total of 87 research projects addressing food safety and security. University of Illinois Extension-paid staffers had more than 149,000 face-to-face teaching contacts. Prior evaluations of this type of programming show between 50 to more than 80 percent of participants in these kinds of programs adopted improved food handling practices. These prior findings suggest that the number of persons making changes as a result of these programs probably range from 74,500 to more

than 119,000. Each year, University of Illinois Extension personnel respond to more than 40,000 food safety and food preservation calls. Follow-up telephone interviews have shown that more than 95 percent of the callers adopt University of Illinois recommendations in response to the information received. This suggests that in excess of 38,000 citizens and families protect their health through phone contact alone.

See Appendix A for additional statistics regarding Goal 2.

Key Theme: HACCP

HACCP Regulations and Small Illinois Meat Processors

a. More than 4,000 are employed in Illinois by small meat processing operations. When new federal regulations required that all meat processors have a Hazard Analysis Critical Control Points (HACCP) plan, small processors knew they would have difficulty in meeting these requirements. University of Illinois food scientist Susan Brewer and meat scientist Floyd McKeith conducted an applied study observing processing procedures and collecting microbial data from daily operations of small processors. This research enabled them to develop a "model plan" for small processors. Efforts included educating state and federal regulators regarding what was both reasonable and effective for small operations. An HACCP Plan Development Workbook was developed which was used in guiding processors in workshop settings as to what was needed for an effective HACCP plan. As a result, more than 350 processors were trained preserving over 4,000 critically needed jobs to support local, especially rural, communities.

b. Impact - Three hundred and fifty processors certified to write HACCP plans.
- More than 4,000 jobs retained.

c. Source of Funds – Hatch, state.

d. Scope of Impact – Illinois.

Key Theme: Food Safety

School-Aged Children/Youth

a. University of Illinois Extension Educators identified a lack of **effective** hand washing as a major source of the spread of childhood illness.

According to the American Society for Microbiology, about one-third of Americans skipped hand washing altogether and many more did an ineffective job. Working cooperatively with local schools since 1997, University of Illinois Educators have trained a cadre of over 60 volunteers who, as of May 2000, have reached 16,400 students. Local school officials have cited this program as reducing absenteeism. United States Representative Castello has reported on these successes on the floor of the House of Representatives.

b. Impact – Sixteen thousand four hundred children trained in proper hand washing.
- School absenteeism reduced. (Source: Illinois State Board of Education.)
- Academic progress improved. (Source: Illinois State Board of Education.)

c. Source of Funds – Smith-Lever, state and local funding.

d. Scope of Impact – Illinois

Commercial Food Handlers Need to Wash Their Hands Too

a. According to the National Restaurant Association, the **average** foodborne illness outbreak costs a single business $75,000 including lost business, medical costs and litigation. As of 1999, Illinois requires certified food service sanitation managers to attend a minimum of five hours of training to retain their certification. In the past 12 months, 1,312 foodservice staff have been re-certified through refresher courses taught by University of Illinois Extension Educators. These courses have done more than meet a minimum re-certification requirement; over 79 percent reported improving one or more food handling practices as a result of the training. Since many establishments have only three or four certified employees, one can assume that this training has impacted more than three hundred twenty-five establishments (assuming four persons trained are equivalent to one establishment.) As of February 2001, Extension Educators are training an average of more than 100 commercial food handlers per month.

b. Impacts – 1,312 food handlers improved one or more food handling practices.
- More than 325 food establishments now serve safer food.

c. Source of Funds – Smith-Lever, state.

d. Scope of Impact – Illinois.

Key Theme: Food-Borne Pathogen Protection

Online Inspection Device for Food Industry

a. Food in new types of plastic trays and pouches requires less cooking time for the consumer, has better flavor, color, and nutritional value, and is well suited to re-heating in the microwave. Unfortunately in food processing plants, human inspectors use simple visual examination to detect seal failures in plastic pouches and trays. Since visual inspection may not reveal potentially hazardous leaks and defects, the product is then routinely set aside for incubation to ensure that no bacterial contamination has occurred. This, in turn, slows production and increases prices.

At the University of Illinois, researchers are devising an online inspection device that would find defects in new food packaging that are much smaller than human inspectors could find using simple visual examination. These defects in plastic food packages are often a fraction of the width of a human hair and may be below the surface of the material, yet may be large enough to allow microbial contamination of the food.

With an online device, food companies would have more of an economic incentive to provide foods in plastic trays and pouches. Energy costs would be reduced during manufacturing since the new package types are much more efficient than traditional cans and jars. Other spin-offs from the defect detection research might include applications in the medical field, such as detecting lesions in human tissue and in civil engineering applications such as subsurface imaging.

b. Impact - Reduced packaging costs.
- Reduced home preparation and serving demand.
- Higher quality food products.

c. Source of Funds – Hatch Act, state.

d. Scope of Impact – Nationwide.

Key Theme: Food Security

International Food Security

a. The College of Agricultural, Consumer and Environmental Sciences of the University of Illinois at Urbana-Champaign addresses food security issues

on an international level through the Illinois World Food and Sustainable Agriculture Program.

The program helps Illinois agricultural producers, agribusinesses and consumers better understand the factors causing uncertainty in world food markets. It also provides a forum for University of Illinois faculty, staff and students to deepen their understanding of world food and sustainable development issues.

In weekly two-day sessions beginning in January 1999, three agricultural visionaries were on campus to engage participants in a variety of settings. Each week's activities began with a public lecture and panel discussion on Wednesday evening. On Thursday, the speaker is involved in small group meetings and workshops with College of ACES students, faculty and staff.

Each lecture was simultaneously broadcast on the World Wide Web, allowing anyone with a computer and Internet connection to hear and see the presentation. The program's web site continues to educate visitors regarding food security issues worldwide:

http://www.aces.uiuc.edu/~ILwfood/

b. Impacts - Increased awareness of international food security issues.

c. Sources of Funding – Smith-Lever, state, grants.

d. Scope of Impact – International.

Food Security Locally

According to the Illinois Hunger Coalition, one out of five Illinois children are at risk for going to bed hungry. Effective local interventions are used to change the knowledge and attitudes of the local agency personnel and citizens regarding being poor.

Living in a State of Poverty

"You learn that it is frustrating when you have to take care of all the bills, and you have to feed a family, and get your children to school, and you have a very limited income!"

That's how one participant in a welfare simulation summed up the experience. Since 1997, University of Illinois Extension has been sponsoring welfare simulations for employees of the Illinois Department of Human Services, local health and mental health agencies, and related

agencies as well as local community leaders and interested citizens. The simulation, which was developed by the Reform Organization of Welfare (ROWEL), places participants in "families" who are living in poverty. These "families" try to make it through four "weeks" of poverty using various community resources.

The simulations are used to help participants understand the plight of people living in low-income families in order to facilitate development of more effective educational programs for low-income participants. Nearly all participants had high praise for the program:

"This was very emotional for me. I have been a social worker for ten years and until today I didn't realize how our paperwork and regulations affected our clients."

"I used to criticize a local family for buying groceries in a convenience store. Now I realize that they probably had no transportation which would enable them to shop anywhere else!"

"It takes a lot of energy to be poor."

During the last twelve months, twenty simulations have been held with each reaching at least 50 people. A review of pre/post qualitative reports from participants regarding attitudes, perceptions and experiences with limited resource concerns revealed that virtually all participants experienced changes in attitude and perceptions. When applied to the participation data for the last 12 months of at least 1,000 agency people, local leaders and volunteers, it seems reasonable to assume 1,000 experienced changes in attitudes and perceptions regarding limited resource persons and those who face low levels of food security by virtue of their economic status.

b. Impacts - Twenty communities impacted.
- One thousand participants experienced changes in attitudes and perceptions regarding limited resource persons.

c. Source of Funds – Smith-Lever, state, local.

d. Scope of Impact – Illinois.

Food Security Local Collaborations

a. For the last 12-month reporting period, 65 of 76 local Illinois Extension offices reported establishing collaborations to address access to food

issues with a total of 787 other organizations and/or agencies or volunteer groups.

b. Impacts - 787 cooperating agencies and organizations to meet local hunger needs.

c. Sources of funding – Smith-Lever, state and local.

d. Scope of Impact – Illinois.

Illinois 4-H Food Drive - "4-H CAN Make A Difference"

a. More than 1.5 million Illinois residents go hungry each year and that number is rising, according to the Illinois Coalition on Hunger. More than half of those numbers reported is children. Most food drives take place during the winter, so by the summer, the shelves at food pantries and shelters are empty.

For the past three years, the Illinois 4-H Program has sponsored a "4-H CAN Make A Difference" food drives at both the Illinois and Du Quoin State Fairs. Fairgoers and industry sponsors contribute non-perishable food for the event. In addition, 4-H clubs across Illinois host their own foods drives at local fairs and distribute information about hunger awareness.

c. Impact - Last year alone, Illinois 4-H collected more than 67 tons of food at the Illinois State Fair and local fair drives. All food is donated to Illinois food shelters and pantries. Thirty-five thousand one hundred ninety-eight youth and nineteen thousand seven hundred sixty-nine adults participated in some capacity. Youth were involved extensively in leadership roles locally, at the county level, and/or statewide.
- Participating youth and adults became more aware of food security issues.

c. Source of Funds – Smith-Lever, state, local.

d. Scope of Impact – Illinois.

CSREES GOAL 3: A healthy, well-nourished population.

The College of Agricultural, Consumer and Environmental Sciences is a world leader in the areas of human nutrition, the enhancement of naturally occurring food components which aid good health (functional foods) and in the development of commercial food processing techniques and food products. The College's research and outreach efforts span from basic molecular research to practical advice on good nutrition and food practices for consumers in Illinois and internationally.

Nutrition Analysis Tool (NAT)

The University of Illinois has an extensive WWW presence. The most popular site for this institution is the Nutrition Analysis Tool (http://www.nat.uiuc.edu) that receives more hits than even the University's main portal (www.uiuc.edu). The analysis tool receives over a million hits per month from half of the countries in the world. It is a popular site with other universities, medical centers and commercial organizations. Many users are individuals interested in improving their diets.

