2011 University of Illinois Combined Research and Extension Plan of Work

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I. Plan Overview

1. Brief Summary about Plan Of Work

The College of Agricultural Consumer and Environmental Sciences Strategic Goals

In the coming months and years, the strategies and the methods employed by the College to achieve success will need to be flexible, but the essential goals remain the same: global preeminence in our scholarship and exceptional value to society, especially on issues relevant to Illinois.

ACES will be recognized as the global leader in learning, discovery, and engagement in the most promising areas of scholarship broadly relevant to agricultural, consumer, and environmental sciences. ACES will be acknowledged in Illinois, across America, and around the world for preparing globally competitive undergraduate, graduate, and mid-career students; for first-class discovery research that is purposefully translated into practice; and as the preferred source of knowledge that informs sound individual and collective decisions, transforms lives, and deepens cooperative relationships.

The College of ACES is currently engaged with the citizens of Illinois to determine ways to accomplish our aspirations. For example, the Vision of Illinois Agriculture has attracted a cohort of committed stakeholders to implement a tangible set of goals for the future of agriculture in this state. Our partners expect the University to step up and do its part to meet real needs with real solutions.

University of Illinois Extension

The mission of University of Illinois Extension is to provide practical, research-based information and programs to help individuals, families, businesses, and communities in Illinois. Its mission, in short, is to help Illinois residents put knowledge to work.

Today, University of Illinois Extension [Extension] serves both urban and rural areas by offering programs that address critical issues facing Illinois residents. Extension's educational outreach focuses on healthy society; food security and safety; environmental stewardship; a sustainable and profitable food production and marketing system; and enhancing youth, family, and community wellbeing. Five critical societal issues are part of a new funding initiative being addressed in the major metropolitan areas of Cook County. These issues are civic engagement and economic development; urban community development; urban environment and natural resources; community education for adults and youth; and science, technology, engineering, and math [STEM] education.

Administratively assigned to the College of Agricultural, Consumer, and Environmental Sciences [ACES], Extension is rapidly becoming an entrepreneurial organization with a growing outreach/engagement profile and development of new revenues and strategic collaborations with new public and private partners.

The Illinois Agricultural Experiment Station [Office of Research] [IAES]

IAES is administratively assigned to the College of ACES and is a directly reviewed subsidiary for campus budget review purposes. The unit is situated in the Office of Research and manages a portfolio of research projects underwritten by statutory federal and state appropriations, as well as grants and contracts. IAES research encompasses programs in the College of ACES and in other units funded in part through the IAES. These units include the Colleges of Veterinary Medicine, Engineering, Liberal Arts and Sciences, and Law, as well as the Illinois Natural History Survey. The IAES also funds some research with partners in other institutions.

Faculty and staff with research responsibilities in the College of ACES have some percentage of their research appointments in the IAES. In identifying and responding to new opportunities, the IAES plays a leadership role in articulating and interpreting the research efforts of faculty, departments, and programs in the College, in the spirit of the Hatch Act, and aims to catalyze multidisciplinary research focused on agriculture, food, the environment, and communities. The long-term strategic goal of the College of ACES is to undertake new investments in research that are a balance between discovery and application, as well as between long-term and short-term outcomes, to ensure both new knowledge creation and relevance to

the state's food, agricultural, environmental, and human interests. The IAES is devoted to mission-oriented outcomes focused primarily on development of a sound and competitive agriculture industry. Research and practical translation of knowledge to solve specific problems for IAES stakeholders enables their continuing competitive advantages. IAES research benefits the nation by applying relevant science to the unique conditions of the State of Illinois, including her soil, climate, ecosystems, and agricultural communities. To produce science that matters, the research portfolio demands strong entrepreneurial motivation, as well as elements that are very responsive to those with a stake in the agricultural and food system. More than ever, our research must respond swiftly to the rapid pace of change in today's era of globalization.

Modifications in the Plan of Work

The most significant change to the Plan of Work in 2010 was the renaming of two existing Planned Programs [Biofuels became Sustainable Energy and Food Product Development, Processing and Safety became Food Safety] and the addition of three new Planned Programs [Childhood Obesity, Climate Change, and Global Food Security and Hunger] at the request of the National Institute of Food and Agriculture in late 2009. In some cases targets have been modified to account for projects that an existing Planned Program may have "lost" to one of the new Programs. Additionally, the Human Nutrition, Diet Adequacy, Health and Wellbeing Planned Program was deleted and distributed across the Childhood Obesity and Food Safety Planned Programs.

Although some indicators of outcomes have been added, additional efforts will be made to add to and refine the list as Extension programs are targeted for evaluation of impact and methods identified to gather that impact. This plan also reflects a reduction in projected numbers of individuals who will experience knowledge change or implement practices to more accurately reflect actual efforts of Extension staff to measure indicators and document impact. Attention will again be given to increasing the number of impact evaluations and data collected in the coming year. Reduction in FTE's for Extension is reflective of the actual hours of work reported against knowledge areas related to the Planned Programs and in anticipation of staff reductions due to a projected significant decrease in state funding for Extension.

The thirteen Planned Programs [in alphabetical order] are:

4-H Youth Development: Drawing on research conducted in the College of ACES in nutrition and health, leadership, and youth involvement in groups, as well as the expertise of faculty in the Colleges of Engineering, Medicine, and Education and the Graduate School of Library and Information Services, the University of Illinois Extension 4-H Youth Development program will focus on the three national mission mandates of the National 4-H Program: Science, Engineering, and Technology [SET], Healthy Lifestyles, and Youth in Civic Engagement/Leadership through priority programs that involve [1] learning employment skills, [2] experiencing healthy relationships, [3] becoming physically fit, [4] thinking green, and [5] engaging in science. Character education, enhancing social and emotional learning, and volunteer training will also receive significant attention.

Agricultural and Biological Engineering: In addition to the research noted in other Planned Programs, research is conducted on agricultural infotronic systems, animal waste management, livestock production environments, experiments in the use of synthetic gene circuits as biological sensors, and research focused on subsurface tile drainage systems. Extension efforts focus on manure management and technological advancements related to preserving soil, water, and air quality.

Agricultural and Consumer Economics: The Department of Agricultural and Consumer Economics, drawing on economics, business, and law, analyzes issues related to individuals and families, agriculture and natural resources, and food -- all ranging in scope from local to global. Research activities will focus on the legal issues affecting agricultural production, efforts to follow the variety selection process of Illinois soybean producers, research on agricultural policies and technologies in developing countries, and the utilization of industry clustering to better understand rural economic development. Extension activities will focus on farm financial management including risk management, personal financial management, planning ahead for long-term care and retirement, and savings and investing.

Animal Health and Production: Priorities in the Animal Health and Production Planned Program focus on production management [addressing new issues involving health, feeding, reproduction, genetics, and management] but also deal with issues that cut across several other planned programs, such as human development [companion and recreational animals], youth development [teaching youth about the importance of caring for animals and capitalizing on the animal as a tool for youth development], natural resource utilization [with an emphasis on environmental protection and water quality], agricultural economics [improving marketing skills and business planning], and of course food safety [developing educational programs that encourage participation in quality assurance, residue avoidance, and Hazard Analysis Critical Control Point [HACCP] programs].

Childhood Obesity: Activities include a study of food assistance programs and nutrition and health outcomes across the lifespan, work under the STRONG Kids project [a comprehensive and interdisciplinary approach to the study of childhood obesity and health], efforts to develop dietary intervention strategies to reduce obesity and other related diseases, and continued work under the PONDER-G [Prevent Obesity and Nutriton-related Diseases: Environmental Resources and Genomics] project which aims to establish and recognize the basis of predictive, preventive and personalized interventions in the context of obesity. Extension efforts focus on making healthy food choices [low in fat, high in fiber] and engaging in recommended levels of physical activity.

Climate Change: Activities include the ongoing work of the National Atmospheric Deposition Program [the world's largest precipitation chemistry network with a continuous record of over thirty years], a study evaluating the impact of climate change on the ecology of snakes in agricultural landscapes, the development of analysis methods for studying the effect of climate change on forests, and work focusing on the management of nutrients on the land surface [and in particular the effects on world food demand, on different agricultural practices on nutrient loss, on changes in climate, of technology and consumer preferences on nutrient balances, and of terrestrial effects of atmospheric deposition of nitrogen].

Community Resource Planning and Development: Activities will include evaluating the economic viability of community-based food systems, a study of Latino immigrant remittances, continued study of community responses to ecosystem disturbances, and ongoing work designed to develop priorities for action based on community and regional assessments to insure that the Dixon Springs Agricultural Center robustly serves the Southern Illinois Region. Extension activities will focus on leadership development and education; community planning and design; organizational development; and economic development/sustainability.

Food Safety: Extension activities will focus on safe food handling in homes, commercial entities, and public settings. Research activities include an investigation of acoustic energy as a practical food safety intervention for fruit and vegetable juice processing, improving nitrogen utilization in wheat through new nitrogen technologies, inhibitors, and sensors, further characterization of the pathways associated with nitrogen stress and kernel growth designed to reveal new strategies for improving nitrogen use efficiency in maize and other cereal crops via plant breeding and biotechnology approaches, a study designed to improve the sensory characteristics of soy products [undesirable flavor characteristics are currently a major limitation], an analysis of aroma-active components of foods, research on mycotoxins as they relate to biosecurity and food safety issues, and work to improve barrier properties of bio-based packaging films.

Global Food Security and Hunger: Activities include National Soybean Research Laboratory-managed school lunch projects which are improving the awareness of the benefits of soy among youth, providing technical assistance to microenterprises that use soy foods [helping in-country businesses to create solutions for problems such as malnutrition], work that examines the long-term sustainability of global agriculture, and toxicological analysis of new emerging drinking water disinfection by-products. It is also worth noting that work discussed under several other Planned Programs such as Plant Health, Systems and Production and Animal Health and Production play a substantial role in efforts to insure global food security. Extension programs address corn and soybean crop production and management including integrated pest management.

Human Development and Family Wellbeing: Extension activities will focus on four areas 1] parenting and childcare education, 2] aging issues education, 3] work-life management education, and 4] healthy relationships education. Research activities include a longitudinal study designed to help couples manage work and family life while maintaining intimacy and keeping conflicts constructive, a preventive intervention program designed to increase pro-social sibling relationships, expansion of the Child Development Laboratory Research Database, work with parents to identify those with the potential for safe and effective co-parenting after divorce despite a history of violence, an effort to identify chronic stressors in the lives of low-income, African American families living in low-resource, high-risk neighborhoods and the coping strategies used to address these stressors, and an effort to assess the strengths and needs of gay/lesbian parents and their children in downstate Illinois.

Natural Resources and the Environment: Research activities will include developing, improving, and evaluating watershed models and other approaches for TMDL development and implementation, evaluating physical and biological availability of pesticides and pharmaceuticals in agricultural contexts, studying the effects of anthropogenic change on forest disease dynamics and the consequences for ecosystem processes, the development of quantitative and qualitative models to manage natural resources, and efforts to assess the effects of land use change on microbial communities. Extension activities will focus on tillage systems, soil and water management, and development of volunteer natural resource stewards.

Plant Health, Systems and Production: Activities in this planned program include research designed to replace the current phenotype-based bioassays with a genotype-based classification system, work to limit the risk for foliar diseases on

corn, the use of asexual techniques for plant improvement, development of strategies to measure and manage phytophthora blight of pumpkins, the development of soybean lines which are SCN resistant and also carry the aphid resistance gene Rag1, and the development of maize genotypes with improved nitrogen utilization. Extension activities will address alternative agriculture production, invasive and/or exotic pest diagnosis and management, integrated pest management, and competitive production practices for commercial fruit, vegetable, ornamental, and turfgrass production and management.

Sustainable Energy: Drawing on several disciplines, this planned program will focus on the generation of chemicals and biofuels from renewable biomass sources using a comparative and functional genomic approach. The current focus is on perennial rhizomatous grasses, such as switchgrass and Miscanthus, which are particularly well-suited as bioenergy crops. Work is also being conducted to evaluate the impact of biofuels on emissions reducing technologies for off-road diesel engines and to produce bio-butanol from low-value DDGS. Future economic development aspects will focus on technology transfer and biotech startups. Extension programming will focus on disseminating biofuel research findings and information on alternative energy resources and ways to reduce the use of non-renewable energy sources.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2011	185.0	0.0	115.0	0.0
2012	185.0	0.0	115.0	0.0
2013	185.0	0.0	115.0	0.0
2014	185.0	0.0	115.0	0.0
2015	185.0	0.0	115.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

- Internal University Panel
- External Non-University Panel
- Combined External and Internal University Panel
- Other (Extension Staff Program Teams)

2. Brief Explanation

Research and outreach projects and programs have always been subject to a review process. Formula funded research projects undergo a merit review process at the departmental level by at least three faculty members in a related discipline to insure the projects are scientifically sound, relevant to society's needs, and not duplicative of efforts undertaken elsewhere. Formula projects are then submitted to CSREES for final review and approval. Internal research grants are all reviewed internally. Greater detail on the Hatch review process is included in the Annual Report.