Functional Foods for Health

Functional Foods for Health (FFH), a joint program of the University of Illinois at Chicago and the University of Illinois at Urbana-Champaign, is dedicated to the improvement of human health through multidisciplinary research, education and communication focused on the identification of safe and efficacious foods and other physiologically active natural products which may reduce chronic disease risk or promote optimal health. (See: http://www.ag.uiuc.edu/~ffh/ffh.html.) One application of the functional food concept is work being done at the University of Illinois on cruciferous vegetables. Extension Educators (who hold appointments in the Department of Food Science and Human Nutrition) have used this information to help Illinois citizens realize the benefits of functional foods by incorporating them in their diets.

Vegetable Products that Prevent Cancer

Different cruciferous vegetables contain varying amounts of antioxidant vitamins, including vitamin A and other carotenoids, vitamin E and other tocopherols, and vitamin C. They also contain glucosinolates, complex glucose-containing molecules relatively specific to cruciferous plants. Both antioxidant vitamins and glucosinolates have been associated with cancer prevention.

An interdisciplinary research team from the University of Illinois has performed a survey of 66 cruciferous vegetables, including 51 broccoli, 3 cauliflower, 5 Brussels sprouts, 5 cabbage and 2 kale varieties. The survey evaluated the

variation in content of antioxidant vitamins and glucosinolates. The survey showed variation in vitamin and glucosinolate content between vegetable varieties, such that some varieties may offer considerably more health benefits than others.

Broccolis as a group had higher vitamin levels than Brussels sprouts, cabbage or cauliflower. In broccoli, the content of glucoraphanin, the glucosinolate precursor for the chemopreventive agent sulforaphane, varied over 200-fold, with the variety Brigadier having the highest content of those evaluated. A study of seasonal variation showed that aliphatic glucosinolates like glucoraphanin are under strong genetic conation and that changes in environment or growing conditions alter plant production of glucoraphanin very little. Less than 20 percent of the variation between plants is due to environment.

Both growers and consumers will benefit directly from this information. The information generated here will be useful in marketing varieties high in health-promoting components — at present, varieties that are not identified in the supermarket. Therefore, an expected outcome of this research is that cruciferous vegetable varieties will be identified in the market to enhance sales. In addition, local Illinois crucifer growers will benefit from this information by choosing to grow the varieties with the greatest content of health-promoting components.

Health Benefits of Soy

The Nutrition Labeling and Education Act of 1990 requires that food health claims be substantiated by clinical research. Clinical research at the University of Illinois provided support documentation for the Food and Drug Administration to approve a claim on food products that contain at least 6.25 grams of soy protein. This study was the first and only direct dose-response data confirming that the Food and Drug Administration-recommended level of soy protein will effectively lower cholesterol. As an outreach function, ACES has developed the web site "Soy and Human Health" as part of its StratSoy site which is funded by the United Soybean Board. This site helps consumers learn how they can include soy in their diet to realize soy protein’s health benefits.

Breast Cancer Prevention by Soybeans Isoflavones

University of Illinois researchers have investigated the link between the soy isoflavone, genistein, and its ability to inhibit the growth of breast cancer.

This project examined the potential of genistein as a breast cancer preventative agent. Genistein inhibited multiplication of precancerous cells at physiological levels, while growth of the cancerous cells was largely unaffected.

These findings provide mechanistic insights into the breast cancer inhibitory action of genistein, and suggest that genistein may be more effective in stopping breast cancer at earlier stages prior to the cancerous transformation of breast cells.

Food and Your Health Newspaper

Information on the role of food and health reached 100,000 Illinois households through the "Food & Your Health" newspaper. This 12-page newspaper insert included articles on functional foods, medicinal herbs and the value of specific foods or food types (e.g., foods containing high levels of soy protein.)

Indications of the Scope of the Research and Extension Programs under Goal 3

For the reporting period, there were a total of 47 research projects pertaining to Goal 3. In addition, there were more than 6,000,000 web page "hits" pertaining to Goal 3. Through face-to-face teaching contacts, Extension reached more than 316,000 adults and youth and it is estimated at least 158,000 of these individuals, who are a largely limited-resource, experienced changes in knowledge, skill and/or practices.

Additional statistics regarding Goal 3 may be found in Appendix A.

Key Theme: Human Health

An Edible Vaccine

a. At the University of Illinois, Schuyler Korban, professor of plant genetics, and his colleagues, professors Dennis Buetow and Leslie Domier along with postdoctoral researchers Sergei Krasnyanski and Jagdeep Sandhu, are working on an edible vaccine for the respiratory syncytial virus (RSV). No vaccine is currently available for RSV, a virus that can be deadly for infants less than six months old and for the elderly, particularly in nursing homes. In the United States, more than 90,000 patients are hospitalized each year for RSV.

   For research purposes, Korban selected the tomato as the plant crop for manufacturing the vaccine. He identified one of the proteins that envelopes the virus as a target for synthesizing the vaccine, obtained its corresponding gene from the National Institutes of Health Laboratory and transferred this gene into tomato seeds to grow transgenic plants that produce this antigenic protein in the fruit.

"The preliminary studies were very encouraging," Korban said, "because we found that the antigenic protein was present in blood and tissue samples in mice fed the transgenic tomatoes."

Eventually, apples will be used to house the vaccine. The vaccine could be administered orally through apple juice instead of by needle. Another advantage to edible vaccines is that to increase production, only additional land would be required, which is less expensive than maintaining fermentation facilities to manufacture vaccines.

b. Impact – Reduced levels of disease.

c. Source of Funds – Hatch.

d. Scope of Impact – International.

Key Theme: Human Nutrition

Effectiveness of Informal Education to Reduce Cardiovascular Disease Risk in Pre-Menopausal Women

a. This two-year project involved an experimental design where women were randomly assigned to a treatment/education or control group. All women were assessed on cardiovascular disease (CVD) risk at the beginning of the study and at its conclusion. The treatment group received Extension-sponsored educational programs. This group significantly lowered their level of fat intake. The study shows that pre-menopausal women have CVD risks, which should be addressed, and that nutrition education can successfully change dietary behavior.

b. Impact – Demonstrates both the need for and the potential benefit for nutrition education interventions for pre-menopausal women.

c. Source of Funds – Smith-Lever, Hatch, state, local.

d. Scope of Impact – National.

Functional Foods

a. University of Illinois Extension Educators are helping consumers capture the benefits of functional foods through a statewide educational program. The program explains the benefits of diet enhancements such as soy protein. For those benefits to be realized, consumers must find convenient

and tasty ways to incorporate these foods into their diet. This program helps consumers do just that.

b. Impact – Five hundred ninety-nine volunteers trained who in turn trained more than six thousand citizens.

c. Source of Funding – Smith-Lever, state including state research funds.

d. Scope of Impact – Illinois, National.

Key Theme: Medicinal Plants

St. John's Wort

a. St. John's Wort has become increasingly popular as a dietary supplement to treat mild to moderate depression. More than 40 clinical studies show that compounds in St. John's Wort produce positive effects on mood enhancement with fewer side effects than synthetic antidepressants. Most of St. John's Wort used for dietary supplements is grown in third world countries, although the plant is abundant in the United States.

A University of Illinois researcher is studying the environmental conditions that increase the desired medicinal compounds in the plants and the most effective post-harvest processing methods to use in Illinois. St. John's Wort is easy to grow and does well in very marginal conditions, so it is potentially useful to farmers as an alternative crop. The researcher found that under stressed conditions, the plant will produce more of the desirable chemicals. He also determined the best drying method to retain the highest percentage of chemicals. The next step is to develop a portable extraction unit that farmers could use on site.

Once the extraction technology is developed, Illinois farmers can pursue the option of growing St. John's Wort as an alternative crop. Since the plant grows in marginal conditions, farmers could grow the crop on land that normally doesn't yield any income.

b. Impacts – Improved farm income through specialty crops.
- Greater standardization in formulation of medicinal products.

d. Source of Funds – Hatch Act, state.

e. Scope of Impact - Illinois and Midwest.

CSREES GOAL 4: Greater Harmony between Agriculture and the Environment

As noted under Goal 1, the College of ACES has been integrating concerns about agricultural production and environmental quality for decades. This is founded on the belief that for agriculture to remain competitive it must be sustainable. For example, for over 100 years the College has been studying the effects of cultivation on soil productivity and quality. However, over time as both methods of production and the physical and social environment have changed, new issues have arisen. For example, in 1993 Extension workers and University of Illinois researchers observed unusual behavior in the western corn rootworm. The insects began to lay eggs in soybeans, reducing the effectiveness of crop rotation as a pest management strategy. As will be shown later in this report, this partnership between researchers and Extension workers has led to significant efforts to track this new threat to both agricultural productivity and environmental quality.

Indications of the Scope of the Research and Extension Programs under Goal 4

For the reporting period, there were a total of 77 research projects pertaining to Goal 4. Through face-to-face teaching contacts, Extension reached almost 90,000 producers, agency people and agribusiness representatives. Evaluations conducted this past year have shown up to 100 percent of producers claiming changes in knowledge and/or practices as a result of University of Illinois programming. For additional statistics regarding Goal 4 see Appendix A.

Key Theme: Integrated Pest Management

Western Corn Rootworm

a. As noted in the overview, the western corn rootworm has begun to lay eggs in soybean fields, which enables it to defeat the strategy of rotating from corn to soybeans in order to deprive this pest of its plant host. This behavioral change has signaled a host of economic, environmental and potential human health and safety problems:

   f. Loss of crop rotation as a pest management strategy.
   g. Increased use of soil insecticides.
   h. Uncertainty about future availability of soil insecticides at a time when reliance on these chemicals is increasing.
   i. Increased use of aerial insecticide applications targeted at soybean fields.

University of Illinois researchers have mounted a comprehensive research program aimed at:

j. Tracking the movement of these insects to provide early warning of spread to new areas.
k. Identifying what happened to allow the new strains to feed on soybeans.
l. Implementing new management tactics to reduce economic damage.

Researchers have shown progress on two important fronts to help growers manage the new western corn rootworm strain:

m. Researchers have set scouting thresholds: Two beetles per trap per day means root pruning; seven per day means lodging and significant crop damage.
n. Researchers have found a key behavioral clue: Feeding preferences suggest variation in genetic traits of soybean lines may be used to manipulate egg-laying behavior of western corn rootworm adults.

As these researchers hold joint Research and Extension appointments and because the field Extension Educators are closely aligned with the researchers' home departments, Extension has been able to communicate these findings efficiently and effectively to producers.

b. Impact – Designed to provide management strategies to enable producers to avoid the more than $100 million of added expense growers face if they lose crop rotation as a pest management strategy and have to rely increasingly on soil insecticides.
- The environmental and human safety benefits which result from producers being able to manage this pest without using more insecticides.

c. Source of funds – Smith-Lever, Hatch, state, local.

d. Scope of Impact – Illinois, the Midwest.

VegScout – Pilot

a. In 1998, major vegetable crops for fresh market and processing were planted on 40,200 Illinois acres. The amount of pesticides used to control insect, weed and disease pests on snap beans and sweet corn for processing and fresh market alone was 151,000 pounds. Crop protection chemicals are a major investment for vegetable growers, and their use is a vital ingredient in most vegetable producing operations. However, there are many factors causing all types of farming operations to rethink their

position on pesticides. Environmental contamination from pesticide use has become an issue. Reports of pesticides in ground and surface water, drift of pesticides to non-target crops, as well as residue in the crop are making headlines. Regardless of the causes, public perception of pesticide use and/or abuse is an increasing problem. Vegetable growers in the Arthur area wanted to learn Integrated Pest Management (IPM) practices so they could make more accurate decisions on the need for pest control, which in turn would lead to decreased pesticide use and increased returns.

VegScout School was an intensive one-day scout school developed by Loretta Ortiz-Ribbing, Visiting Integrated Pest Management Educator for the University of Illinois Extension, so that the participants could learn identification of insects, weed and disease pests on vegetable crops grown in their area. The goals of the course were many. The first was to improve participants' ability to correctly identify pests in the field. The second was to equip participants with a good set of references to assist them in identification and evaluation of pest problems. The third was to acquaint participants with the principles of Integrated Pest Management (IPM), mainly the importance of proper identification, the use of economic thresholds to evaluate a situation, and of alternative control techniques. The fourth was to provide participants with the opportunity to learn these skills in a supervised setting, thus increasing their confidence in these skills. The fifth was to improve general crop troubleshooting skills, refreshing growers on basic cultural practices and identifying problems that are not pest-caused and thus avoiding unneeded treatments. The course was approved for six hours of Illinois Certified Crop Advisor (CCA) credit in Integrated Pest Management.

The 15 producers and Master Gardeners attending the program thought it was a worthwhile day and that they had learned valuable information. They hoped to utilize the information that they had learned when producing vegetables for the next season. Many participants thought the package of resources they received was valuable and that they would use when addressing pest control problems in the future. Using information gained in this program will allow these producers to make more informed pest control decisions and help them avoid using needless or uneconomical pesticide applications.

The program will be expanded and offered in several other locations throughout the state.

b. Impact – Vegetable crop growers adopting integrated pest management techniques.

c. Source of Funds – Smith-Lever, state, local.

d. Scope of Impact – Illinois.

Key Theme: Water Quality

Nitrogen in Water

a. A large body of research shows a relationship between nitrate levels in rivers and the amount of nitrogen fertilizer used on a watershed land. Seasonally, nitrates in many Illinois communities exceed the maximum contaminant level of ten parts per million established by the Environmental Protection Agency.

University of Illinois researchers are defining the problems and testing cost-effective solutions for improving water quality in Illinois rivers and watersheds. Long-term data collection and related activities focus on:

o. Monitoring the nitrate levels throughout the year.
p. Assessing the impact of farming practices on nitrate levels.
q. Evaluating strategies for reducing nitrate movement from farm fields.
r. Providing the research base for management practices that are environmentally and economically sound.

University of Illinois researchers working with Extension Educators have pinpointed key causes of fertilizer and chemical runoff and validated management techniques that lower production costs and reduce fertilizer and chemical runoff from fields:

s. Working with the Little Vermilion watershed between 1993 and 1995 University of Illinois researchers found that the amount of nitrogen applied to farmland in excess of the University's recommendations was similar to the amount of nitrogen showing up in field runoff.
t. Timing of nitrogen applications can affect the amount of nitrate that leaches into drain tiles and then makes its way to surface water.
u. University of Illinois research on the Embarras River demonstrated that constructed wetlands with buffer strips could remove nitrogen from field runoff. Constructed wetlands can also help reduce the downstream flood peaks, stream velocity and erosion that threaten many Illinois watersheds.

b. Impact – Constructed wetlands and buffer strips reduce nitrate losses from drainage tiles to rivers by about 40 percent.
- Applying University of Illinois-recommended rate of nitrogen lowers productions cost and reduces nitrate losses.

v. Spring applications of nitrogen generally result in less nitrate leaching, and side-dressed applications are even better.

- All producers attending University of Illinois Extension tillage seminars identified at least one new technique or change in practice they would incorporate into their farming operation.
- All 106 producers, agency staff and agribusiness representatives attending tillage seminars found them “useful” or “very useful”.
- One hundred sixty-eight attendees (producers, certified crop advisers, agribusiness representatives, and natural resource agency personnel) of in-depth University of Illinois Extension soil and water workshops gave the workshops and average rating of 4.2 on a 5-point scale. (Did you obtain knowledge that you can easily apply within your soil and water management efforts? Where 1 = “not at all” and 5= “Yes, significantly”).
- Participants in several of the Soil and Water Workshops were asked about the number of acres of land they control or influence. When projected to the 2000 workshops this figure exceeds 5.5 million acres.

c. Source of Funds – Smith-Lever, Hatch, state, local.

d. Scope of Impact – Illinois.

Key Theme: Air Quality

Settling the Dust on Livestock Odor

a. In a livestock facility, minute particles penetrate respiratory tracts and lungs. Dust is not just a significant occupational hazard; it’s also a major odor carrier. Thirty-five percent of farmers in the United States suffer from chronic respiratory problems. This figure may rise as livestock farms get bigger and workers spend up to eight hours in livestock buildings. Livestock producers also want to avoid public outcries over livestock waste and odor pollution and reduce the incentive to come under more regulation.

University of Illinois researchers are working to develop inexpensive and innovative solutions to livestock dust and odor problems. For example, they developed an aero-deduster for small livestock buildings that reduced dust levels by 85 percent and gaseous emissions by 60 percent inside the facility. A model, which should work for large facilities, is nearing completion. Researchers have learned that sprinkling small amounts of vegetable oil in swine facilities each day reduced harmful dust to levels typically found in an office building. Researchers have attached wet scrubbers to exhaust fans in swine facilities and lowered dust levels emitted to the outside by 85 percent and also lowered gaseous odor

emissions. All this, while lowering fan performance by less than 5 percent.

b. Impact – Promising strategies and tools that reduce dust by more than 80 percent. This translates to fewer odors in livestock facilities and a healthier environment for producers and their families, employees and animals – and their neighbors.
- Improved farm safety through University of Illinois Extension educational programs for swine producers.

c. Source of Funds – Hatch, Smith-Lever, state.

d. Scope of Impact – Illinois, national.

CSREES GOAL 5: To increase the capacity of communities, families and individuals to improve their own quality of life.

Nowhere is the mission of the College of ACES better reflected than in CSREES Goal 5. ACES' core mission is: To enhance the quality of life for people and communities through teaching, research and outreach programs focused on human activity, food fiber and natural resource systems. One of the most outstanding accomplishments in this area for the College has been recognition of both the accomplishments and opportunities in youth programming.

A total of $2.3 million in new state funding ($500,000 in FY2000 and $1.8 million in FY2001) has made it possible to begin to hire 37 new Youth Development local Extension office-based Educators throughout the state. As of the writing of this report, 29 of these positions have been filled. The impact of these positions will begin to be reflected in next year's report. This funding has also permitted the establishment of the Clover Summer Youth Camp program. "Camp Clover" has enabled Extension to reach additional unreached youth throughout the state.

Electronic media has increased the College's ability to answer financial management needs of consumers and agricultural producers. The Money 2000 program is now available to consumers via the WWW. As reported below, Farm.doc uses the WWW to help farmers with day-to-day management and marketing decisions. ttp//:web.aces.uiuc.edu/farm.doc

The research agendas of the departments of Human and Community Development and Agricultural and Consumer Economics support the work of University of Illinois Extension under Goal 5. Additional support, especially as their subject matter areas relate to 4-H project work, is realized from the remaining departments that make up the College. "Extension Partners", a lay group working with state government to begin to restore state specialist FTEs lost in the 1980's and 1990's, has an ambitious goal of securing an additional $1.4 million in state funding. Any new specialist positions created from additional funding will be no greater than 70 percent Extension with the remaining positions coming from the subject matter department. Thus, these specialists, like most of the specialists on campus, will have research and/or academic instruction and an Extension portfolio of programs and activities. Additional campus-based positions will further the integration of resident instruction, Research and Extension.

Record numbers of youth continued to participate in Illinois 4-H programs last year. Total youth enrollments climbed to 284,838, an increase of 20,669 over that reported in 1999 and 55,052 more than reported in 1998. Correspondingly, volunteer leader numbers showed a

steady increase during this time period. Volunteer enrollments increased

by 22,286 over the past three years, climbing to an all time high of 42,235 volunteers last year.

For additional statistical information regarding Goal 5, see Appendix A.

Key Theme: Agricultural Financial Management

Farm.doc

a. Agricultural producers are, and will continue to be, challenged by an increasingly competitive environment that places a premium on access to reliable information. Information delivery is evolving rapidly as more and more people gain access to the Web. However, matching the inquiring producer and the information sought can be a time-consuming project. Producers need a central site for an array of research-based information that can assist them in the areas of finance, marketing and outlook, management, law and taxation, crop insurance, and the performance of corn, soybean and wheat marketing services.

   The farm.doc web site (http//web.aces.uiuc.edu/farm.doc) has been created to meet these needs. Farmers now have access to dynamic, interactive tools that are user-friendly. It contains, for example, the best base of historical market fundamentals to be found on the web and is constantly updated with new research.

   Illinois has taken the lead in providing producers' access to research-based information on the web, information that can help them make daily decisions in a variety of areas included in their enterprises.

b. Impact – The site is currently receiving more than 70,000 hits per month. Work is underway to allow users to provide more feedback regarding the value of the site.

c. Source of Funds – Smith-Lever, Hatch Act, state

d. Scope of Impact – Illinois and Midwest

Key Theme: Character/Ethics Education

Character Education

a. The vast majority of Americans share a respect for fundamental traits of character; honesty, compassion, justice, courage, and perseverance. Yet, in

today's world, young people often live in a troubled society where these traits are not always apparent to them or easy for them to grasp.