In Extension, all programs are reviewed at several points in the system. Whenever local programming involves the delivery by Extension educators, as it usually does, the programs are reviewed by the state subject matter teams of professional staff, including Specialists. Curriculum materials are sometimes sent for review directly to peers in other states and 4-H curriculum materials are often sent through a national jury process to be shared across state lines. In addition, during annual performance reviews much attention is given to programming quality. Finally, Extension programs are continuously evaluated in terms of inputs, program content and delivery, outputs, and outcomes. While not every project is evaluated in this fashion, programming in all core program areas is reviewed on an annual basis.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

Extensive consultation is ongoing with stakeholders on both a formal and informal basis to help establish program priorities that are reflected in the Planned Programs included in the Plan of Work. The College of Agricultural, Consumer and Environmental Sciences [ACES] has drafted a strategic plan to guide the College within the context of the larger University of Illinois community. The development of Research and Extension agendas are driven by the needs of the state as expressed by advisory councils at the state [such as C-FAR and State Extension Advisory Council], departmental, and local levels and by formal assessment of stakeholder needs.

Peer interaction within Extension program development teams to discuss priority issues identified by stakeholder advisory groups helps Extension and Research faculty and staff identify opportunities for integrating their efforts. Interactions of College Research and Extension faculty and staff at out-of-state and national conferences and professional associations provide opportunities to identify multi-state interest in Research and Extension program development. Examples of critical issues addressed through integrated and multi-state activities include: [1] exotic and invasive pest management addressed through the multi-state Digital Diagnostic System, [2] demand for locally grown food, a focus of the Agroecology/Sustainable Agriculture Program of the North Central states, [3] land use issues addressed in fact sheets written in Indiana and Ohio and distributed in Illinois through the Local Government Information and Education Network, [4] bioenergy development, the focus of the North Central Bioenergy Consortium, and [5] environmental problems addressed through entities such as the Environmental Council, the Illinois State Water Survey, and participation in the National Atmospheric Deposition Program.

2. How will the planned programs address the needs of under-served and under-represented populations of the

Considerable efforts have been made and continue to be made to insure that nontraditional stakeholders are given a voice in identifying needs to be addressed and in shaping the research and programmatic responses to these needs through membership on College and Extension advisory groups [includes 5.5% minority group members] and through formal and informal input through planned needs assessment. Currently 8.2% of the web page hits received by the Urban Extension website are now for Spanish sites. More than 50 websites are available in Spanish as well as one in Arabic. The integrated Research and Extension diabetes educational project has a website version in Spanish. The New Horizon Spanish Radio Program originating from the University of Illinois College of ACES is distributed weekly and broadcast by stations in 24 states. MarketMaker, a multi-state activity, connects food producers with ethnic restaurant owners in urban areas. In addition, expanded state funding for Cook County Extension has focused on five areas to meet the needs of the urban and under-represented populations: [1] science, technology, engineering, and math; [2] urban environment and natural resources; [3] urban community health; [4] civic engagement and economic development; and [5] community education for adults and youth. Examples of programs include: Asian Language, Culture, and Geography [for school classrooms]; Immigrant Parents workshops to provide them with information on educational opportunties for their children and to prepare them for parent-teacher conferences; and Dining with Diabetes workshops tailored to Spanish-speaking audiences.

3. How will the planned programs describe the expected outcomes and impacts?

Hatch multi-state projects represent a significant component of the total Hatch portfolio. Both Hatch and Multi-state Hatch projects are reviewed on an annual basis when deciding which projects to feature in the Plan of Work and Annual Report. Of course, projects included represent only the Illinois research portion of a given program. Multi-state committees publish an Annual Report of their work which allows stakeholders to view the impact of the project on a regional or national basis. When selecting programs to be included in the Plan of Work, special attention is given to including those that display a significant Extension/Research partnership. Examples currently include programs supporting agribusinesses [Farmdoc], working families [Intentional Harmony], agricultural markets [MarketMaker], and work focused on rural development. Individuals providing leadership for multi-state and integrated activities will be asked to submit a report that includes documentation of the indicators of outcomes and impacts. Opportunities to share information regarding the indicators of outcomes and impacts of these reports include the ACES Afield newspaper [the annual College of ACES update supported by integrated funds] that details activities for stakeholders who receive the publication. The past and anticipated outcomes and impacts will also be noted in marketing and promotion of the activities to targeted participants.

4. How will the planned programs result in improved program effectiveness and/or efficiency?

Multi-state projects play a unique role in the ACES research portfolio. Multi-state research allows researchers to collaborate with other investigators on issues that are of regional [and in some cases national] significance, to develop new relationships which may lead to further collaborations, and to interact with top scientists who share similar research interests, but also bring to the table viewpoints from stakeholders in their part of the country which may be significantly different. Joint activities are also especially important in that they allow Extension educators to have access to cutting-edge research while at the same time allowing investigators to receive input from stakeholders through their participation in Extension programs. Multi-state Extension activities are expected to prevent duplication of work and allow sharing of expertise across state lines. Extension multi-state conferences and distance education delivery will tap the varied expertise of university faculty and staff in each state. Likewise, many planned multi-state and integrated activities involve delivery through websites that have no geographical boundaries.

Outcome targets in terms of participation, academic publications, and research projects completed provide a basis for monitoring Research and Extension program implementation. Measures of outcomes provide a basis for estimating program effectiveness. The monitoring of both kinds of measures provides a basis for determining effectiveness, a necessary precursor to determining efficiency.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals

Brief explanation.

It should be noted that not every technique is used every year. All programs in the College are continually subjected to a diverse process of stakeholder input. The College, the Office of Research, the Office of Extension and Outreach, academic departments, and many programs within the College have advisory groups and councils made up of stakeholders. In this context, stakeholders may represent organized entities in the state with a particular interest in a program area, but they also include individual stakeholders.

The Office of Research has an especially powerful process of stakeholder input through the Illinois Council on Food and Agricultural Research [C-FAR]. C-FAR represents stakeholders throughout the state such as organizations dealing with environmental quality and resource conservation issues, sustainable agriculture groups, commodity groups, and rural development interests. The membership of C-FAR has had an ongoing, very active, and very influential role in defining needed research and outreach outcomes for the work of the College. Extension, in addition to its advisory council structure, from local [county-level] councils through regional councils and a statewide council, also has other mechanisms in place for continuous stakeholder input.

Local councils are volunteers nominated locally and appointed by the College to provide advice on educational programming. The makeup of the councils [includes 7% minority group representatives] reflects local populations and local participation in Extension programs. In addition, University of Illinois Extension has an ongoing process of program planning. The program planning process starts at the local level and is characterized by systematic collection of information from a wide variety of sources and from stakeholders who are particularly interested in program delivery in that area. During the program planning process, special effort is made to include representatives from diverse and potential audiences in the program planning process.

A statewide online survey of educational interests in topics associated with ten broad issue areas was conducted in the spring of 2009 to serve as the basis for the long-range multi-year state and local plan of work

development. Aggressive promotional efforts and survey availability in Spanish [both online and paper copies] were part of this process. A marketing sub-committee of the State Program Planning Committee was created to identify potential ways to promote participation. A promotional guide and tools were developed to recruit participation of both traditional and non-traditional cross-sections of the public. Promotional methods to enlist participation included providing the survey graphic, an invitation, and a direct link to the survey on all county Extension websites and for posting on local and state organization and agency websites. Other promotional items included media releases, an email text to forward to those on local Extension's list-servs, flyers for duplication and distribution at Extension programs and through retailers, utility bills, etc., and table-top posters with easel backs and business and bookmark-sized cards professionally designed and printed with the logo and URL for use on counters at local libraries, Department of Motor Vehicle license facilities, local government offices, or offices of groups that collaborate or partner with Extension. At the local level, Council members who represented agencies or groups distributed and collected paper copies of the survey to their clients to complete. The survey was accessed by 9,030 English respondents and 319 Spanish speaking respondents. Respondents included 33% who had never used Extension services and 67% percent were current or past users; 33% were from Cook County, including 300 respondents of Hispanic origin and 1,800 African-American. The survey findings provide a wealth of data that has been shared with local Councils and with statewide staff program development teams.

The State Program Planning Committee had targeted using the results to set statewide priorities that would be incorporated in both state and the federal long-range plans of work for 2010 and beyond; however, major funding deficits for the University and Extension have precipitated a focus on reorganizing Extension and uncertainty regarding staff resources that are crucial in developing a realistic long-range plan of work. All statewide activity to develop state plans of work has been put on hold until staffing and funding issues are resolved. Input through the surveys will continue to be available and use of findings promoted when reorganizational decisions are made and implemented.

2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Use Surveys

Brief explanation.

A variety of methods and techniques are used to identify individuals and groups. As part of the University of Illinois Extension Affirmative Action plan, County Extension Directors, Extension Educators, and Specialists identify individuals to serve on formal local, regional, and state advisory groups for Extension and the College. These groups will play a key role in identifying research and Extension priority activities, as well as suggesting others who should be contacted. In addition, Extension staff are actively involved in community collaborations at the local level and will use these contacts to provide input or suggestions for other stakeholders that should be contacted. Extension leadership at the regional and state level also networks with traditional and non-traditional internal and external individuals and groups and will use these contacts to seek suggestions for other key stakeholders that can be contacted to provide direction for reseach and Extension.

As a part of the process to adjust University of Illinois Extension to match available shrinking financial funding sources, the Interim Director of Extension is in the process of conducting face-to-face meetings and webinar listening sessions with stakeholders/users of Extensions to seek their suggestioned actions for coping with funding shortfalls. Councils will be considering options for joining in multi-county arrangements to share staffing this coming year which will require evaluating and prioritizing program delivery. Guidelines on funding requirements and staffing will be prepared and distributed to staff and Council members in making what will be difficult decisions. Regional Directors will be involved in keeping the process moving to meet announced deadlines. The Interim Director will also engage in conversations with key statewide groups and individual stakeholders including the State Extension Advisory Committee and Extension Partners [a grassroots group formed to support Extension]. A website has also been created to receive suggestions from stakeholders on how to adjust the Extension organization to the decline in funding support.

2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public

Brief explanation.

C-FAR members provide their firsthand input through working groups formed around five areas of research: expanding agricultural markets, rural economic development, agricultural production systems, human nutrition and food safety, and natural resources and the environment. Members are engaged in varying degrees in all C-FAR-funded research programs to identify the highest priority research needs and opportunities for the state. The ABG "Vision for Illinois Agriculture" initiative provides additional stakeholder input.

Until the reorganization process is completed, Extension planned programs will continue at reduced levels. Most stakeholder input on program content will likely be gathered from program participants through end of program surveys and discussions with Extension Council members.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

Brief explanation.

Continuation, redirection, or initiation of new Research and Extension programs draws heavily on stakeholder input from formalized groups and various needs assessment methods. The State Extension Program Leaders will continue to meet with and support statewide program planning team staff members in identifying priority programs to be delivered and those programs not addressing high priority areas. The findings from the 2009 survey of educational interests will serve as one tool, and other methods and input may evolve as the year and reorganization process proceeds.

Stakeholders including the Council on Food and Agriculture Research, local and state Extension Advisory Council members, and Extension Partners [a grassroots group formed to support Extension] members will likely be influential in expressing Research and Extension needs to local, state, and federal government officials responsible for continuing, restoring, or increasing funding for Research and Extension and from private entities and as mentioned providing input related to budgeting and allocating or reallocating funds and identifying faculty and staff

expertise.

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Plant Health, Systems and Production

2. Brief summary about Planned Program

Research at the University of Illinois and its partners covers the gamut of approaches from basic plant research to applied research, all leading to improving production both commercially and for the home grower. Through the Illinois-Missouri Biotechnology Alliance, Illinois partners with others to strengthen the agriculture and food sectors of the American Midwest while seeking to improve food quality and safety.

As a contributing partner to the North Central states Integrated Pest Management Program [IPM], Illinois research and Extension supports the combination of research/Extension implementation projects, the development of individual pest control tactics, as well as Extension education and training. Funded research addresses emerging concerns such as the control of exotic, invasive weeds and pest management for the production of organic vegetable crops.

Extension program teams [IPM and Horticulture] are composed of both Extension educators and State Extension Specialists who are both faculty members and research scientists. This provides the opportunity for further integration of research and Extension functions.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		15%	
202	Plant Genetic Resources	0%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%		10%	
205	Plant Management Systems	30%		10%	
206	Basic Plant Biology	10%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	20%		5%	
212	Pathogens and Nematodes Affecting Plants	5%		10%	
213	Weeds Affecting Plants	5%		10%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%		10%	
216	Integrated Pest Management Systems	20%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Illinois producers strive to produce a wide variety of crops that are affordable to consumers while at the same time produced in a manner that is environmentally responsible. College of ACES researchers are working with producers to advance and document the frontiers of plant sciences and applicable disciplines to improve the quality and quantity of plants and their products, including food, feed, fuel, and fiber production while at the same time developing and enhancing plant production systems that integrate pest and other management practices while protecting the environment. Extension specialists are instrumental in meeting the educational needs of the largest network of certified crop advisors [over 1,500 in Illinois] in the United States. Many educational programs are directed at farmers who produce field crops [26 million acres in Illinois]. In addition, successful and highly visible Extension programs are delivered to fruit and vegetable growers [at least 64 vegetable and 15 fruit crops are produced commercially in Illinois].

Extension priorities include addressing the threat of new invasive or exotic pests that affect the quality and economics of fruit and vegetable crops and plants that enhance human environments both public and private. In addressing these priorities Extension will focus on protecting the environment including the wise use of water affected by land use requirements and weather extremes in precipitation. Extension addresses these priority issues and also includes efforts to respond to the demand for good horticulture information by homeowners. Extension is also aware and involved in developing a response to the growing interest in local foods systems.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

While a safe and affordable food supply will always be a top priority, we expect that other areas of plant production will continue to play an important role in driving this Planned Program, such as the demand for organic foods and biofuel inputs, as well as maintaining healthy human environments.

2. Ultimate goal(s) of this Program

To maximize the benefits from specialty crop production systems, to conduct cutting edge research that will increase crop production with minimal energy input and minimal negative impact on the environment and translate the results to producers and their advisors, to identify techniques that will obviate crop production factors that result in degradation of the environment, and to increase the number of Ph.D. graduates in plant breeding and expand research in plant breeding. Extension will extend the achievement of these research goals so that individuals responsible for commercial horticulture production and home yard and garden care will gain knowledge and apply that knowledge through the most economically viable management practices while using safe and recommended pest control measures and conservation of water to ensure the preservation of natural resources.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	15.0	0.0	20.0	0.0
2012	15.0	0.0	20.0	0.0
2013	15.0	0.0	20.0	0.0
2014	15.0	0.0	20.0	0.0
2015	15.0	0.0	20.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Activities include research designed to replace the current phenotype-based bioassays with a genotype-based classification system [this will allow soybean producers to "match" the soybean variety with the SCN population in a given field to maximize profitability and reduce SCN populations], work to limit the risk for foliar diseases on corn [especially important given the recent increase in conservation tillage practices], the use of asexual techniques for plant improvement [especially important given public concern over genetically modified crops], development of strategies to measure and manage phytophthora blight of pumpkins [Illinois ranks first in the nation in pumpkin production], a study of the impact of ozone pollution on soybean, and a very long-term study of corn for oil and protein content. Additional ongoing activities include the development of soybean breeding lines LDXG05241R-1-2 and LD05-16657, which are SCN resistant and also carry the aphid resistance gene Rag1 [these represent the first aphid resistant soybean varieties released by the public sector in the northern U.S.], research dealing with the pathogenesis of C-4 carbon plants [this will result in reduced use of fungicides for disease management because it allows for timed applications as opposed to preventative applications], the development of maize genotypes with improved nitrogen utilization, assessments of crop rotation effect in Illinois, the use of molecular markers to create commercially-usable corn hybrids with low aflatoxin in grain, work to improve the ability of crop varieties and cultivars to withstand herbicide stress, and the study of the sensitivity of sweet corn hybrids to multiple cytochrome P450-metabolized herbicides [this has been an issue of concern in the sweet corn industry for over a decade].

Extension activities in this program area will address alternative agriculture production, invasive and/or exotic pest diagnosis and management, integrated pest management, competitive production practices for commercial horticulture crop production including fruits, vegetables, ornamentals, and turf grass. Extension activities for commercial horticulture will include statewide conferences, workshops, field days, webinars, online courses, and mass media. Another set of activities that includes websites, distance education presentations, a distance diagnostic system, and volunteer [Master Gardener] and business employee training will be delivered to audiences concerned with home lawn and garden production and wise use of limited water resources.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods

● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 (Digital Diagnostics System) ● Other 2 (Webinars/audio conferences)	● Newsletters ● TV Media Programs ● Web sites ● Other 1 (Online courses)

3. Description of targeted audience

The target audiences include agricultural producers, landowners, certified crop advisors, horticulturists, individuals interested in organic and other alternative food production, industry representatives including pesticide applicators, owners, managers, and retail employees or green industries, homeowners, master gardener volunteers, and teachers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	100000	50000	70000	0
2012	100000	50000	70000	0
2013	100000	50000	70000	0
2014	100000	50000	70000	0
2015	100000	50000	70000	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**0 **2013:**0 **2014:**1 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	80	2	82
2012	80	2	82
2013	80	1	81
2014	80	1	81
2015	80	1	81

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Research Projects

2011:5 **2012:**5 **2013:**5 **2014:**5 **2015:**5

V(I). State Defined Outcome

O. No.	Outcome Name
1	Percentage Of Nitrogen Utilization By Wheat
2	More Informed User Of Pesticides
3	Providing Management Information To Farmers With Regard To Managing Soybean Cyst Nematode Heteroda, Glycines
4	Dollars Saved Through Safe And Effective Pesticide Application
5	Choosing Plant Varieties That Are Known To Be Resistant to Insects And Diseases

Outcome # 1

1. Outcome Target

Percentage Of Nitrogen Utilization By Wheat

2. Outcome Type : Change in Knowledge Outcome Measure

2011:52	**2012:**53	**2013:**53	**2014:**54	**2015:**54

3. Associated Knowledge Area(s)

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems
- 206 - Basic Plant Biology

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

More Informed User Of Pesticides

2. Outcome Type : Change in Knowledge Outcome Measure

2011:3000	**2012:**3000	**2013:**3000	**2014:**3000	**2015:**3000

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Providing Management Information To Farmers With Regard To Managing Soybean Cyst Nematode Heteroda, Glycines

2. Outcome Type : Change in Knowledge Outcome Measure

2011:2500	**2012:**2500	**2013:**2500	**2014:**2500	**2015:**2500

3. Associated Knowledge Area(s)

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems

- 206 - Basic Plant Biology
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Dollars Saved Through Safe And Effective Pesticide Application

2. Outcome Type : Change in Condition Outcome Measure

2011:500000	**2012:**500000	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Choosing Plant Varieties That Are Known To Be Resistant to Insects And Diseases

2. Outcome Type : Change in Action Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 206 - Basic Plant Biology
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Description

Since a great deal of plant research is done in the field rather than the laboratory, it is much more difficult to control for confounding variables, any one of which can make results more difficult to interpret. Examples include unusually harsh [or unusually mild] growing seasons, unforeseen invading pests, and contamination from outside pollutants. These are especially important given the long time horizon of many plant studies. These same factors affect decisions that producers and homeowners make with respect to their crop, lawn, and garden management.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)

Description

Evaluation of recommended management practices for Emerald Ash Borer workshops and continued evaluation of new Master Gardener training.

2. Data Collection Methods

- Whole population
- On-Site
- Observation

Description

Data collection methods include field studies, transition trials, evaluations from research and Extension conferences, greenhouse studies, and harvesting of yield plots.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Community Resource Planning and Development

2. Brief summary about Planned Program

Dramatic changes in the United States and around the world are altering individual life courses and the communities in which people live. These fundamental social and economic shifts have created new challenges for communities and their citizens. Leadership for community development in the College of ACES rests with the Department of Human and Community Development [HCD] and the University of Illinois Extension Community and Economic Development program team; however, faculty in other departments and colleges are collaborating in addressing issues related to community resource planning and development. Faculty members engage in teaching, research, and outreach to improve the lives of children, youth, and adults in the contexts of their communities and society.

University of Illinois Extension through Extension educators and locally funded educators helps communities, organizations, businesses, and leaders by providing practical, research-based information and programs to address local needs whether rural or urban. Extension programs focus on community planning and design, organizational development, economic development/sustainable communities, and leadership development and education. Exploration of the feasibility of developing and expanding local food systems relates to this program area as well as the Global Food Security and Hunger Planned Program. Community Assessment and Development Services [CADS], a major initiative launched in 2008, will continue to progress in providing information on social, economic, and demographic trends in support of community and regional analysis. Given the challenges faced by Illinois communities whether small towns or villages or an urban neighborhood, this Planned Program will play an important role in assisting communities and their citizens in addressing these needs.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	75%		60%	
802	Human Development and Family Well-Being	5%		10%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%		10%	
805	Community Institutions, Health, and Social Services	10%		10%	
806	Youth Development	5%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Many communities in Illinois are experiencing declines and changes in population and a declining economy. These communities are characterized by the lack of viable community organizations, businesses, workforce opportunities, and recreation opportunities. These communities may also be characterized by a lack of planning and a shortage of leadership and of local officials with information, tools, and skills to revitalize their communities.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Extension
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

That citizens given training and information are best equipped to determine the ultimate solutions to the problems they and their communities face, that local policies and environments can in turn influence business and economic development, and that resources [local, state and federal] will remain at a high enough level to fund the needed research and Extension programs.

2. Ultimate goal(s) of this Program

Researchers are studying community activism, mobilization, and leadership in rural communities to assist in developing strong institutions that will foster revitalization of rural life. Extension seeks to increase the knowledge and skills of current and future leaders of local government, organizations, and agencies to improve the economic and social conditions of targeted communities.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	20.0	0.0	2.0	0.0
2012	20.0	0.0	2.0	0.0
2013	20.0	0.0	2.0	0.0
2014	20.0	0.0	2.0	0.0
2015	20.0	0.0	2.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research Activities include a study of Latino immigrant remittances and allocation of other discretionary income in non-metro Midwestern communities, research into the mass-media utilization of social movement organizations, the development

of models for local food systems by documenting market-based change in rural Illinois communities, continued study of community response to ecosystem disturbance, and an ongoing project designed to develop priorities for action based on community and regional assessments and bringing multiple stakeholders together to discuss opportunities for ensuring that the Dixon Springs Agricultural Center robustly serves the Southern Illinois region and local communities. Extension activities will focus on leadership development, community planning, development of community organizations, and economic development. Examples include leadership academies, building facilitation skills through U-facilitate citizen training, and the Community Assessment and Development Services [CADS] program. Staff associated with CADS will collect, analyze, interpret, and disseminate information on social, economic, and demographic trends to help communities and organizations base decisions and projects on this data. An additional multi-year initiative is Resource Net: The Illinois Funding Access Network, a collaborative effort to increase the long-term capacity of nonprofit agencies and municipalities to secure state, foundation, and corporate resources. Other activities led by Extension educators will further focus on entrepreneurship [Going Solo simulation for youth], small business development, disaster preparedness, recreation and tourism development, communication skills for the workforce [Engaging Generations], and local governance and public policy [through Certified County Officials multi-topic training].

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Other 1 (Audio/Video Conferencing) ● Other 2 (Community Forums)	● Web sites ● Other 1 (Self Study)

3. Description of targeted audience

Audiences include government agency representatives, community leaders, youth, water infrastructure professionals, academics working on community infrastructure issues, residents of the disaster [flood, earthquakes, etc.] prone areas, individuals and young adults interested or engaged in starting small businesses, economic development organizations, and local government officials involved in community and economic development.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	25000	28000	500	0
2012	25000	28000	500	0
2013	25000	28000	500	0
2014	25000	28000	500	0
2015	25000	28000	500	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	7	0	7
2012	7	1	8
2013	7	0	7
2014	7	0	7
2015	7	0	7

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Research Projects

2011:1 **2012:**2 **2013:**1 **2014:**2 **2015:**1

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number Of Individuals Who Worked On/Gave Leadership To Specific Community Issues
2	Community Leaders Who Used Information And Data In Making Decisions That Improved Local Communities Or Organizations
3	Number of Plans Developed/Adopted/Adjusted by Communities Through Citizen Engagement
4	Dollar Value Of Grants And Resources Leveraged/Generated [Includes Gifts, Grants, Private Investments, Equipment, Workforce Training, Budget Allocations, Etc.]