To respond to this issue, University of Illinois Extension developed a K-12 Character Education Curriculum with the Chicago Public Schools. Extension Educators took the lead in planning, preparing and delivering train-the-trainer sessions for 1,500 teachers, principals, superintendents, school board members, parents, and community leaders annually. The district is home to 25,000 teachers and 430,000 students. The new program is being expanded through a special grant obtained in collaboration with the Illinois State Board of Education.

b. Impact - Survey results from the principal and teacher participants showed that the program improved educational outcomes and student behavior.
- 70 percent of the principals and teachers surveyed reported an increase in school attendance.
- 85 percent reported an increase in oral language skills.
- 80 percent reported a decrease in discipline problems.
- 90 percent reported improved relationships between teachers and students.
- 80 percent reported a decrease in vandalism.

c. Source of Funds – Smith-Lever, local, federal grants

d. Scope of Impact – Illinois

Key Theme: Child Care/Dependent Care

Adult Dependent Care

The University of Illinois Extension Family Life Team, based in the Department of Human and Community Development, is currently piloting materials to assist families addressing problems of elder care and the care of adult dependents.

Key Theme: Parenting (and Child Development)

The Illinois Rural Families Program

a. Healthy youth and family development is critical to the vitality of rural communities. However, young adults see few opportunities and therefore leave rural communities, taking with them part of the community's future. Many rural children experience family stress, such as divorce or parental loss.

Stress can affect their grades and the development of the skills they need as adults, yet few sources of help are available in rural communities. Bored adolescents are more likely to engage in substance abuse, sexual activity and other problem behaviors that can lead to early parenthood and problems in adulthood.

The Illinois Rural Families Program organizes University of Illinois faculty expertise to help rural communities ensure the healthy development of their children, youth and families. Agencies and rural organizations such as Family Service, Rainbows, Inc., and the Logan County Blue Ribbon Task Force have asked for help. Since forming in 1996 the program has:

- delivered training to more than 250 teachers, social workers and other rural human-service professionals.
- designed educational and training materials for use in the unique environments of rural areas.
- made policy recommendations to local and statewide organizations, including the Department of Children and Family Services, the Childcare Resource Center and Illinois
  4-H Youth Development.
- brought prevention services to 28 rural schools.
- trained 30 university students interested in rural family issues.

- Impact – Researchers have made policy recommendations for improving the availability and types of childcare programs that enable working rural families to be more effective members of the workforce.
  - Program efforts have resulted in new prevention resources being introduced to more than 25 rural schools.
  - New educational materials and programs have increased the capacity of rural communities to meet their most pressing youth and family needs. For instance, research results were used to develop targeted school programs and to support the efforts of a local substance use prevention coalition.

- Sources of Funds – Smith-Lever, Hatch Act, state

- Scope of Impact – Illinois

Parenting the First, Second and Third Year Newsletters

a. In 1997 more than 119,000 Illinois children were reported as possibly abused or neglected. Children who have been abused or neglected by their caregivers are at greater risk for committing violent crimes, abusing drugs and/or alcohol, having difficulties in school, and forming poor relationships with others. In short, they face greater challenges in becoming contributing citizens. Parents often do not intend to harm their children, but many have unrealistic expectations about children and parenthood, have difficulty coping with the stresses of parenting, and do not know what's involved in successful parenting.

Parents need to develop skills to cope with difficult childbearing problems and to raise competent and caring children. To help parents do their best at raising intelligent school children or respectful teenagers, the best strategy is to begin when new parents start to establish their roles as parents. Recent research findings confirm that parents and caregivers that interact sensitively and positively with young children at an early age can have an important impact on the child's emotional development, learning abilities and functioning in later life.

University of Illinois Extension has sought to improve the quality of parenting in Illinois by expanding the range of educational methods that have typically been used. Although traditional parent education workshops and classes can be highly effective, they are often not practical and cost-effective given the regional responsibilities that educators have. Moreover, many parents feel that they do not have time and are less willing to attend traditional parenting workshops or classes.

A study of Illinois parents has shown that families often prefer printed materials that they can read at home as a way of learning about children and parenting. Published evaluation studies confirm that newsletters delivered to busy parents can be an effective way of promoting positive parenting practices.

One newsletter series in particular has been shown to be quite promising. The series, "***Parenting the First Year"*** and ***"Parenting the Second and Third Years"***, was developed by University of Wisconsin Extension with the dual aim of preventing abusive parenting and encouraging competent parenting. The newsletters include age-specific information about a baby's development, nutritional needs, health, and safety during the first three years of life. A newsletter has advantages as a parent education method since it offers small amounts of age-specific information at a time; it can reach parents at a "teachable moment." It is also low in cost compared to other methods of reaching parents such as home visits or classes. In addition, it can serve hard-to-reach families, such as those who would be least likely to attend parent education programs.

In 1997 the University of Illinois Extension Family Life Team collaborated with Prevent Child Abuse—Illinois to obtain $40,000 of funding through a grant from the Department of Children and Family Services to provide subscriptions to an "age-paced" newsletter that would be mailed directly to 5,600 families with young (zero-to-three years of age) children in 38 counties in Illinois. During 1998 and 1999 we successfully collaborated with the Illinois Network of Childcare Resource and Referral Agencies to obtain $60,000 per year ($120,000 total) through the Illinois Department of Human Services to expand the scope of the

newsletter to reach over 10,000 families in 98 counties and the childcare providers that served them. The program targeted parents who were most "at risk" for having parenting difficulties. We are currently collaborating with over 100 local agencies in marketing the newsletters to low-resource families.

b. Impact - Since the project was initiated in 1997, the newsletter series has reached over 19,000 families from all 102 Illinois counties. Evaluations have demonstrated that: (1) the program is successful in targeting families at greatest risk for parenting difficulties, and (2) the newsletter is effective in promoting parenting practices that reduce the risk for abusive behavior, especially among high-risk parents. For example, an evaluation of Illinois parents who received the newsletters conducted in 1999 indicated that:
- Almost half of the families reported incomes less than $20,000.
- One out of five were teen parents.
- Parents rated the newsletter "very useful" more often than any other source of information, including relatives, friends, health professionals and other written materials.
- Eighty-three percent of parents said they stimulated their baby by providing more things for their babies to feel, see, listen to, and smell as a result of reading the newsletters.
- Seventy-one percent of parents said they became less angry when their babies were difficult.
- Seventy-six percent of parents said they played with and talked to their babies more after reading the newsletters.

c. Source of Funds – The Family Life Team is supported by Smith-Lever dollars. This is a program where Extension has leveraged the funding from its federal and state support base to secure additional dollars from state agencies who have learned to appreciate the "research-based" information which flows from the investment of federal dollars in Smith-Lever and Hatch.

d. Scope of Impact – Illinois

Grandparents Raising Grandchildren

a. The number of grandparents and other kin who are raising their grandchildren continues to grow. Nationally the number of grandparents raising their grandchildren is estimated to be nearly four million; however, the number is probably higher because many grandparents hesitate to report that they are doing so. Grandparents face many burdens and stresses when raising their grandchildren such as physical and emotional exhaustion, financial costs, inadequate housing, and limited statewide and local services.

In order to assist in strengthening families where grandparents are raising their own grandchildren, the Family Life Team began to (1) create a greater statewide awareness of the issue, (2) develop educational resource materials, (3) collaborate with state agencies, and 4) promote the development of support groups around the state.

1) Create statewide awareness of the issue.

The Family Life Team has continued to make strides statewide in creating awareness of the issues related to grandparents who become parents to their grandchildren. Educators have shared information in a variety of ways including presentations, workshops, written materials, exhibits, and through the Urban Resource website. Audiences generally consisted of state and local service providers, college students, Childcare Resource staff, teachers, childcare providers and grandparents.

Since 1998, nearly 800 participants have been reached through face-to-face programming alone. Additionally, it is estimated that several thousand clientele have been reached through local newsletters, news articles, brochures, and other written materials. In September 2000, Family Life Educators trained 28 members of the Statewide Task Force on Grandparents Raising Grandchildren to increase the size of the speakers bureau, and to ultimately create an increased awareness of grandparents raising grandchildren.

2) Develop educational resource materials.

Family Life Team members authored brochures, newsletters, news releases, and updated a presentation package to enhance the grandparents raising grandchildren (GRG) programming.

Brochures. Six brochures on topics covering issues facing grandparents raising grandchildren were written and published. A multi-county evaluation of the brochures indicated that 83 percent found them to be useful to extremely useful. Six additional multi-disciplinary brochures are being published and plans are underway to have all twelve brochures translated into Spanish.

Newsletters. Team members are currently authoring a 12-issue electronic newsletter series to be used by the Extension Units who have developed GRG mailing lists.

News releases. Team members have developed news releases for local use and regional media packets.

Presentation packet. Three team members updated the presentation, "Grandparents Raising Grandchildren—A Look at the Issue" to reflect the changing demographics. Also updated were the PowerPoint visuals and the handouts.

3) Collaborate with state agencies.

Four Family Life Educators serve on the Illinois Task Force on Grandparents Raising Grandchildren which meets four times per year. There has been a team representative on the Task Force since 1994. In addition, the team collaborates with the Illinois Department on Aging (IDOA) and area agencies on aging to assist with GRG education. Three team members served as contributing authors to the IDOA publication, "Starting Points." One Extension Educator is the statewide contact for a second national satellite conference hosted by the University of Wisconsin. Team members facilitated at the local sites in Illinois for the first conference held in January 1999.

4) Promote support group development.

Since 1997, IDOA has given service-providing agencies and organizations the opportunity to apply for funds to start grandparent support groups. Family Life Educators have helped these support groups by providing facilitator training and workshops on parenting, discipline, conflict resolution, and stress management. Extension Educators have been involved in assisting 11 agencies in starting support groups. University of Illinois Extension took the direct leadership in establishing support groups in the Whiteside and Morgan/Scott Units.

b. Impact - As of October 2000, clientele and agencies through ITCS have purchased one thousand sets of the six GRG brochures. In addition, 306 packets of 20 of the individual topics have been sold.
-Requests to team educators for GRG materials has come from six other states and Canada.
-Twenty support group leaders in Northern Illinois participated in an all-day training of trainers by two team members on "Second Time Around," an eight-chapter curriculum on grandparent parenting developed by Michigan State University Extension.
-Nearly 800 participants have been reached through face-to-face programming since late 1998 and nearly 3,000 participants have been reached since the team started addressing this issue in 1996.
- A Family Life Educator from West Central Illinois worked with a local coalition to secure funds to provide our GRG brochures to families in a six-county area.
-Exhibits about GRGs developed by the team, "Don't Be Confused by the Myths," have been used statewide at health fairs, school fairs, shopping malls, county unit open houses, county fairs, agency groups, and at the 1998 Governor's Conference on Health and Aging.
-Family Life Educators collaborated with the Illinois Department on Aging to provide a series of intergenerational workshops in three locations throughout Illinois. The topic of grandparent caregiving was one of several topics taught by educators at each location.

c. Source of Funds – Smith-Lever and Hatch Act funds have been leveraged with funds from state agencies in Illinois.

d. Scope of Impact – Illinois, six other states, Canada

Welfare Reform and African American Families

a. Welfare reform has potentially had a significant impact on thousands of minority families in Illinois. Yet, little research exists to describe how families are affected by the new welfare regulations.

University of Illinois researchers are conducting a five-year study on the impact of welfare reform on African American families and children in Chicago. Intensive

ethnographic methods are used to understand how a select group of families are faring, now that the reform is in effect. The research team has developed culturally sensitive interview protocols and has met biweekly and monthly with target families in the participants' homes and in neighborhood settings. Key topics of research include daily routines, welfare and work histories, childcare strategies, and other related areas.

The five-year research project provides an opportunity to examine changes in family life over time and can suggest policy recommendations that are grounded in the real life experiences of families for whom programs are being designed.

b. Impact – Develop policy recommendations and effective programming to positively impact the families experiencing the fallout from welfare reform.

c. Source of Funds – Hatch Act

d. Scope – National

Key Theme: Community Development

Community Swap

a. What do first-time visitors see when they visit your community? The Community Swap program allows a community to "swap" information and perceptions with another community. Teams of visitors "swap" communities for a daylong visit, where they pose as tourists, prospective business owners, relocating families, or out-of-town shoppers. The teams visit downtown areas, business districts, community entrances, neighborhoods, parks, and other public places. Each team later shares its objective impressions of the host community, describing the features that were most attractive and offering suggestions for improvement. The visiting community shares this information through a written report and color slides presented at a town meeting. University of Illinois Extension Educators supplement the visitors' report with an economic profile of the community.

Community Swaps help communities see themselves as others do. As a result of the program, communities have been able to establish priorities for enhancing their image and development. Many communities have improved signage, held customer service seminars, developed community beautification projects, and improved recreational opportunities. One community started roundtable discussions with other swap communities in order to share successes and discuss problems.

More than 150 Illinois communities and thousands of community leaders and residents have participated in the Community Swap program since 1993. Approximately six-to-nine months after the community's town meeting, Extension Educators or Unit Leaders survey the community

regarding changes made as a result of the “Community Swap” program. Community Swap reunions are held periodically, in order for communities to share progress made since the swap.

The key to success is community ownership and involvement. While the primary benefit of the “swap” is to gain an outsider’s perception to the community, the process helps community leaders and citizens to set an agenda for action, enhanced by new ideas and a fresh perspective. The community members then work together to make a difference for their community.

b. Impact – 150 communities improved.

c. Source of Funds – Smith-Lever, state, local

d. Scope of Impact – Illinois

Key Theme: Community Economic Development

Small Business Development Center (SBDC) and Procurement Technical Assistance Center (PTAC)

a. In 1994, as an expansion of University of Illinois Extension's Community and Economic Development efforts, Extension opened the Small Business Development Center (SBDC) and Procurement Technical Assistance Center (PTAC) in Decatur, Illinois. The SBDC assists Illinois small businesses in the areas of business plan development, financial loan packaging, marketing, and general business counseling. The PTAC assists Illinois businesses in participating in the state and federal government contracting market. The PTAC assistance includes matching **business products and service to open solicitations, online marketing, electronic commerce, and minority- and woman-owned business certification.**

b. Impact - Last year, the SBDC assisted more than 210 Illinois businesses with one-on-one counseling resulting in over $955,000 in small business loans.
- The PTAC assisted over 165 Illinois businesses in submitting over 1,360 bids resulting in over 470 separate government contracts totaling more than $7,880,000.
- The two centers combined to assist businesses in creating 58 new jobs and retaining 340 current jobs.
- The SBDC and PTAC also collaborated in conducting more than 15 workshops that provided timely information to over 295 business owners. Workshop topics included: Electronic Commerce, Internet Marketing, Small Business Tax Issues, Small Business Legal Issues: Copyrights, Patents and Trademarks, Business Planning, and Small Business Financial Management.

c. Source of Funds – Smith-Lever, state

d. Scope of Impact – Illinois

Key Theme: Workforce Preparation – Youth and Adult

Workforce Preparation (WP)
Extending Career Development Opportunities for Rural Minority Students

a. Hispanic minority communities have sprung up in small towns across the Midwest, particularly those that are home to large meatpacking operations. School districts and other agencies in these situations often struggle to provide educational opportunities for Hispanic children. One such town is Beardstown, Illinois, where the population of five thousand includes several hundred Hispanic families.

The Illinois 4-H staff leveraged Smith Lever, state and local funds through grants from the Kauffman Center for Entrepreneurial Leadership to implement the Mini-Society® program with Hispanic youth in the Beardstown school system. The Kauffman Grant was later supplemented with state money from the Partnership Illinois program to expand efforts by providing career development education for high school aged Hispanic youth in the community. The goals of the project are (1) to expand awareness of educational and career options for the Hispanic youth; (2) to develop knowledge and competency in various aspects of career and individual development (e.g., understanding personality, communication skills, entrepreneurship); and (3) to foster community integration by involving local businesses, agencies, community leaders, and the school district as partners in the project.

The three staff members most heavily involved in the project each contributed approximately ten percent FTE. A series of planning meetings with local school personnel were held throughout the 1999/2000 school year. A modular, experiential curriculum was developed in both English and Spanish. During the summer of 2000, 60 contact hours of career development instruction were delivered to 20 high school age students. The program included online career research, simulations, portfolio development, and interviews with local people representing a variety of occupational clusters. Both participants and collaborators were very satisfied with the program.

The program, called *Transitiones de la Carrera*, was popular from the beginning. The course had the highest voluntary enrollment of any offered during the summer session. Pretest and posttest data indicated student gains in knowledge related to career development. Teachers and community business volunteers also expressed enthusiasm for the program, and teachers have requested that the program be offered again

during the regular school term. Most importantly, the local Extension staff forged relationships with key persons, which will foster further much-needed programming for this audience.

b. Source of Funds – Smith-Lever, state, local Extension leveraged with grants from private and state sources.

c. Impact – Twenty under-served youth receive career education; Extension lays the groundwork for working with a traditionally under-served audience.

d. Scope of Impact - Illinois

Leadership Development in Community Clubs

a. Anecdotal evidence, especially from 4-H alumni, about the value of 4-H life skills abound. Extension Youth Educators in Northwest Illinois, however, wanted to see if they could document life skill development of current 14-year-old 4-H members. They first identified specific behaviors which 14-year-olds might expect to gain from the 4-H club experience. These included confidence in parliamentary procedures, public speaking skills, skills in working with younger 4-H members, experiences or skills in working with people whom they would not have met outside of 4-H, and knowledge of the local community gained through 4-H.
Using the Reflective Appraisal of Programs (RAP) [4] study design, a total of 41 14-year-olds were interviewed by telephone. The members were sampled at random from six counties. These members were asked about their years of experience in 4-H and leadership positions held in community clubs. Members were then asked to reflect upon each of the "life skill" areas listed above. They were then asked to what extent 4-H had helped them develop or feel comfortable with the skill. If the member responded that they had the skill, the interviewer asked them to recall what they had learned and how they had used the skill. Members were then rated as having evidence or no evidence of the skill. To be categorized "as having evidence of the skill," they first had to claim to have a skill or experience and they also had to give a reasonable and plausible evidence of actually having the skill or experience. For example, they were first asked the extent to which they felt comfortable using parliamentary procedure **as a result of their 4-H club experience**. Then they were asked to recall some of the things they learned about parliamentary procedures. The rating was done independently by two raters who did not take part in the actual interviews.

[4] Claude Bennett currently with CSREES, USDA, developed this approach.

b. Impact - More than three-fifths stated they felt comfortable in using parliamentary procedure and could substantiate that claim.
- Two out of five reported and substantiated the claim they had used parliamentary procedure learned through 4-H in other settings.
- Almost nine out of ten reported 4-H helped them to be more comfortable in public speaking situations.
- Almost three out of four reported that 4-H had helped them learn to work with younger members and they could give examples of how 4-H had helped.
- More than four out of five reported 4-H had helped them meet people they would have not met outside of 4-H.
- Three out of four said 4-H had helped them learn about their community and could cite examples.
- Illinois has more than 10,343 4-H members aged 14-years-old. It would seem reasonable to extrapolate these findings to this larger group.

c. Source of Funds – Smith-Lever, state, local

d. Scope of Impact - Illinois

Camp Clover

a. Not every youth can be reached through the traditional community club approach. To reach audiences that have not been served by 4-H, Illinois launched the "Camp Clover" program. During its first year of operations, almost 2,500 youth in 43 counties participated in the "Camp Clover - Summer Adventure" program. The vast majority of the youth (about 85 percent) had not been in 4-H and were from primarily "underserved" communities. Local cooperating Extension offices could choose from four curricula for the program: "Adventures in Our Community, " "WOW! Wild Over Work," "Food Pyramid Revisited," "Aerospace Adventures," and "Science Can Do That?" All participants were offered the nutrition module and one of the other modules.

b. Impact -
<u>Adventures in Our Community (629 Campers)</u>
- 81 percent identified community strength
- 62 percent identified a community need
- 79 percent could name a good citizen deed
- 481 completed a community service project

<u>WOW! Wild Over Work (1169 Campers)</u>
- 36 percent improved their knowledge of available jobs

<u>Food Pyramid Revisited (1857 Campers)</u>

- 64 percent could name all 5-food groups at the end of day 1
- 83 percent could name 4 of 5 food groups at the end of day 1
- 86 percent demonstrated proper cutlery skills at the end of day 2

- 90 percent named correct serving sizes in fruit and vegetable and milk groups
- 80 percent correctly answered 7 of 10 food safety questions

b. Aerospace Adventures (1075 Campers)
- 95 percent designed & tested an airplane &/or rocket
- 75 percent modified their rocket design

Science Can Do That? (634 Campers)
- 97 percent correctly tested acid/base substances
- 92 percent recorded weights
- 80 percent graphed weights
- 85 percent performed 8 different tests on substances
- 78 percent learned 3 factors that affect solution formation

c. Source of Funds – Smith-Lever, state, local

d. Scope of Impact - Illinois

B. **Stakeholder Input Process**

Stakeholders provide continuous feedback in terms of programming needs as well as programming results. The College of ACES has many channels for stakeholder input. The College, the Office of Research, the Office of Extension and Outreach, all academic departments, and many programs and projects in the College have advisory councils made up of stakeholders. The advisory councils meet at least yearly, but in many instances more frequently than that, and are active participants in determining the direction of the College units as well as specific programs. Several hundred stakeholders, representing both organizations and individuals, participate in this process on an annual basis. Stakeholder input is typically oriented towards input in the nature of the decision-making within the units and projects in the College, as well as focusing directly on the results from the College's activities for the stakeholder groups or for the state population at large. Stakeholders who function in an advisory capacity typically do not distinguish between research and outreach outcomes, and they form a powerful voice for the effective integration of research and extension activities.