Outcome # 1

1. Outcome Target

Number Of Individuals Who Worked On/Gave Leadership To Specific Community Issues

2. Outcome Type : Change in Action Outcome Measure

2011:2000	**2012:**1000	**2013:**1000	**2014:**1000	**2015:**1000

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Community Leaders Who Used Information And Data In Making Decisions That Improved Local Communities Or Organizations

2. Outcome Type : Change in Action Outcome Measure

2011:300	**2012:**300	**2013:**300	**2014:**300	**2015:**200

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of Plans Developed/Adopted/Adjusted by Communities Through Citizen Engagement

2. Outcome Type : Change in Action Outcome Measure

2011:10	**2012:**10	**2013:**10	**2014:**10	**2015:**10

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Dollar Value Of Grants And Resources Leveraged/Generated [Includes Gifts, Grants, Private Investments, Equipment, Workforce Training, Budget Allocations, Etc.]

2. Outcome Type : Change in Condition Outcome Measure

2011:3000000	**2012:**500000	**2013:**500000	**2014:**500000	**2015:**0

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Description

Competing public and programmatic priorities can influence the level of attention provided to community economic development by non-subject matter staff such as County Directors, as can environmental conditions that affect areas such as water quality, employment opportunities in a given community, migration into or out of the area, community funding for emergency preparedness, interactions between community, county, state, and national lawmakers, and the impacts of national priorities on local issues.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)

- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

An evaluation report of *Resource Net* impact and goal achievement will continue to be updated for 2011. Additional impact evaluation systems and instruments are ready for use with leadership academies and *U-Facilitate* training participants. A follow-up evaluation will be collected from at least one of the Certified County Officials distance education classes and with completed community plans developed with Extension's assistance. The Program Leader for Community and Economic Development for University of Illinois Extension will continue to work with Extension staff to identify additional indicators and evaluation plans that will be collected statewide drawing on the work of the joint North Central Extension program leaders in community and economic development.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- Structured
- Unstructured
- Other (online survey)

Description

Survey of leadership academy participants, community leaders, government officials, and business owners to determine knowledge gained and application of that knowledge through follow-up evaluations; interviews with those who have responsibility for overseeing the implementation of community or organizational plans and/or a review of minutes or documents that report accomplishments; collecting information directly from participants, reviewing attendance records, and/or interviewing those who would be able to provide information on the number of citizens who worked on specific community issues; data collection and interviews with local officials to identify dollar value brought into a community through grants and resources as a result of Extension's involvement; and creation of a system for collecting data on various indicators entered by County Directors or their local colleagues.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Animal Health and Production

2. Brief summary about Planned Program

Leadership for programs in animal science is provided by the Department of Animal Sciences of the College of Agricultural, Consumer and Environmental Sciences and the College of Veterinary Medicine.

Research programs range from those at the molecular level [molecular genetics] to applied research on farms and herds throughout the state. These programs cover all major species. Examples include the molecular mechanisms regulating skeletal muscle growth, tracking antibiotic resistant genes in swine, reproductive health, and optimization of animal welfare. Animal science is a strong component of the research and outreach efforts of the Colleges of ACES and Veterinary Medicine from the use of animals for food and fiber to their role as companions with human beings.

Extension and Outreach is conducted by faculty and Extension educators throughout the state. Outreach includes an extensive internet presence through the Illinois TRAILLS portal located at http://www.livestocktrail.uiuc.edu/. Additionally, Extension programs are conducted on both a multi-state and in-state basis. The Illinois Horse Breeders Short Course, Swine Reproductive Programming for Spanish Speaking Employees, Four-State Dairy Nutrition and Management Conference, and Pet Extravaganza are examples of programs delivered by Extension staff to audiences who attend campus and off-campus sites. Programming on pasture management for livestock production is a continuing focus. Extension programs targeted at youth involved in the 4-H program include clinics, pork quality assurance training, judging and evaluation of animals, and animal care ethics.The animal system staff team combines faculty, researchers, and Extension educators to produce strong programs which integrate research and Extension.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	5%		15%	
302	Nutrient Utilization in Animals	10%		15%	
303	Genetic Improvement of Animals	0%		15%	
305	Animal Physiological Processes	0%		15%	
307	Animal Management Systems	25%		10%	
311	Animal Diseases	30%		15%	
315	Animal Welfare/Well-Being and Protection	5%		10%	
806	Youth Development	25%		5%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Priorities in the Animal Health and Production Planned Program focus on production management [addressing new issues involving health, feeding, reproduction, genetics, and management] but also deal with issues that cut across several other planned programs, such as human development [companion and recreational animals], youth development [teaching youth about the importance of caring for animals and capitalizing on the animal as a tool for youth development], natural resource utilization [with an emphasis on environmental protection and water quality], agricultural economics [improving marketing skills and business planning], and of course food safety [developing educational programs that encourage participation in quality assurance, residue avoidance, and Hazard Analysis Critical Control Point [HACCP] programs].

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

It is assumed that consumption of and demand for meat and dairy products will remain. Concerns over animal treatment present a need that researchers and Extension educators are well positioned to meet. As resources continue to tighten at both the state and national levels every effort will be made to continue to serve these needs as they relate to both Illinois and national stakeholders, e.g. providing dairy production information in view of the anticipated retirement of two key Extension faculty and staff dairy positions.

2. Ultimate goal(s) of this Program

The goals of this planned program are to develop management practices that enhance efficiency of production by food-producing animals, to develop nutrition and management practices that optimize the health of domestic animals, to develop management practices that enhance animal wellbeing and minimize the impacts of animal production on the environment, to improve methods for diagnosis, prevention and treatment of infectious diseases in food animals, to develop new strategies to improve food safety, to educate animal producers and owners on keeping their animals healthy, and to educate veterinarians on the latest health information to best serve their clients.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	10.0	0.0	28.0	0.0
2012	10.0	0.0	28.0	0.0
2013	10.0	0.0	28.0	0.0
2014	10.0	0.0	28.0	0.0
2015	10.0	0.0	28.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Activities include a study of the molecular basis of fertilization, development of methods to increase reproductive efficiency in cattle, germ cell and embryo development and manipulation for improvement of livestock, a study of the dietary effects on pig health and productive performance, an investigation monitoring environmental conditions on swine trailers during transport, the use of physiological, behavioral and physical assessments to optimize poultry production, the tracking of the flow of antibiotic resistance genes in swine production systems, efforts to improve fecal detection methods for agricultural pathogens, and efforts to detect and control porcine reproductive and respiratory syndrome virus and emerging viral diseases of swine. Animal genomics activities include the identification and characterization of proproteins in livestock, development of an in vitro model system to identify genetic factors that control cell fate decision during embryonic development, a study of the impact of nondigestible carbohydrates on intestinal gene and protein function, and genome-enabled analysis of carbon and nitrogen metabolism in prevotella ruminicola to enhance rumen function.

Extension activities will include expansion and updating of the Illinois Livestock Trail website. Programs addressing dairy production will include seminars and regional programs on livestock production for specific species of livestock such as the Illinois Horse Breeder's Short Course, Swine Reproductive Programming for Spanish Speaking Employees, Four-State Dairy Nutrition and Management Conference, and Pet Extravagana. Workshops, CD's, and webinars that focus on small ruminant animals will be developed and targeted for new farmers. MarketMaker, an interactive web-based multi-state market system developed by the University of Illinois that locates businesses and markets for agricultural products, will be maintained and expanded. Programming on pasture management for livestock production via demonstrations, distance education, and web delivery will be a continuing focus. The livestock clinics and ethics training and online certification for new 4-H members enrolled in livestock are also major program activities that will be conducted.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● One-on-One Intervention ● Demonstrations ● Other 1 (Audio conference) ● Other 2 (Online courses)	● Newsletters ● Web sites

3. Description of targeted audience

The target audience includes all members of the animal production chain, from suppliers of inputs to producers to processors to final consumers. Other audiences include youth, veterinarians, owners of companion animals, vaccine manufacturers, animal nutritionists, and livestock trailer manufacturers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	40000	10000	20000	0
2012	40000	10000	20000	0
2013	40000	10000	20000	0
2014	40000	10000	20000	0
2015	40000	10000	20000	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**1 **2013:**0 **2014:**1 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	60	1	61
2012	60	0	60
2013	60	0	60
2014	60	1	61

Year	Research Target	Extension Target	Total
2015	60	0	60

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Research Projects

2011:9 **2012:**9 **2013:**9 **2014:**9 **2015:**9

- Number of Youth Completing Livestock Ethics Training

2011:1300 **2012:**1000 **2013:**1000 **2014:**1000 **2015:**1000

V(I). State Defined Outcome

O. No.	Outcome Name
1	Increased Knowledge Of Livestock Care And Management
2	Utilization Of Waste Management Tools Such As The Illinois Manure Management Plan Workbook And Website

Outcome # 1

1. Outcome Target

Increased Knowledge Of Livestock Care And Management

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
200	200	200	200	200

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 315 - Animal Welfare/Well-Being and Protection
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Utilization Of Waste Management Tools Such As The Illinois Manure Management Plan Workbook And Website

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
30	30	35	35	35

3. Associated Knowledge Area(s)

- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Programmatic Challenges

Description

Consumer preferences for animal products are one important external factor [such as a preference shift from milk to bottled water or from beef to pork or chicken]. Of the utmost importance is maintaining public confidence that animals are treated humanely. Changes in legislation and the increasing difficulty of maintaining funding and staffing levels are also very important external factors. In addition, drought can affect grazing practices and profitability.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Time series (multiple points before and after program)

Description

The Animal Systems Extension staff team members have been asked to identify two programs to be evaluated annually and will then develop the most appropriate tools. Decision-making discussions will be encouraged regarding economic impact identification efforts.

2. Data Collection Methods

- Sampling
- Whole population

Description

Use of post-meeting surveys including retrospective self-reports of practice will likely be used to determine knowledge gained. Quizzes will be used to test youth knowledge of ethical treatment of livestock.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Natural Resources and the Environment

2. Brief summary about Planned Program

Leadership through the University of Illinois for the Natural Resources and the Environment Planned Program is provided through a multidisciplinary approach as exemplified by the College of ACES Department of Natural Resources and Environmental Sciences [NRES].

Research topics of NRES faculty and affiliates explore ranges of subjects from aphids to zebra mussels, and everything from individual genes to the ecosystem of the planet earth. Hatch-sponsored projects range from researching the relationship between how humans experience being part of nature and how that in turn influences environmentally responsible behavior to how chemical inputs from atmospheric deposition influence good nutrient management in both crop and forest systems. Of critical interest to both agriculture and ecosystem management is how fertilizer application affects nutrient management under various management scenarios.

Natural Resource Management Extension educators/specialists team with Crops Extension educators/specialists to conduct programs that address reduced tillage techniques, soil and water quality management, and environmental sustainability and stewardship in a state that is undergoing increasing urbanization, changing demographics, shifting land use, and a decline in outdoor recreational and educational activity use. Educational delivery methods encompass online courses, conservation field days and activities, workshops, websites, forums, conferences, and volunteer training.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	35%		30%	
112	Watershed Protection and Management	25%		25%	
123	Management and Sustainability of Forest Resources	5%		15%	
133	Pollution Prevention and Mitigation	5%		10%	
405	Drainage and Irrigation Systems and Facilities	5%		10%	
605	Natural Resource and Environmental Economics	5%		5%	
806	Youth Development	20%		5%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

It is more apparent than ever that being a wise steward of our natural resources not only makes for good citizenship but also makes good sense. Ensuring a safe and adequate water supply is an issue in both urban and rural areas of Illinois. Protecting the environment was the broad issue area selected by the third largest number of respondents [85% of 9,439] who completed the 2009 Extension survey of the public's educational interests. Water quality was by far the topic of most interest under this issue area. Chemical use by agricultural producers and homeowners and soil erosion are viewed as serious contaminates of the environment. In addition, chemical use has been identified as affecting air quality and destroying beneficial plant life. Forestry management for timber, wildlife, or recreation is a high priority for landowners. Wildlife management concerns range from habitat enhancement to nuisance management. This program seeks to balance the needs and demands of resource utilization with environmental quality and sustainability.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

That researchers and Extension educators will be able to convince growers that "less is more" in that decreasing the use of fertilizers and pesticides can result in lower costs as well as the beneficial effect of having a smaller quantity of these chemicals in the neighboring environment, that rapidly-growing niche markets such as organic farming are in desperate need of science-based information in areas such as sustainability, and that even in an ever-increasingly competitive environment stakeholders will continue to see the importance of protecting and best utilizing our natural resources.

2. Ultimate goal(s) of this Program

To ensure environmental friendliness and resource utilization efficiency, best utilizing insect management in agricultural cropping systems, and minimizing agricultural impacts on the environment and to enable citizen involvement in the preservation of natural resources through forest, prairie, watershed, and wildlife management by applying research-based knowledge.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	9.0	0.0	12.0	0.0
2012	9.0	0.0	12.0	0.0
2013	9.0	0.0	12.0	0.0
2014	9.0	0.0	12.0	0.0
2015	9.0	0.0	12.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research has focused on modeling for TMDL development and watershed-based planning, management and assessment, development of conservation drainage in Illinois, evaluating the physical and biological availability of pesticides and pharmaceuticals in agricultural contexts, studying the effects of anthropogenic change on forest disease dynamics and the consequences for ecosystem processes, the development of quantitative and qualitative models to manage natural resources, the effects of stressors associated with land use patterns on freshwater fish [and the implications for conservation], work to refine water and nitrogen budgets for the United States, and efforts to assess the effects of land use change on microbial communities.