The Council on Food and Agricultural Research (C-FAR) was organized to increase state funding for food and agricultural research. C-FAR is made up of such organizations as the Illinois Farm Bureau, the Audubon Council of Illinois, the Illinois Dietetic Association, the Horseradish Growers of Illinois, Illinois Rural Partners, and nearly 50 other equally diverse state organizations. While these organizations frequently disagree sharply on specific aspects of agricultural production and policy, nutrition, and rural development, all agree that a results-focused research program will provide a valuable contribution to resolving many of the issues affecting the health of the Illinois population, agricultural production and rural development. C-FAR has been successful in obtaining additional funding from the state legislature to enhance College-based agricultural research at the University of Illinois and other state institutions. Because C-FAR has been willing to expend the effort to increase the support for research it has acquired a significant role in helping to define the research agenda. By focusing continuous attention on the need to solve "real- world" problems and insisting on the timely sharing of research results with constituent groups, C-FAR has made a significant impact on the way in which the research and outreach agendas are being defined in the College.

Every Extension unit has a local council, which provides ongoing input in Extension program planning and evaluation. Councils are active in helping to identify local needs and provide formal and informal feedback on Extension activities. Approximately 1,400 volunteers serve on local Extension councils throughout the State. The chair of each council, or his/her designee, also serves on the regional advisory council in each of the five regions in Illinois. Finally, Extension has a state advisory committee made up of three representatives from

each region who meet at least twice a year for a multiple-day session with the state Extension administration to provide input on programming needs and Extension processes.

To strengthen the role of advisory councils at all levels, Extension has initiated an ongoing program of council training. In addition to training that takes place at the council level, a statewide-organized training effort is taking place through regional meetings to strengthen the capabilities of council members. The training sessions have targeted new council members. In addition, Extension has completed a Council Guide that provides all council members with background information on Extension policies, procedures, and programs.

Extension is currently engaged in a multi-year review of all local units, with special emphasis on programming quality, local programming impact, diversity of stakeholder input and the needs of underserved audiences.

In program planning, Illinois relies very heavily on local input. The program planning process is structured on a four-year "rolling" basis. Each year, one of the four core programming areas, Nutrition, Family and Consumer Sciences, Agriculture and Natural Resources, 4-H Youth Development, and Community and Economic Development, is engaged in an in-depth program needs assessment process. In FY00, the program planning process focused on programming needs in agriculture and natural resources. All local units were asked to identify local programming needs, and designate from four to six unit representatives to meet in one of ten regional listening sessions. Attendance at the meetings ranged from 12 to 46 stakeholders. In addition, unit leaders and educators attended each of the meetings to listen and to take notes. The participants in the listening sessions reflected many local interests in agriculture and natural resources issues as they affect Extension programming. Producers were well represented, as were input suppliers, bankers, and merchandisers. Others represented residents with an interest in home horticulture. Employees of several state and federal agencies also attended sessions. The meetings were held during the day on weekdays, so it was recognized that producers and others who hold daytime employment might have found it difficult to attend. Therefore, representatives from the units were asked to collect information in their units beforehand, and to share the concerns of a wider audience, including those that might not be able to participate in the specific session. As a direct result of the information gathered at the listening session, research and outreach efforts in Agriculture and Natural Resources were modified and new programs were initiated.

C. Program Review Process

No significant changes have been made in the program review process.

D. Evaluation of the Success of Multi- and Joint Activities

Throughout we have reported consistently on integrated extension and research activities in terms of programming and in terms of outcomes.

Multi-State Activities

The following multi-state activities have both an extension and research component: Midwest Plan Service; Illinois-Indiana Sea Grant Program; North Central Regional Center for Rural Development (NCRCRD); the Agri-Ecology/Sustainable Agriculture Program; the National Needs Assessment for Agricultural Safety and Health; and the FSNEP National Program Coordinators Team. All are ongoing processes that include institutionalized review. Illinois participates in the institutionalized reviews of each of these groups, but does not necessarily undertake an evaluation of its own. The entities just mentioned each have an advisory or executive committee that is multi-state and combines Extension and research representation. The committees report to the North Central Regional Extension Directors at regular intervals.

The Illinois-Indiana Sea Grant Program is involves in the hiring of a new Extension specialist in aquaculture. As part of the preparation for the hiring process, representatives from the University of Illinois, Purdue University, and the Sea Grant program evaluated the accomplishments of the program and identified the directions in which the program needs to progress.

The Illinois-Missouri Strategic Opportunities Conference was specifically organized to provide Extension field staff of both states an opportunity to learn together and to learn from each other. An evaluation of the conference was carried out at the end of the conference; an impact evaluation has not been completed.

The collaboration between the University of Illinois and Purdue University in terms of producing grain and livestock marketing newsletters has been a very successful ongoing activity. The collaboration has allowed both states to provide useful and timely information to producers in areas in which they may not have sufficient research and outreach strength to carry out this activity independently.

E. Multi-State Extension Activities

E. Multi-State 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 and Integrated Activities
(Attach Brief Summaries)

itution University of Illinois
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ck one: X **Multistate Extension Activities**
____ **Integrated Activities (Hatch Act Funds)**
____ **Integrated Activities (Smith-Lever Act Funds)**

e of Planned Program/Activity	Actual Expenditures FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
west Plan Service	23,112				
ois-Indiana Sea Grant Program	31,190				
RC for Rural Development	2,684				
-time Farming/Sustainable Agriculture	37,903				
n Progress Show	12,709				
issouri Strategies & Opportunities Conf.	22,600				
Illinois Outlook Guide	4,275				
onal Needs Assessment	11,000				
EP Nat'l. Prog. Coordinators Team	8,684				
l	154,157				

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Director **Date**

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Multi-State Extension Activities

Midwest Plan Service – Midwest plan Service provides a regional opportunity to publish research-based Extension publications in agriculture and natural resources of use to the North Central Region. All states in the North Central Region participate financially in Midwest Plan Service and are users of the publications.

Illinois-Indiana Sea Grant Program – The Illinois-Indiana Sea Grant Program provides up-to-the minute information on Great Lakes issues, emphasizing concerns in the Southern Lake Michigan Region. Topics addressed include water quality, aquaculture and seafood safety, biological resources, sustainable coastal development, and coastal processes. It is funded by NOAA, the University of Illinois and Purdue University. The program is closely tied to the joint aquaculture program of the two universities.

North Central Regional Center for Rural Development (NCRCRD) – NCRCRD coordinates and supports research and extension activities in the areas of community and economic development throughout the North Central Region. The NCRCRD has a number of programmatic emphases which vary over time as the needs arise. One of the current activities of the NCRCRD is the preparation and publication of "Take Charge," a research-based guide to community-based development activities. Funding is provided to Iowa State University for coordinating programs.

Agroecology/Sustainable Agriculture Program (Part-Time Farming) – The Agroecology/Sustainable Agriculture Program (ASAP) promotes Research and Extension which protects Illinois' natural and human resources while sustaining agricultural production over the long term. The program includes cooperative efforts of North Central land grant institutions and other partners, as facilitated and funded in part by the USDA Sustainable Agriculture Research and Education (SARE) program. SARE offers competitive grants related to applied research and extension pertaining to sustainable agriculture.

Farm Progress Show – The Farm Progress Show is one of the premier opportunities in the Midwest for producers and others associated with agriculture to learn about current innovative technology. The show rotates among Illinois, Iowa and Indiana. When the Farm Progress Show is located in Illinois, the College of Agricultural, Consumer and Environmental Sciences puts together a major display that integrates the education Research and Extension functions of the College.

Illinois-Missouri Strategic Opportunities Conference – This conference was a professional development opportunity for Unit Leaders from the University of

Illinois Extension and County Program Directors from the University of Missouri Extension. (St. Louis, Missouri May 17-19, 2000.)

Agricultural Outlook Guide – The University of Illinois and Purdue University Research and Extension collaborate on an ongoing project to produce grain and livestock marketing newsletters.

National Needs Assessment for Agriculture Safety and Health – Three-year project to convene a consensus-building process that would host a conference and publish a document on agriculture safety and health to serve as a resource in national policy discussions. Representatives from eight universities including Colorado State, Purdue and University of California are included on the planning committee.

FSNEP National Program Coordinators Team – The Food Stamp Nutrition Education Program National Program Coordinators Team is funded by the North Central Region to facilitate communication between FNS and CSREES and to build state capacities for effective program delivery and evaluation to ensure the quality of the nutrition education programming associated with FSNEP.