Extension activities will include statewide tillage seminars, soil and water workshops, conservation days [for youth], natural resource management online courses for Certified Crop Advisors, and pond management seminars and demonstrations. Extension will also continue to play a lead role in the Governor's Biennial Conference on the Management of the Illinois River System. New programming consists of wind energy forums, a website that addresses human/wildlife interactions, and the expansion of the Master Naturalist Program offering science-based educational opportunities that connect people with nature and help them become engaged environmental stewards. In addition, Living on the Land is a new multi-session program that provides basic production as well as environmental stewardship information for new and inexperienced small acreage landowners.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 (Online course) ● Other 2 (Volunteer training)	● Newsletters ● TV Media Programs ● Web sites

3. Description of targeted audience

Members of the target audience include environmental professionals in pollution management, scientists who examine and teach about healthy freshwater systems, land managers and farmers who manage landscapes that have an impact on fresh water, recreational fishermen, producers, crop consultants, greenhouse managers, organic growers and growers interested in sustainable farming practices, land improvement contractors, certified crop advisers, drainage contractors, state and federal agency staff, environmental regulatory agencies, citizens who have a strong interest and desire to volunteer to preserve and showcase natural resources, and youth.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	35000	20000	15000	0
2012	35000	20000	15000	0
2013	35000	20000	15000	0
2014	35000	20000	15000	0
2015	35000	20000	15000	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**0 **2013:**0 **2014:**1 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	35	1	36
2012	35	1	36
2013	35	1	36
2014	35	1	36
2015	35	1	36

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Projects

2011:5 **2012:**5 **2013:**5 **2014:**5 **2015:**5

- Continuing Education Units Awarded To Certified Crop Advisers Who Complete Online Natural Resource Management Courses

2011:100 **2012:**100 **2013:**100 **2014:**100 **2015:**0

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number Of Drainage Water Management System Acres
2	Application Of Reduced Tillage Or Soil And Water Management Practices
3	Application Of Pond Managment Recommended Practices

Outcome # 1

1. Outcome Target

Number Of Drainage Water Management System Acres

2. Outcome Type : Change in Knowledge Outcome Measure

2011:3000	**2012:**3000	**2013:**3000	**2014:**3000	**2015:**3000

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 112 - Watershed Protection and Management
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Application Of Reduced Tillage Or Soil And Water Management Practices

2. Outcome Type : Change in Condition Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Application Of Pond Managment Recommended Practices

2. Outcome Type : Change in Action Outcome Measure

2011:50	**2012:**50	**2013:**50	**2014:**50	**2015:**50

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 112 - Watershed Protection and Management

- 133 - Pollution Prevention and Mitigation

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Programmatic Challenges

Description

External factors include concerns at the global level [events that have an impact on the environment as a whole such as current concerns about greenhouse emissions], federal and state level [most importantly revolving around governmental policy decisions and the availability of resources], and local level [that owners of natural resources are wise stewards not only of their own resources but of the impact their actions have on the community].

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

Evaluation of the format and content of individual Extension programs will likely be continued. Formative evaluation plans are developed for the new Master Naturalist program with impact evaluations to be used in the coming year. Soil and water workshops and tillage conferences continue to seek participant feedback on what they learned at the end of each program. Teacher evaluations are being used to discover if their students retained knowledge from youth stewardship days.

2. Data Collection Methods

- Sampling
- Whole population
- Structured
- Unstructured
- Portfolio Reviews
- Other (Teacher assessment)

Description

Post-program evaluations distributed at statewide tillage and soil and water management workshops to identify knowledge increase and practices implemented that were topics at previous years' workshops and pre- and post-training evaluations for Master Naturalist participants as well as follow-up surveys or interviews to identify ways they are serving as natural resource stewards.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

Leadership for food safety rests primarily with the College of Agricultural, Consumer and Environmental Sciences [ACES] Department of Food Science and Human Nutrition. The College also hosts the National Soybean Research Laboratory which houses the Illinois Center for Soy Foods. The Center has, among its interests, the study of the efficacy and safety of soy food products to improve human health. Additional research interests in the department include improving the safety of food processing techniques while improving the nutritional quality of food products.

Food safety is an issue for all families regardless of household resource level and affects producers, processors, establishments serving food to the public, and consumers. Concerns regarding food safety have been expressed by a number of stakeholders including the Illinois Council on Food and Agricultural Research [C-FAR] as well as local Extension advisory councils and other stakeholders.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	0%		20%	
502	New and Improved Food Products	0%		25%	
503	Quality Maintenance in Storing and Marketing Food Products	20%		10%	
702	Requirements and Function of Nutrients and Other Food Components	0%		15%	
703	Nutrition Education and Behavior	0%		5%	
704	Nutrition and Hunger in the Population	0%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	60%		15%	
806	Youth Development	20%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

According to the Center for Disease Control [CDC] an estimated 76 million cases of food borne disease occur each year

in the United States. Generally these cases are mild and cause symptoms for only a day or two.Some cases are more serious, and CDC estimates that there are 325,000 hospitalizations and 5,000 deaths related to food borne diseases each year. Even mild cases may have economic losses associated with absence from work. A recently released study [March, 2010] funded by the Pew Charitable Trust estimates that the price of food borne illness in the United States is $152 billion a year which averages out to $1,850 each time someone gets sick from food. In 2008 the Illinois Department of Public Health reported that food borne illnesses with the highest levels of incidence per year included Salmonella [1,522 cases] and Shigella [990 cases]. Extension's 2009 statewide public survey of educational interests revealed that over 1,600 of the 9,400 respondents were interested in learning more about safe food crop and meat production and nearly 2,000 were interested in learning more about safe handling of food served to the public. As of October 1, 1999, the Food Service Sanitation Code required Illinois certified food service sanitation managers to attend food safety training with a minimum of five hours or to complete a recertification exam to be eligible for recertification. The problem: Improper food handling techniques are a primary cause of food borne illnesses.

Our research covers a wide range of topics from food safety and biotechnology to clinical nutrition and toxicology. Outside research funding comes from a variety of sources such as the National Institutes of Health, Illinois Corn Marketing Board, Illinois Council for Food and Agricultural Research, Mitsubishi Chemical, Illinois Soybean Association, United Soybean Board, and Kraft Foods.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

We assume that the causes of food borne illnesses and pathogens are well understood, that food borne illnesses are best controlled through an analysis of how food is handled to avoid contamination and pathogen growth, and that additional safety can be assured in what foods are selected for use. We also assume that new methods of food product development will be able to balance the competing needs of improving food safety, improving processing efficiency, lowering costs, making products more widely available, and maintaining a high level of consumer acceptance.

2. Ultimate goal(s) of this Program

To develop safe food products and processing techniques for food preparation, storage, and use by the food processing industry, households, and consumers. To increase the use of safe food handling practices by households, consumers [adults and youth], and establishments that prepare food for public consumption. To determine the effects of dietary and environmental factors on human health and disease and that individuals will make smart food choices, engage in recommended levels of physical exercise, and choose leisure activities that help them maintain desirable weight levels and better manage chronic diseases.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	2.0	0.0	8.0	0.0

Year	Extension		Research	
	1862	1890	1862	1890
2012	2.0	0.0	8.0	0.0
2013	2.0	0.0	8.0	0.0
2014	2.0	0.0	8.0	0.0
2015	2.0	0.0	8.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Extension activities include workshops, website postings and presentations that focus on safe food handling in homes, commercial entities, and public settings and pork quality assurance training. Research activities include an investigation of acoustic energy as a practical food safety intervention for fruit and vegetable juice processing, improving nitrogen utilization in wheat through new nitrogen technologies, inhibitors, and sensors, further characterization of the pathways associated with nitrogen stress and kernel growth designed to reveal new strategies for improving nitrogen use efficiency in maize and other cereal crops via plant breeding and biotechnology approaches, a study designed to improve the sensory characteristics of soy products [undesirable flavor characteristics are currently a major limitation], an analysis of aroma-active components of foods, research on modifying milk fat composition for improved nutritional and market value, a study of the virulence of listeria monocytogenes grown as biofilms, research on mycotoxins as they relate to biosecurity and food safety issues, and work to improve barrier properties of biobased packaging films. Additional activities include studying the impact of nutrients on the intestinal development of neonatal piglets as a model for formula-fed infants, identifying additional bioactive components in broccoli, studying the effects of natural bioactive dietary chemicals on human health and food safety, investigating the metabolic products of tomato carotenoids, and efforts to understand the mechanism of how fructose effects macronutrient metabolism to improve dietary recommendations for optimal health and to produce healthier products from the agricultural and food industries.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● One-on-One Intervention ● Demonstrations	● Newsletters ● Web sites

3. Description of targeted audience

Nutritionists and food scientists, soy processors, food manufacturers ranging from ingredient providers to packaging operations, food industry professionals including employees of establishments that prepare food for public consumption, volunteers who serve food for public consumption or teach others how to safely prepare and serve food, regulatory agencies, food microbiologists, pork producers, and youth.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	3000	2000	3500	0
2012	3000	2000	3500	0
2013	3000	2000	3500	0
2014	3000	2000	3500	0
2015	3000	2000	2000	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**1 **2014:**0 **2015:**1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	34	0	34
2012	34	0	34
2013	34	1	35
2014	34	0	34
2015	34	0	34

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Projects

2011:3 **2012:**3 **2013:**3 **2014:**3 **2015:**3

- Number of Individuals Completing Food Safety Certification Required Training

2011:400 **2012:**400 **2013:**400 **2014:**400 **2015:**400

V(I). State Defined Outcome

O. No.	Outcome Name
1	Monitor Proper Temperatures Of Food Served To The Public To Prevent Food-Borne Illnesses
2	Increase Knowledge of Personal Cleanliness Habits That Prevent the Spread of Disease Through Food

Outcome # 1

1. Outcome Target

Monitor Proper Temperatures Of Food Served To The Public To Prevent Food-Borne Illnesses

2. Outcome Type : Change in Action Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 503 - Quality Maintenance in Storing and Marketing Food Products
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Increase Knowledge of Personal Cleanliness Habits That Prevent the Spread of Disease Through Food

2. Outcome Type : Change in Knowledge Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Description

Natural disasters may influence the availability of facilities for safely developing, storing, distributing, and using food products. The changes in the economy and appropriation changes may influence the resources

available for research/Extension programs. Government regulations may change food certification requirements for those serving food for public consumption and influence food product development and processing. Competing priorities [public and programmatic] may influence the level of programmatic effort from non-subject matter staff such as County Directors.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

A follow-up survey with Extension Food Safety Sanitation Refresher Course participants will be modified from previous years to include the Illinois Department of Public Health's updated required food handling practices to determine if they have been put into practice one year later by the participants. The survey will seek their identification of practice changes [from a list provided] that they have implemented at the food service establishments where they work. Youth in school classrooms and summer camps and cooking schools will be observed to determine proper hand washing practices.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- On-Site
- Observation
- Tests
- Other (online survey)

Description

The previous survey of practices of Food Safety Sanitation Refresher Course participants was sent via mail this time but in the future we may use an online survey. The survey was sent to all participants, but we may choose a random sample in the coming year. Observation or a pre- post-test will be completed by youth to assess if they are washing their hands for the required time.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Agricultural and Consumer Economics

2. Brief summary about Planned Program

The Department of Agricultural and Consumer Economics targets research and outreach programs aimed at improving the economic and environmental wellbeing of producers, consumers, and families. Drawing on economics, business, and law, the department analyzes issues related to individuals and families, agriculture and natural resources, and food - all ranging in scope from local to global. Researchers in the department partner with two Extension program teams, the Farm Business Management and Marketing Team and the Consumer and Family Economics Team. Team members work with local Extension councils and stakeholders as well as research faculty in identifying needs and establishing programs to meet those needs. These interactions in turn influence the research agenda of the College.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
602	Business Management, Finance, and Taxation	35%		40%	
603	Market Economics	0%		15%	
605	Natural Resource and Environmental Economics	0%		15%	
607	Consumer Economics	5%		10%	
610	Domestic Policy Analysis	0%		10%	
801	Individual and Family Resource Management	30%		10%	
802	Human Development and Family Well-Being	15%		0%	
806	Youth Development	15%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Agricultural producers, including those engaged in horticulture businesses, express concerns about their enterprise's sustainability and profitability and about how to manage changes with competing demands for limited resources. Illinois consumers face issues that involve identity theft, credit debt load, healthcare options, planning for long-term care and retirement, savings and investments, and managing to maintain the desired quality of life on reduced, fixed, and/or limited incomes. Managing individual and family finances was the broad issue area selected by the largest number of respondents [8,400 of 9,349] to the 2009 Extension survey of the public's educational interests. Topics related to savings and investments,

healthcare cost, planning for retirement, and living within one's income were of most interest and a reflection of the current economic challenges face the country.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

That international developments in agricultural law have an increasing impact on the legal situation in the United States, that farmers lack the information to best utilize crop yield and revenue insurance products, that many current environmental economic tools are simplistic and could provide better insight to policy makers if they were enriched by considering special issues [such as paying closer attention to heterogeneity of land, consumers, and producers], that resources will continue to be available to allow agricultural economists at Illinois to continue to provide thoroughly-researched policy advice to policy makers and producers at both the local and national levels, that economic recovery will occur, and that consumers are willing to share and seek help with financial problems.

2. Ultimate goal(s) of this Program

To inform and improve decisions related to the midwest commercial food and agricultural sectors involving production, financing, marketing, and risk management, to identify and estimate the impact of federal and state policies on rural communities, agricultural producers, and society, to help inform the policy making process, to describe and measure the well being of individual consumers, families, and communities resulting from changes in economic and regulatory conditions, to prepare adolescents and young adults for independent living, and to improve the financial condition of individuals and families, particularly those with high debt loads or diminishing income.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	15.0	0.0	17.0	0.0
2012	15.0	0.0	17.0	0.0
2013	15.0	0.0	17.0	0.0
2014	15.0	0.0	17.0	0.0
2015	15.0	0.0	17.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Ongoing activities include continued investigation of legal issues affecting agricultural production, marketing and the environment, a study of agricultural and rural finance markets in transition, an investigation into how value is created in rural communities where broad acre commodity crops are being produced, efforts to understand the variety selection process followed by Illinois soybean producers, work on protected-area design which demonstrates how conservation planners should sometimes increase fragmentation of reserves to capture value, efforts to forecast the effects of toxic waste sites on property values surrounding areas of concern in the U.S., findings that alternate potential water-use reduction policies in the Republican River Basin have quite different welfare impacts on farmers, a project that applies both stated and revealed preference methods to estimate the benefits of environmental improvement, research focused on agricultural policies and technologies in developing countries and their impacts on the welfare of local populations as well as their impacts on developed economies including the United States, efforts to enhance human security through research on child support income, household bargaining and portfolio choice, access to quality health care [in particular for aging parents], and the utlization of industry clustering to better understand rural economic development.

Extension activities will focus on farm financial management including risk management, personal financial management including credit and debt load, and planning ahead for long-term care and retirement, including savings and investing. Delivery methods will include workshops, web-based tools, factsheets, and podcasts in both English and Spanish; teacher, volunteer, and agency staff training; peer counseling for college students; and simulations for high school students.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Other 1 (Audio/Video Conferencing)	● Newsletters ● TV Media Programs ● Web sites

3. Description of targeted audience

Producers at both the local and national levels, practicing lawyers and academic lawyers, farmers, processors, retail distributors of natural and organic products, agriculture biotechnology firms, farm credit institutions, agribusinesses, policy makers, environmental economists, applied econometricians, public officials in the Great Lakes areas, real estate developers and builders, community planning and building officials, managers of small public water supply systems, conservation groups, staff and volunteers of community agencies, social service organizations, others working with limited resource audiences, teachers, adolescent youth, college students, and consumers interested in planning for the future.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	20000	10000	2500	0
2012	20000	10000	2500	0
2013	20000	10000	2500	0

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2014	20000	10000	2500	0
2015	20000	10000	2500	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	35	2	37
2012	35	2	37
2013	35	2	37
2014	35	2	37
2015	35	2	37

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Projects

2011:1 **2012:**2 **2013:**1 **2014:**2 **2015:**1

V(I). State Defined Outcome

O. No.	Outcome Name
1	Page File Requests Made To Farmdoc [Note That Projections Have Been Significantly Modified Per Request Of PI]
2	Knowledge Of Practices That Affect Your Credit Rating
3	Number Of Web Hits On The Varietal Information Program For Soybeans Website
4	Number Increased Knowledge Of The Costs Of Independent Living
5	Number of Actions Taken To Plan For Long-Term Care And Retirement
6	Number Applying Skills In Managing Limited Financial Resources
7	Number Making Decisions To Reduce Risk In Agriculture Production

Outcome # 1

1. Outcome Target

Page File Requests Made To Farmdoc [Note That Projections Have Been Significantly Modified Per Request Of PI]

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
6000000	6000000	6000000	6000000	6000000

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Knowledge Of Practices That Affect Your Credit Rating

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
100	100	100	100	100

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number Of Web Hits On The Varietal Information Program For Soybeans Website

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
70000	70000	70000	70000	70000

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Number Increased Knowledge Of The Costs Of Independent Living

2. Outcome Type : Change in Knowledge Outcome Measure

2011:1000	**2012:**1000	**2013:**1000	**2014:**1000	**2015:**1000

3. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 801 - Individual and Family Resource Management
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Number of Actions Taken To Plan For Long-Term Care And Retirement

2. Outcome Type : Change in Action Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Number Applying Skills In Managing Limited Financial Resources

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
200	200	200	200	200

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Number Making Decisions To Reduce Risk In Agriculture Production

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
50	50	50	50	50

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Description

Changes in legislation, changes in state and national economic variables such as employment, interest rates, and availability of capital, and challenges faced in the emerging private research and development sectors in developing countries.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)

Description

A post-program evaluation will be conducted with student participants in the Welcome to the Real World simulation as well as an online evaluation of the farm land ownership web-based program and the long-term care program. Evaluation of the long-term care program will be ongoing.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- On-Site

Description

End of program evaluation of knowledge gained regarding long-term care programs, follow-up evaluations with college students regarding practices implemented and changes in their financial status resulting from implementation of changes learned through the Financial Wellness program and Long-Term Care program, and end-of-session and follow-up evaluations with Welcome to the Real World simulation youth participants.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Sustainable Energy

2. Brief summary about Planned Program

The United States is the largest user of energy in the world accounting for over 25% of total consumption. Thus, any change in global energy use will require a change in production and consumption of energy in the U.S. The major renewable energy systems include solar, wind, biomass, hydroelectric, and geothermal. Biofuels have been gaining ground since the 1980's, but several limitations need to be overcome before plant/crop-based resources and processes become a viable alternative to petrochemical-based systems for chemicals and energy. These include improvements in the efficiency of bioconversion of plant fibers to value-added products and extraction of high value products.

The University of Illinois is home to the Center for Advanced BioEnergy Research. CABER works closely with the nine UIUC colleges, multiple disciplinary and professional units, and faculty and students to provide a facilitative structure for campus outreach, teaching and research in areas related to bioenergy systems. CABER facilitates the development of cross-disciplinary research and development, education and outreach programs that promote the greater and more efficient use of bio-renewable resources, and, more specifically, support the emergence of advanced bio-fuels and chemicals. CABER focuses on sustainable bioenergy systems, including plant, microbial, downstream processing, and economics and policy issues as they relate to bio-based products.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
133	Pollution Prevention and Mitigation	15%		0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		40%	
206	Basic Plant Biology	5%		20%	
402	Engineering Systems and Equipment	25%		25%	
601	Economics of Agricultural Production and Farm Management	15%		15%	
801	Individual and Family Resource Management	20%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	15%		0%	
806	Youth Development	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Biobased renewable resources can be obtained from a wide range of agricultural crops, forestry products, and processing industries. The U.S. has access to significant amounts of biobased resources, including those of the highly productive corn/soybean cropping system in the central U.S., arguably the largest man-made ecosystem on the planet. This agro-ecosystem is still largely focused on providing raw materials for the food, feed, and fiber industries and not on chemicals and fuels, which is the focus of this thematic program.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

There already exists growing support for biofuels as evidenced by the marketing of biodiesel blends in many states, and the provision of tax incentives for its use. We assume that this trend will continue and funding will be available to allow us to take advantage of this trend. Access to other entities on campus for research-based information on other alternative energy sources and energy efficience will ensure Extension's ability to provide assistance to consumers on reducing energy costs.

2. Ultimate goal(s) of this Program

The current level of production of fuel from plants or animals is currently about one third of the level mandated by lawmakers for 2022, according to an energy taskforce reporting to President Obama. As a member of the Midwest Consortium for Biobased Products and Bioenergy, the University of Illinois is committed to working regionally to improve on our current progress toward meeting this goal. Specific goals include providing fuel and materials for sustainability, improving biofuel production and carbon sequestration, and developing a research base that will allow for the development of management systems that efficiently and economically produce bioenergy crops. Identification and reliance on sustainable energy sources will keep energy costs reasonable and prevent adverse effects on the environment.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	3.0	0.0	7.0	0.0
2012	3.0	0.0	7.0	0.0
2013	3.0	0.0	7.0	0.0
2014	3.0	0.0	7.0	0.0
2015	3.0	0.0	7.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

We will combine and focus the specialized research abilities of faculty members from several disciplines to generate chemicals and biofuels from renewable biomass sources using a comparative and functional genomic approach. Future economic development aspects include technology transfer, biotech startups, attracting of national talents including faculty, students and postdoctoral associates, and training of a first-class workforce.

Research is also focusing on perennial rhizomatous grasses, such as Switchgrass and Miscanthus, which are particularly well-suited as bioenergy crops. Work is also being conducted to evaluate the impact of biofuels on emissions-reducing technologies for off-road diesel engines; to engineer plant cell wall hydrolyzing enzymes [a means to increase the potential of cellulosic material as feedstock for biofuel production]; to improve our ability to rapidly measure and monitor fermentation processes and variability in distiller's dried grains with solubles quality; and the successful production of bio-butanol from low value DDGS [which will provide corn ethanol producers with an alternative means of utilizing DDGS and thereby increase the economic viability of corn ethanol production facilities].

Extension activities will include narrated tours at field research sites, presentations at crop management conferences, podcasts, and distribution of research reports related to costs, efficiencies, and by-products of biofuel production. Extension staff will also tap and disseminate research on other alternative energy resources such as wind, solar, nuclear, etc. In addition, Extension will provide workshops, factsheets, web-based information, and access to energy audits to help individuals and families reduce the use of non-renewable energy sources as well as expenditures, and hands-on experiences for youth.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class	● Newsletters
● Workshop	● TV Media Programs
● One-on-One Intervention	● Web sites
● Demonstrations	● Other 1 (Podcasts)
● Other 1 (Experiments)	

3. Description of targeted audience

The beneficiaries of this research will be agriculture and agriculture-based industries in Illinois, although ultimately all of us will benefit as consumers of energy. Extension audiences will include agricultural producers, landowners, business owners, local officials, consumers, and youth.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	5000	1000	2000	0
2012	5000	1000	2000	0

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2013	5000	1000	2000	0
2014	5000	1000	2000	0
2015	5000	1000	2000	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**1 **2013:**1 **2014:**1 **2015:**1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	30	0	30
2012	30	0	30
2013	30	0	30
2014	30	0	30
2015	30	0	30

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Projects

2011:1 **2012:**2 **2013:**2 **2014:**2 **2015:**2

V(I). State Defined Outcome

O. No.	Outcome Name
1	Proportion Of The Use Of Biomass Relative To Total Energy [Currently At 4-5%]
2	Percent Reduction In NOx Emissions From Biodiesel
3	Increase Knowledge Of Research Findings Realted To Biofuel Production
4	Increased Knowledge Of Current And Future Energy Source Options
5	Number Implementing Recommended Practices To Reduce Energy Use

Outcome # 1

1. Outcome Target

Proportion Of The Use Of Biomass Relative To Total Energy [Currently At 4-5%]

2. Outcome Type : Change in Condition Outcome Measure

2011:6	**2012:**6	**2013:**7	**2014:**7	**2015:**7

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 206 - Basic Plant Biology
- 402 - Engineering Systems and Equipment
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

Percent Reduction In NOx Emissions From Biodiesel

2. Outcome Type : Change in Condition Outcome Measure

2011:50	**2012:**50	**2013:**60	**2014:**60	**2015:**60

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment

4. Associated Institute Type(s)

- 1862 Research

Outcome # 3

1. Outcome Target

Increase Knowledge Of Research Findings Realted To Biofuel Production

2. Outcome Type : Change in Knowledge Outcome Measure

2011:50	**2012:**50	**2013:**50	**2014:**50	**2015:**50

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Increased Knowledge Of Current And Future Energy Source Options

2. Outcome Type : Change in Knowledge Outcome Measure

2011:2000	**2012:**2000	**2013:**2000	**2014:**2000	**2015:**2000

3. Associated Knowledge Area(s)

- 206 - Basic Plant Biology
- 402 - Engineering Systems and Equipment
- 601 - Economics of Agricultural Production and Farm Management
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Number Implementing Recommended Practices To Reduce Energy Use

2. Outcome Type : Change in Knowledge Outcome Measure

2011:500	**2012:**500	**2013:**500	**2014:**500	**2015:**500

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities

- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Description

Both environmental [global warming] and economic [high energy prices] concerns will drive the demand for biofuels research. Improvements in crop productivity and the utilization of bioenergy will also continue to be important external factors.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

The feasibility of a follow-up evaluation with Wind Energy 101 participants will be explored. An evaluation will be conducted with youth, after completion of the "wind as energy" national 4-H science experiment this year.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- Other (Online survey)

Description

A random mail survey or online survey will be sent to Wind Energy 101 participants. A "hands held up/counted" series of questions will be asked of "Wind as Energy" experiment youth participants.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Human Development and Family Wellbeing

2. Brief summary about Planned Program

The stresses on American families are well known. Although rates of divorce have stabilized in the last 20 years, 40 to 50 percent of all first marriages end in divorce. The number of children growing up in poverty is a breathtaking 19 percent. The number of adults raising children while also caring for an aging parent has grown, and rates of children diagnosed with attention, learning, and behavioral problems have soared, particularly as we have become more skilled in recognizing these problems.