F. Integrated Activities (Smith-Lever Act)

F. Integrated 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 and Integrated Activities
(Attach Brief Summaries)

itution University of Illinois
e Illinois

ck one: ____ Multistate Extension Activities
____ Integrated Activities (Hatch Act Funds)
X Integrated Activities (Smith-Lever Act Funds)

e of Planned Program/Activity	**Actual Expenditures** FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
ois-Indiana Sea Grant Program	**31,190**				
-Time Farming	**37,903**				
m Progress Show	**12,709**				
Management Program	**4,500**				
ois Environmental Policy Review	**2,500**				
gram Support for New Faculty	**158,131**				
gram Support for Joint Research/	**175,355**				
ension Appointments					
l	**422,288**				

Director **Date**

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Integrated Activities (Smith-Lever Act Funds)

Illinois-Indiana Sea Grant Program – The Illinois-Indiana Sea Grant Program provides up-to-the-minute information on Great Lakes issues, emphasizing concerns in the Southern Lake Michigan region. Topics addressed include water quality, aquaculture and seafood safety, biological resources, sustainable coastal development, and coastal processes. It is funded by NOAA, University of Illinois and Purdue University.

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Pest Management Program – On-farm applied Research and Extension efforts in fruit and vegetable entomology.

Illinois Environmental Policy Review – Newsletter articles written by researchers that educate city and county officials and citizens of Illinois about state, regional and federal policies and issues concerning the environment including safe food and the quality of air and water.

Program Support – Program support faculty who have joint Research/Extension appointments.

G. Integrated Activities (Hatch Act Funds)

G. Integrated Activities (Hatch Act Funds)

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
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itution University of Illinois
e Illinois

ck one: ____ Multistate Extension Activities
X Integrated Activities (Hatch Act Funds)
____ Integrated Activities (Smith-Lever Act Funds)

e of Planned Program/Activity	Actual Expenditures FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Illinois-Indiana Sea Grant Program	24,952				
ainable Agriculture/Part-Time Farming	163,767				
Farm Progress Show	13,474				
Pest Management Program	6,200				
ois Environmental Policy Review	6,808				
Program Support for New Faculty	124,040				
l	339,241				

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Director Date

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Integrated Activities (Hatch Act Funds)

Illinois-Indiana Sea Grant Program – The Illinois-Indiana Sea Grant Program provides up-to-the-minute information on Great Lakes issues, emphasizing concerns in the Southern Lake Michigan region. Topics addressed include water quality, aquaculture and seafood safety, biological resources, sustainable coastal development, and coastal processes. It is funded by NOAA, University of Illinois and Purdue University.

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Appendix A

endix A: FY2000 Annual Report Statistical Tables

le 1 College of ACES - Research

	GOAL I	GOAL II	GOAL III	GOAL IV	GOAL V	Total	Multi-State
al CSREES Research	3,871,754	950,739	365,204	1,326,040	536,861	7,050,598	1,429,341
al Other Federal Research Funds	3,640,316	471,356	449,334	434,606	216,490	5,212,102	110,589
al Non-Federal Funds	23,535,657	5,825,631	2,766,462	4,605,409	2,039,942	38,773,101	4,843,198
	GOAL I	**GOAL II**	**GOAL III**	**GOAL IV**	**GOAL V**	**Total**	6,383,128
deral Funding - all sources	3,370,759	1,034,450	2,194,160	624,892	6,849,888	14,074,149	52
te Funding	6,036,696	1,852,598	3,929,524	1,119,120	12,267,474	25,205,412	
al Funding	1,775,684	544,939	1,155,863	329,187	3,608,457	7,414,130	20
er Funding	603,041	185,067	392,543	111,796	1,225,471	2,517,918	34
al Estimated - All Sources	11,786,180	3,617,053	7,672,090	2,184,995	23,951,290	49,211,609	54
ce-to-Face Teaching Contacts	485,619	149,048	316,056	90,088	986,783	2,027,594	
imated Knowledge/Practice Changes							
ng the conservative assumption that							
% of participants achieve some change	242,810	74,524	158,028	45,044	493,392	1,013,797	

Table 2 College ACES - of I Extensi

Values approxi ions extrapo d from Extensi reportin system used to meet U of I positive tim reporting requirements monitor Affirmative Action implementation

Appendix B

Appendix B

UNIVERSITY OF ILLINOIS PLAN OF WORK
MULTI – STATE RESEARCH PROJECTS

(AS OF DECEMBER 2000)

Regional: XX-XXX Project: ILLU-01-0604
Principal Investigator: S. Pueppke
Title: Illinois – Missouri Biotechnology Alliance
Cooperating States: MO

Regional: NC-007 Project: ILLU-15-0325
Principal Investigator: T. Hymowitz
Title: Plant Germplasm and Information Management and Utilization
Cooperating States: IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI

Regional: NC-007 Project: ILLU-65-0350
Principal Investigator: G. Kling
Title: Introduction, Maintenance, Evaluation, and Utilization of Plant Germplasm
Cooperating States: IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI

Regional: NC-062 Project: ILLU-70-0316
Principal Investigator: M. Kuhlenschmidt
Title: Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety
Cooperating States: OH, MI, IN, AZ, MN, KS, IA, NE, SD, WA, MO, PA

Regional: NC-094 Project: ILLU-65-0324
Principal Investigator: S. Hollinger
Title: Impact Of Climate And Soils On Crop Selection And Management
Cooperating States: IN, MO, ND, IA, MI, NE, GA, KS, OH, SD, MN

Regional: NC-100 Project: ILLU-01-0323
Principal Investigator: S.G. Pueppke
Title: Planning And Coordination Of Cooperative Regional Research
Cooperating States: IA, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI

Regional: NC-100 Project: ILLU-01-0324
Principal Investigator: S.G. Pueppke
Title: RRF Administration, Planning And Coordination
Cooperating States: IA, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI

Regional: NC-113 Project: ILLU-35-0307
Principal Investigator: D. Kesler
Title: Methods To Increase Reproductive Efficiency In Cattle
Cooperating States: IA, KS, MI, MO, OH, WI

Regional: NC-125 Project: ILLU-65-0346
Principal Investigator: H. Wilkinson

Title: Biocontrol of Soilborne Plant Pathogens
Cooperating States: IN, IA, KS, MI, MN, NE, ND, OH, WI, NJ, NY
Regional: NC-125 Project: ILLU-15-0353
Principal Investigator: D. Eastburn
Title: Biocontrol of Soilborne Plant Pathogens
Cooperating States: IN, IA, KS, MI, MN, NE, ND, OH, WI, NJ, NY

Regional: NC-129 Project: ILLU-70-0358
Principal Investigator: W. Haschek-Hock
Title: Fusarium Mycotoxins In Cereal Grains
Cooperating States: GA, IN, IA, KS, MI, MN, MO, NE, ND, WI, PA

Regional: NC-129 Project: ILLU-70-0332
Principal Investigator: W. Haschek-Hock
Title: Mycotoxins In Cereal Grains
Cooperating States: GA, IN, IA, KS, MI, MN, MO, NE, ND, WI, PA

Regional: NC-136 Project: ILLU-10-0318
Principal Investigator: K.D. Rausch
Title: Improvement Of Thermal And Alternative Processes For Foods
Cooperating States: CA, FL, IN, IA, MI, MN, MO, NE, NJ, NY, NC, ND, OH, OR, PA, SD, TX, WA

Regional: NC-140 Project: ILLU-65-0318
Principal Investigator: M. Kushad
Title: Rootstock and Interstem Effects On Pome and Stone Fruit Trees
Cooperating States: AR, CA, CO, GA, KY, MD, MA, ME, NJ, NY, NC, OR, PA, SC, UT, VT, VA, WA, IN, IA, KS, MI, MN, MO, TN, OH, SD, WI, WV

Regional: NC-142 Project: ILLU-15-0390
Principal Investigator: F. Below
Title: Regulation of Photosynthetic Processes
Cooperating States: AZ, ND, FL, IA, KS, MI, MN, MO, NE, NV, OR, PA, WA, WI

Regional: NC-168 Project: ILLU-35-0323
Principal Investigator: M. Grossman
Title: Advanced Technologies For the Genetic Improvement of Poultry
Cooperating States: AL, AR, CA, DE, IN, IA, MD, MI, MN, NC, OH, VA, WI, MA

Regional: NC-170 Project: ILLU-65-0369
Principal Investigator: M. Raheel
Title: Occupational Safety and Health Through the Use Of Protective Clothing
Cooperating States: CA, GA, IA, MD, MI, NE, NY, OK

Regional: NC-174 Project: ILLU-65-0367
Principal Investigator: K.R. Olson
Title: Management Of Eroded Soils For Enhancement Of Productivity And Environmental Quality
Cooperating States: IN, IA, MI, MN, MO, ND, OH, SD, WI

Regional: NC-185 Project: ILLU-35-0364
Principal Investigator: J. Clark
Title: Metabolic Relationships in Supply of Nutrients For Lactating Cows

Cooperating States: AL, AZ, CA, FL, IN, IA, KS, KY, MD, MI, MN, MO, NH, ND, OH, PA, SD, UT, WA, WI

Regional: NC-202 Project: ILLU-15-0320
Principal Investigator: C.L. Sprague
Title: Characterizing Weed Population Variability For Improved Weed Management Decision Support Systems
Cooperating States: CO, IN, IA, KS, MI, MN, MO, MT, NE, ND, OH, SD, TX, WI

Regional: NC-205 Project: ILLU-65-0306
Principal Investigator: D. Onstad
Title: Ecology and Management Of European Corn Borer and Other Stalk-Boring Lepidoptra
Cooperating States: DE, IA, KS, MI, MN, MO, NE, ND, PA, WI, IN, NY, TX, OH KY, MD, NC

Regional: NC-209 Project: ILLU-35-0353
Principal Investigator: H.A. Lewin
Title: Genetic Improvement Of Cattle Using Molecular Genetic Information
Cooperating States: AZ, CA, IA, MA, MI, MN, OH, SD, VA, WI

Regional: NC-210 Project: ILLU-35-0310
Principal Investigator: J.E. Beever
Title: Positional and Functional Identification Of Economically Important Genes In The Pig
Cooperating States: IA, KS, MI, MN, NE, OK, UT

Regional: NC-213 Project: ILLU-05-0371
Principal Investigator: L.D. Hill
Title: Marketing and Delivery of Quality Cereals and Oilseeds
Cooperating States: ID, IN, IA, KS, MN, MT, NE, OH, TX, WA, WI

Regional: NC-213 Project: ILLU-10-0351
Principal Investigator: M. Paulsen
Title: Marketing and Delivery of Quality Cereals and Oilseeds
Cooperating States: ID, IN, IA, KS, MN, MT, NE, OH, TX, WA, WI