Still, there is compelling evidence that many families [including those living under difficult circumstances] manage to raise their children successfully and support their members. Because family strengths tend to be difficult to quantify, they can easily be overlooked or dismissed as unimportant. The result is a significant gap in our knowledge base. We need to know from research the factors that make for strong families.

Within the Department of Human and Community Development in the College of ACES is the Pampered Chef Family Resiliency Program [www.familyresiliency.uiuc.edu]. Established in 2000, the program is dedicated to enriching child, individual, and family wellbeing in the context of communities. The program supports innovative research, education, and public engagement outreach activities that hold potential for strengthening families' ability to be resilient in the face of life stressors and to successfully navigate the competing demands of work and family. The Center focuses activities around three themes: positive human development, family wellness, and strengthening family and community connections.
Ongoing Extension programs address family issues at all stages of the life cycle from infancy through issues of aging and care of dependent adults.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	100%		100%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

As noted in the overview, what determines positive family outcomes is not always easily predictable. The ongoing research being conducted is attempting to determine how family resiliency can be enhanced. Aging Americans and their families are faced with shifting roles in care-giving and relationships within the family. Balancing work and family often brings increased stress, fatigue, illness, and strained relationships. In addition, teens find establishing and maintaining healthy relationships with their peers and the opposite sex to be challenging and stressful. Of the 2009 Extension public survey of educational interest respondents, 53% [3,900] of those interested in learning more about maintaining healthy relationships

most frequently checked the area of marital/couple relationships. Parenting can become overwhelming, often resulting in child abuse or an environment that is not supportive of the healthy development of youth because parents lack knowledge and skills regarding best parenting practices. In addition, grandparents who are caring for grandchildren are struggling to cope with complex changes that affect lifestyles, employment, and family relations.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Extension
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

That resource levels will remain stable for family research and educational programming and that our current understanding of the complex relationships involved among family members is sufficient to provide research-based educational programming.

2. Ultimate goal(s) of this Program

Researchers are studying the factors that enhance or hinder resilience in families in order to create programs and policies that will foster healthy families. Researchers are also studying the processes of positive social and emotional development in children and adolescents in order to develop ways in which parents, teachers, and other adults can foster healthy development. Through Extension programs, families will thrive by establishing healthy relationships, managing work-life challenges, understanding children's development and how to foster it, and coping with the challenges of aging and intergenerational issues.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	13.0	0.0	6.0	0.0
2012	13.0	0.0	6.0	0.0
2013	13.0	0.0	6.0	0.0
2014	13.0	0.0	6.0	0.0
2015	13.0	0.0	6.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Extension activities will focus on four areas: [1] parenting and childcare education, [2] aging issues education, [3] work-life management education, and [4] healthy relationship education. Delivery methods will include maintenance and expansion of the Parenting 24/7 website; fact sheets and brochures such as the Your Young Child series' workshops related to long-term care, brain health strategies, and managing the challenges of contemporary working life [Intentional Harmony curriculum]; Latino Childcare DVD's; and newsletters including Parenting Again [for grandparents raising grandchildren].

Research activities include the development of effective, evidence-based work-life management strategies for couples, cross-national studies of developmental risk and resilience in migrant families, efforts to improve co-parenting after separation from an abusive partner, work to develop social and emotional competencies through sibling relationships, a study of the relationships between parental identity, behavior and development, research into the chronic stressors in the lives of low-income, African-American families living in inner-city neighborhoods and the coping strategies used to address these stressors, a study of the strengths and needs of non-metropolitan gay and lesbian parents, ongoing implementation of the Child Development Laboratory [CDL] Research Database Project, development of youth programs as contexts for development of real-world skills in rural youth, a project designed to examine how young preschool children develop cognitive belief structures and expectations about different relationships through their daily interactions with caregivers, efforts to explain early racial and Social Economic Status gaps in school achievement, and findings that everyday exposure to green spaces have wide-ranging, positive impacts for human health and functioning.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Other 1 (DVD's)	● Newsletters ● Web sites ● Other 1 (Train The Trainer)

3. Description of targeted audience

Target audiences include professionals who work with young children including childcare providers, pre-school teachers and public health staff, professionals who provide support, assistance, and training to parents including agency staff, parent educators, and high school teachers, parents including teen parents, gay and lesbian parents, grandparents, and foster parents, caregivers of aging audiences, and working couples. Programming will also be targeted for families living in low-income and high-risk neighborhoods and will be adapted to reach racially, ethnically, and culturally diverse audiences.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	15000	20000	10000	0
2012	15000	20000	10000	0
2013	15000	20000	10000	0
2014	15000	20000	10000	0
2015	15000	10000	10000	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	9	1	10
2012	9	0	9
2013	9	0	9
2014	10	1	11
2015	10	1	11

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Projects

2011:2 **2012:**2 **2013:**2 **2014:**2 **2015:**2

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number Of Research Projects Utilizing The Child Development Laboratory Research Database
2	Increased Knowledge Of Children's Behavior At A Given Stage Of Development And Parenting Practices To Foster That Behavior
3	Reduction In Physical And Emotional Strain In Handling The Challenges Of Work And Family
4	Increased Confidence And Competence In Functioning As A Parent
5	Increased Parenting Practices That Promote Nurturing Relationships

Outcome # 1

1. Outcome Target

Number Of Research Projects Utilizing The Child Development Laboratory Research Database

2. Outcome Type : Change in Knowledge Outcome Measure

2011:20	**2012:**20	**2013:**20	**2014:**20	**2015:**20

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

Increased Knowledge Of Children's Behavior At A Given Stage Of Development And Parenting Practices To Foster That Behavior

2. Outcome Type : Change in Knowledge Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**0

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Reduction In Physical And Emotional Strain In Handling The Challenges Of Work And Family

2. Outcome Type : Change in Action Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Increased Confidence And Competence In Functioning As A Parent

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
100	100	100	100	100

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Increased Parenting Practices That Promote Nurturing Relationships

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
100	100	100	100	100

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Description

Any significant trend that affects the family, including changes in divorce rates, parents delaying having children until later in life [or on the opposite side an increase in teen pregnancy], a downturn in the economy [or other forms of economic hardships], and continued migration from rural to urban areas.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

Evaluation of Intentional Harmony curriculum and workshops will continue, as will data gathered for Parenting Partners and Parenting 24/7.

2. Data Collection Methods

- Mail

Description

Data collection methods include pre-test and post-test, face-to-face interviews, participant observation, photo elicitation, family interviews, questionnaires, and workshop participant surveys. Groups studied will include divorced mothers who are victims of domestic violence, African Americans living in high-risk neighborhoods, and families with young children.

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

4-H Youth Development

2. Brief summary about Planned Program

Youth development programs are designed to allow youth and adults to work together in family and community environments to create real life learning laboratories that help youth practice skills they need today and will continue to need for the rest of their lives, to reach youth in their own neighborhoods and communities with unique, hands-on learning strategies suited to their needs, to address current youth issues through positive prevention programs, and to promote positive youth/adult partnerships involving them in significant decision making and encouraging their participation in community roles.

Although state funding for 4-H Youth Development staff has been decreasing, funding at the local level demonstrates a significant resource commitment in Illinois to serving the needs of youth in rural and urban areas. These investments in youth through informal education are expected to continue to return significant benefits to the public while addressing important issues such as science, healthy lifestyles, and leadership education.

Drawing on research conducted in the College of ACES in nutrition and health, leadership, and youth involvement in groups as well as the expertise of faculty in the Colleges of Engineering, Medicine, and Education and the Graduate School of Library and Information Services, the University of Illinois Extension 4-H Youth Development program will delivery programs that address the three national mission mandates of the National 4-H Program: Science, Engineering, and Technology [SET], Healthy Lifestyles, and Youth in Civic Engagement/Leadership. Drawing on data collected in 2005 through statewide youth focus groups and a statewide survey of the public's educational interests conducted in 2009, the Illinois 4-H Youth Development Program has identified five areas of focus.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
724	Healthy Lifestyle	10%		0%	
806	Youth Development	90%		0%	
	Total	100%		0%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The priorities for the Illinois 4-H Youth Development program encompass 1] learning employment skills; 2] experiencing healthy relationships; 3] becoming physically fit; 4] thinking green; and 5] engaging in science.

Reports of college degrees awarded, media reports, and business and industry leader's expressed concerns about the declining interest of youth in science, engineering, and technology have identified this decline as a situation that may undermine the country's standard of living and global position of leadership. Respondents to the 2009 statewide Extension

survey of educational interest selected "expanding youth interest in science, math, and technology" education more frequently than any of the other topics related to the education and workforce preparation issue. Data also evidences the growing prevalence of childhood obesity. The Illinois Department of Public Health cites recent survey findings that 39% of third graders in Illinois are at risk of being overweight or are overweight/obese; lack of adequate physical activity is one of the contributing factors. Research also supports the value of youth education related to social emotional learning, dating relationships, financial literacy, and experiences with nature in developing adults who attain healthy workplace relationships, stable marriages, economic stability, and who are aware of human actions that affect the environment.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Extension
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

That funding exists and that staff and volunteers can be located to expand programs and that faculty expertise from the College of ACES, as well as corporate and community partners, can be recruited to support the development of materials and programs.

2. Ultimate goal(s) of this Program

Youth who are: [1] prepared and interested in pursuing careers in science, engineering, and technology, [2] assuming leadership roles in government or community organizations that focus on community enhancement, and [3] developing lasting habits related to proper nutrition and physical activity. In addition, youth involved in 4-H activities will develop good character and exhibit social and emotional development required of adults who can contribute to society.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	45.0	0.0	0.0	0.0
2012	45.0	0.0	0.0	0.0
2013	45.0	0.0	0.0	0.0
2014	45.0	0.0	0.0	0.0
2015	45.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

In an effort to involve 50,000 new youth in 4-H by 2013, workgroups of staff are identifying activities that are encompassed under the five priority focus areas. Delivery systems will include community clubs, special interest groups,

camps, field trips, and online interactive experiences that encompass the essential elements of positive youth development. SET has targeted the following: 1] robotics, 2] geospatial technologies and community mapping, 3] sustainable energy, and 4] exploring the Wonders of Science [SET Career Exploration]. Specific activities will also include SET-focused internship experiences for college students, mobile science laboratory, summer career academies, beginning and advanced Science Siesta [two-day workshops to connect youth and scientists in collaborative science investigations]. Health Jam, a multi-session program that focuses on healthy eating and physical activity practices and health careers will be expanded to several locations in the state. 4-H Youth Development Extension staff are also involved in interdisciplinary efforts with other Extension staff to provide teacher training focused on social and emotional learning, healthy teen relationships, Breaking the Code bullying simulation, character education and Welcome to the Real World independent living simulations.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 (Camps) ● Other 2 (Fieldtrips)	● Newsletters ● Web sites

3. Description of targeted audience

All youth including special targeting to reach minority youth and female youth, youth leaders [paid and volunteer], teachers, parents, and community members.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	100000	0	300000	150000
2012	100000	0	300000	150000
2013	100000	0	300000	150000
2014	100000	0	300000	150000
2015	100000	0	300000	150000

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	0	1	1
2012	0	1	1
2013	0	1	1
2014	0	1	1
2015	0	1	1

V(H). State Defined Outputs

1. Output Target

- New Extension Program Curricula Developed

2011:1 **2012:**1 **2013:**1 **2014:**1 **2015:**0

V(I). State Defined Outcome

O. No.	Outcome Name
1	Increased Knowledge About Science And Health Careers
2	Increased Knowledge Of Strategies To Manage Risk In Planning Events For Youth
3	Increased Knowledge Of Positive Youth Development

Outcome # 1

1. Outcome Target

Increased Knowledge About Science And Health Careers

2. Outcome Type : Change in Knowledge Outcome Measure

2011:200	**2012:**200	**2013:**200	**2014:**200	**2015:**200

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Increased Knowledge Of Strategies To Manage Risk In Planning Events For Youth

2. Outcome Type : Change in Knowledge Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Increased Knowledge Of Positive Youth Development

2. Outcome Type : Change in Knowledge Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges

Description

Potential loss of state funding for professional positions and subsequent reduction of Extension educators would significantly affect the level of programming and youth involvement. The economy may affect the ability of youth to participate in programs and the rising costs of a college education may affect enrollment and preparation of scientists. A number of other youth-serving organizations and activities compete for time youth have for discretionary out-of-school activities.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

Evaluations of statewide 4-H volunteer training will be ongoing, new evaluation tools have been developed for use with 4-H special interest groups that address positive youth development as well as skills. Impact data will continue to be developed related to national science experiments and Health Jam. We will be forming a work group to discuss and identify impact evaluation priorities for 4-H Youth Development.