Regional: NC-218 Project: ILLU-15-0323
Principal Investigator: R. Hoeft
Title: Characterizing Nitrogen Mineralization and Availability in Crop Systems To Protect Groundwater Resources
Cooperating States: IN, IA, KS, MI, MN, NE, OH, SD, WI, MO

Regional: NC-221 Project: ILLU-05-0301
Principal Investigator: P.J. Barry
Title: Financial Agriculture And Rural America: Issues Of Policy, Structure And Technical Change
Cooperating States: AR, IN, IO, KY, MI, ND, NY, OH, TX, KS, MN

Regional: NC-222 Project: ILLU-05-0308
Principal Investigator: H.B. Lakner
Title: Impact Of Technology On Rural Consumers Access To Food And Fiber Producers
Cooperating States: CO, NY, KY, MN, MS, IA, ND, OH, NE, WI, OK

Regional: NC-225 Project: ILLU-35-0356
Principal Investigator: D.B. Faulkner
Title: Improved Grazing Systems For Beef Cattle Production
Cooperating States: IA, KS, MO, NE, OH

Regional: NC-226 Project: ILLU-65-0336
Principal Investigator: E.R. Zaborski
Title: Development Of Pest Management Strategies For Forage Alfalfa Persistence
Cooperating States: IN, KY, MD, M, MN, MO, NE, NY, OH, OK, PA, SD, VA, WI, WY

Regional: NC-228 Project: ILLU-70-0328
Principal Investigator: D.N. Tripathy
Title: Avian Respiratory Diseases: Pathogenesis, Surveillance, Diagnosis And Control
Cooperating States: AL, AR, IN, IA, MI, MN, OH

Regional: NC-229 Project: ILLU-70-0323
Principal Investigator: F.A. Zuckermann
Title: Porcine Reproductive And Respiratory Syndrome: Mechanisms Of Disease And Methods For The Detection
Cooperating States: NC, OH, IA, KS, MI, MN, MO, NE, ND, SD

Regional: NC-230 Project: ILLU-65-0338
Principal Investigator: G. McIsaac
Title: Integrating Biophysical Functions Of Riparian Systems With Management Practices And Policies
Cooperating States: IA, IN, MI, MN, MO, NE, OH, SD, WI

Regional: NE-112 Project: ILLU-70-0354
Principal Investigator: D. Morin
Title: Mastitis Resistance To Enhance Dairy Food Safety
Cooperating States: CA, CT, IA, KY, LA, MI, NY, OH, PA, TN, VA, VT, WA

Regional: NE-124 Project: ILLU-65-0330
Principal Investigator: J. Juvik
Title: Genetics Manipulation Of Sweet Corn Quality and Stress Resistance
Cooperating States: FL, HI, ID, IN, MN, NY, PA, OR, WI, OH

Regional: NE-127 Project: ILLU-35-0383
Principal Investigator: P. Harrison
Title: Biophysical Models For Poultry Production Systems
Cooperating States: MI, CT, IA, MD, MN, NE, PA, TX

Regional: NE-132 Project: ILLU-35-0309
Principal Investigator: M. Murphy
Title: Environmental and Economic Impacts Of Nutrient Flows In Dairy Forage Systems
Cooperating States: IN, MD, MA, MI, NJ, NY, PA, UT, WA, WI, WV

Regional: NE-138 Project: ILLU-70-0322
Principal Investigator: D. Tripathy
Title: Epidemiology And Control Of Emerging Strains Of Poultry Disease Respiratory Agents
Cooperating States: CT, DE, GA, MD, NY, NC, OH, TX, AL

Regional: NE-148 Project: ILLU-35-0384
Principal Investigator: G.E. Dahl
Title: Regulation Of Nutrient Use In Food Producing Animals
Cooperating States: CT, ME, MD, NJ, NY, PA, VT, MN, NC

Regional: NE-165 Project: ILLU-05-0341
Principal Investigator: L. Unnevehr
Title: Private Strategies, Public Policies and Food System Performance
Cooperating States: AR, CA, CT, GA, IN, IA, KS, LA, MA, MD, MI, MN, NE, NH, NJ, NY, NC, OH, RI, TX, OR, VA, WI, OR, FL, MT

Regional: NE-167 Project: ILLU-05-0348
Principal Investigator: H. Hunt
Title: Family Business: Interaction In Work and Family Spheres
Cooperating States: HI, IA, MI, MO, MT, NE, ND, NH, NY, OH, PA, UT, VT

Regional: NRSP-3 Project: ILLU-01-0399
Principal Investigator: V.C. Bowersox
Title: The National Atmospheric Deposition Program
Cooperating States: CA, CO, GA, IN, IA, KS, MI, MN, NE, NH, OH, PA, UT, VA

Regional: NRSP-3 Project: ILLU-65-0304
Principal Investigator: G. Rolfe
Title: The National Atmospheric Deposition Program
Cooperating States: CA, CO, GA, IN, IA, KS, MI, MN, NE, NH, OH, PA, UT, VA

Regional: NRSP-5 Project: ILLU-65-0305
Principal Investigator: S. Korban
Title: Develop and Distribute Deciduous Fruit Tree Clones Free Of Graft-Transmissible Pathogens
Cooperating States: NY, MD, MI, IA, VA, AR, OK, CA, WA, Canada

Regional: S-260 Project: ILLU-65-0335
Principal Investigator: R. Novak
Title: Biology, Ecology, and Management of Riceland Mosquito Populations
Cooperating States: AR, LA, TX, MS, CA

Regional: S-265 Project: ILLU-65-0309
Principal Investigator: L. Solter
Title: Development and Integration Of Entomopathogens Into Pest Management Systems
Cooperating States: AL, AR, CA, CO, FL, GA, ID, KY, LA, ME, MD, MS, MN, NJ, NY, NC, OH, SC, TN

Regional: S-273 Project: ILLU-10-0307
Principal Investigator: P.K. Kalita
Title: Development And Application Of Comprehensive Agricultural Ecosystem Models
Cooperating States: FL, GA, IA, LA, MD, MN, NC, TN, TZ, MS

Regional: S-274 Project: ILLU-70-0311
Principal Investigator: C. Jones
Title: Integrated Management of Arthropod Pests Of Livestock and Poultry

Cooperating States: AL, AR, FL, GA, IA, IN, KS, LA, MN, MO, NE, NH, NM, ND, NY, OK, PA, TN, TX, WY, KY

Regional: S-275 Project: ILLU-10-0324
Principal Investigator: T. Funk
Title: Animal Manure And Waste Utilization, Treatment, and Nuisance Avoidance For Sustainable Agriculture
Cooperating States: AL, CA, FL, GA, HI, IN, IA, KY, LA, MN, NC, OR, SC, TN, TX, VA, WI

Regional: S-278 Project: ILLU-05-0340
Principal Investigator: L. Unnevehr
Title: Food Demand, Nutrition and Consumer Behavior
Cooperating States: CA, FL, GA, IA, KS, LA, ME, MN, NJ, NY, NC, OH, OR, SC, TN, TX, VA, WA, WV, WI, IN

Regional: S-281 Project: ILLU-65-0307
Principal Investigator: C. Helm
Title: Dynamic Soybean Insect Management For Emerging Agricultural Technologies and Variable Environments
Cooperating States: AR, FL, GA, IN, IA, KY, LA, MS, NE, OH, SC, TN, TX, VA

Regional: S-284 Project: ILLU-35-0365
Principal Investigator: R.D. Shanks
Title: Genetic Enhancement Of Health And Survival For Dairy Cattle
Cooperating States: IN, IA, LA, MN, NE, NY, NC, PA, VA, WI

Regional: S-290 Project: ILLU-65-0347
Principal Investigator: D. Williams
Title: Technical And Economic Efficiencies Of Producing, Marketing And Managing Environmental Plants
Cooperating States: AL, AR, DE, FL, GA, KY, LA, ME, MI, MS, NC, NJ, OH, OR, PA, IN, RI, SC, TN, TX

Regional: S-294 Project: ILLU-65-0376
Principal Investigator: M.M. Kushad
Title: Postharvest Quality And Safety In Fresh-Cut Vegetables And Fruits
Cooperating States: AL, AR, CA, FL, GA, IA, LA, MD, MI, NY, OK, PA, TN

Regional: S-300 Project: ILLU-65-0349
Principal Investigator: R.J. Novak
Title: Mosquito And Agricultural Pest Management In Riceland Ecosystems
Cooperating States: AR, CA, FL, LA, TX

Regional: S-301 Project: ILLU-65-0344
Principal Investigator: L. Solter
Title: Development, Evaluation And Safety Of Entomopathogens For Control Of Arthropod Pests
Cooperating States: AL, AR, AZ, CA, CT, FL, GA, D, KY, LA, ME, MS, MN, NJ, NY, NC, OH, SC, TN, TX, VA

Regional: W-082 Project: ILLU-10-0304
Principal Investigator: R. Cooke

Title: Pesticides and Other Toxic Organics In Soil and Their Potential For Groundwater
Cooperating States: AL, AZ, CA, CO, DE, FL, HI, IN, IA, LA, KS, MN, MT, PA, SD, WA
Regional: W-102 Project: ILLU-70-0327
Principal Investigator: M.M. McAllister
Title: Control Of Animal Parasites In Sustainable Agricultural Systems
Cooperating States: CA, GA, KS, LA, MN, MO, MS, MT, UT, TX, VA, WA

Regional: W-147 Project: ILLU-65-0351
Principal Investigator: H.T. Wilkinson
Title: Managing Plant-Microbe Interactions In Soil To Promote Sustainable Agriculture
Cooperating States: AK, AZ, CA, ID, MT, NY, OR, WA

Regional: W-171 Project: ILLU-35-0380
Principal Investigator: M. Wheeler
Title: Germ Cell and Embryo Development and Manipulation For the Improvement of Livestock
Cooperating States: AR, CA, CO, IA, LA, OR, UT, WA, CT, WI

Regional: W-181 Project: ILLU-35-0359
Principal Investigator: J. Drackley
Title: Modifying Milk Fat Composition For Improved Manufacturing Qualities and Consumer Acceptability
Cooperating States: CA, ID, NY, OH, SC, SD, UT, VA

Regional: W-188 Project: ILLU-65-0329
Principal Investigator: T. Ellsworth
Title: Improved Characterization and Quantification of Flow and Transport Process In Soils
Cooperating States: AZ, CA, CO, IN, IA, KS, MN, MT, NV, ND, UT, WA, WY