2. Data Collection Methods

- Whole population
- Mail
- On-Site
- Structured
- Unstructured
- Observation

Description

Participants in Health Jam complete the School Health Education Evaluation (SHEE) test before and after the program. Statewide volunteer trainers distribute an evaluation after various trainings and mail a postcard follow-up several months later

to determine the participants' knowledge application in working with youth in the clubs they lead.

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Agricultural and Biological Engineering

2. Brief summary about Planned Program

Leadership is provided by the Department of Agricultural and Biological Engineering. The department contributes to using engineering in an interdisciplinary manner to solve problems in agricultural, food, and biological systems. Research in the department is organized into five groups:

1. Bioenvironmental Engineering Group

Applying engineering principles to biological systems including air quality, biomass and bioenergy, engine emission control, and animal waste management [see Sustainable Energy Planned Program].

2. Food and Bioprocess Engineering Group

Food and bioprocess engineering is the application of engineering principles to preserve, process, package, and distribute biological materials for human and animal consumption, for biofuels, and for biobased products. For elements related to food and bioprocess engineering, see the Food Safety Planned Program.

3. Off-Road Equipment Engineering

The mission of off-road equipment engineering is to provide research-based engineering information relating to off-road equipment, agricultural production, and safety. Faculty, staff, and students in this area specialize in agricultural and construction equipment design and the development of precision agricultural technology for production agriculture.

4. Soil and Water Resources Engineering

Soil and water resources engineering involves the management of soil and water resources and water quality. Among the issues addressed by this group are crop nutrient management and understanding the relationships between land use and water quality and the role of natural ecosystems in modern agriculture. Elements of soil and water resources engineering are also involved in Illinois Planned Programs Natural Resource Management and Plant Health, Systems, and Production.

5. Biological Engineering

Biological engineering integrates biology and engineering to provide solutions to problems related to living systems [plants, animals, humans, and microorganisms]. Engineering biological systems vary widely in scale. At the molecular level, nanometer-scale devices consist of a few biomolecules inside individual cells. At the other extreme, regionally-scaled complex ecosystems depend upon multiple species of interacting living organisms. Such systems are becoming increasingly important in areas such as bioenergy, bioprocessing, alternative energy, nanotechnology, biosensing, bio-infromatics, and bioenvironment.

In addition, the Energy Biosciences Institute [EBI] harnesses advanced knowledge in biology, the physical sciences, engineering, and environmental and social sciences to devise viable solutions to global energy challenges and reduce the impact of fossil fuels to global warming.

Significant research projects are carried out in all five of the department's groups and contribute to the Extension programs of the College. In addition to the research noted in other Planned Programs, research is conducted on agricultural infotonic systems, animal waste management, livestock production environments, and improving the value of coproducts produced in grain processing. Extension program teams have Extension educators partnering with staff and faculty with joint Extension and research appointments to further integrate research and Extension efforts. Agricultural Engineering also contributes significantly to work in manure management and integrated pest management. Agricultural and Biological Engineering is submitted as a Planned Program because of the critical role this area contributes to commercial

agriculture and solving the problems facing the State of Illinois related to preserving soil, water, and air quality.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	30%		10%	
401	Structures, Facilities, and General Purpose Farm Supplies	10%		20%	
402	Engineering Systems and Equipment	5%		20%	
403	Waste Disposal, Recycling, and Reuse	50%		15%	
404	Instrumentation and Control Systems	5%		25%	
405	Drainage and Irrigation Systems and Facilities	0%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Engineering technology plays a major role in developing and maintaining competitive livestock and crop industries in Illinois. It also contributes to increasing worker safety in agriculture and related industries. Such technology is also addressing concerns and problems related to odors and air quality, animal waste, animal treatment, and protection and management of water resources.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

That new technologies can be developed that are cost-effective in the field [and affordable for smaller producers] and that resources will be available to continue to develop and refine these technologies.

2. Ultimate goal(s) of this Program

To improve agricultural productivity through the use of intelligent machines, to integrate biological science and engineering for enhancement of living systems, to utilize holistic approaches to provide engineering solutions, and to mitigate conditions through knowledge and practices regarding radon in homes and manure management that preserve or improve water and air quality.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	2.0	0.0	5.0	0.0
2012	2.0	0.0	5.0	0.0
2013	2.0	0.0	5.0	0.0
2014	2.0	0.0	5.0	0.0
2015	2.0	0.0	5.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research activities include research designed to provide reliable and cost-effective emission control strategies for livestock structures, development of non-invasive systems for breath-based analysis of biomarkers of disease, health, and biosecurity, the development of bio-systems automation technology, conducting and analyzing experiments on the use of synthetic gene circuits as biological sensors, developing methods and techniques to reduce spray drift and to provide adequate coverage for controlling pest problems in field crops, research on agricultural infotronic systems and mass flow sensing, work to improve the application of pest control substances, research focusing on subsurface tile drainage systems, experiments to observe the nanostructure and the dynamics of zein protein aggregation, and studies improving indoor air quality through contaminant control measures and improved ventilation design. Extension activities will include website expansion, online quizzes and training sessions to certify livestock managers are knowledgeable about manure management, presentations on crop production guidance systems and other technological advancements, and websites, presentations, and materials to address the detection and mitigation of radon in homes and alternative energy sources and energy conservation [See also Sustainable Energy Planned Program].

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Web sites

3. Description of targeted audience

Pesticide users [and environmentally-concerned citizens], crop growers, organic farmers and specialty-crop

growers, animal producers [and all building designers in that improved ventilation technologies for agriculture buildings provide insights that can result in better-developed buildings for any use], agricultural engineers, homeowners, renters, building contractors, and realtors.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	5000	2500	100	100
2012	5000	2500	100	100
2013	5000	2500	100	100
2014	5000	2500	100	100
2015	5000	2500	100	100

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**1 **2013:**1 **2014:**1 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	15	0	15
2012	15	1	16
2013	15	0	15
2014	15	1	16
2015	15	1	16

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Projects

2011:2 **2012:**2 **2013:**2 **2014:**2 **2015:**2

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number Of Subsurface Bioreactor Acres In Illinois
2	Producer Reported Changes/Improvement In Manure Management And Application Method To Reduce Odor
3	Development And Use Of A Manure Management Plan

Outcome # 1

1. Outcome Target

Number Of Subsurface Bioreactor Acres In Illinois

2. Outcome Type : Change in Knowledge Outcome Measure

2011:400	**2012:**400	**2013:**400	**2014:**400	**2015:**400

3. Associated Knowledge Area(s)

- 402 - Engineering Systems and Equipment
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

Producer Reported Changes/Improvement In Manure Management And Application Method To Reduce Odor

2. Outcome Type : Change in Action Outcome Measure

2011:50	**2012:**50	**2013:**50	**2014:**50	**2015:**50

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Development And Use Of A Manure Management Plan

2. Outcome Type : Change in Action Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Programmatic Challenges

Description

External factors include development of new technologies in closely related fields, demand for a given agricultural product, environmental concerns, and the availability of resources.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)

Description

Survey of livestock manager workshop attendees regarding practice changes will be conducted periodically.

2. Data Collection Methods

- Whole population
- Mail
- On-Site

Description

Retrospective post-meeting questionnaires distributed at livestock and guidance systems presentations at face-to-face programs.

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

The efforts of the University of Illinois on climate change span multiple departments and units, including the Department of Natural Resources and Environmental Sciences, the Department of Crop and Horticultural Sciences, the Department of Agricultural and Biological Engineering, and the Institute of Natural Resource Sustainability/Illinois State Water Survey and are on local [such as scientists working to identify the impact of agricultural chemicals and Extension specialists working to educate farmers on how to minimize agricultural impacts without sacrificing yields], regional [such as working to determine the impact of climate change on animal habitats], and global [such as the National Atmospheric Deposition Program's monitoring network's data which is used to measure the rate and geographic distribution of air pollutant deposition] scales.

3. Program existence : New (One year or less)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	30%		15%	
104	Protect Soil from Harmful Effects of Natural Elements	0%		15%	
111	Conservation and Efficient Use of Water	0%		20%	
132	Weather and Climate	30%		20%	
133	Pollution Prevention and Mitigation	30%		15%	
136	Conservation of Biological Diversity	0%		15%	
806	Youth Development	10%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The United States Environmental Protection Agency defines climate change as "any significant change in measures of climate [such as temperature, precipitation, or wind] lasting for an extended period [decades or longer]" and identifies three major causes of climate change: 1] natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun; 2] natural processes within the climate system [such as changes in ocean circulation]; and 3] human activities that change the atmosphere's composition [through the burning of fossil fuels] and the land surface [deforestation, reforestation, urbanization, and desertification]. Scientists are certain that human activities are changing the composition of the atmosphere through increasing the concentration of greenhouse gases that will change the planet's climate by trapping heat on the earth's surface. They are just not sure by how much it will change, at what rate it will change, or what the exact effects will be. Human health can be affected directly and indirectly by climate change through extreme periods of heat and

cold, storms, climate-sensitive diseases such a malaria, and smog episodes. Respondents to the 2009 Extension survey of educational interests frequently indicated interest in learning more about global warming [38% of the 7,977 those who checked topics under the broad area of protecting the environment].

Reduction of energy-related activities is a priority since three-quarters of our human-generated greenhouse gas emissions are carbon dioxide from burning fossil fuels. Extension can educate farm and forest landowners about the wide variety of potential carbon emission reduction methods and enhancing carbon removal from the atmosphere and storage through returning biomass to the soil [sequestration of carbon] and to explore selling carbon credits that might accumulate through that process. Other educational priorities will focus on protecting existing forests/trees [which store carbon in their biomass] and helping individuals and businesses discover ways to ways to decrease greenhouse gas emissions, increase the nation's energy independence, and also save money.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

While climate change is a global issue, we believe that Illinois researchers and Extension educators are making significant contributions toward identifying causes and offering solutions. We expect these contributions to continue to grow as the President and the National Institute of Food and Agriculture have stressed the need to focus on climate change as a national priority.

2. Ultimate goal(s) of this Program

To balance human needs for agricultural products, living space, and economic productivity with wise stewardship of our natural resources.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	1.0	0.0	2.0	0.0
2012	1.0	0.0	2.0	0.0
2013	1.0	0.0	2.0	0.0
2014	1.0	0.0	2.0	0.0
2015	1.0	0.0	2.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Activities include the ongoing work of the National Atmospheric Deposition Program [the world's largest precipitation chemistry network with a continuous record of over thirty years], a study evaluating the impact of climate change on the ecology of snakes in agricultural landscapes, the development of analysis methods for studying the effect of climate change on forests, and work focusing on the management of nutrients on the land surface [and in particular the effects on world food demand, on different agricultural practices on nutrient loss, on changes in climate, of technology and consumer preferences on nutrient balances, and of terrestrial effects of atmospheric deposition of nitrogen].

Extension activities will focus on collaborative efforts with The Environmental Change Institute located on campus [an Extension staff member serves on the advisory committee]. In addition, information about carbon sequestration and carbon trading will be shared through workshops, webinars, and websites related to agricultural production. Likewise, seminars, webinars, websites, and factsheets will address the value in preserving public and private forest resources [such as the effort to manage the threat of the European Ash Borer]. Hands-on experiences for youth will focus on enhancing their knowledge of the causes of climate change and the potential human effects on the environment and practices that can negate those effects.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Web sites

3. Description of targeted audience

The target audience includes policy makers, concerned citizens, agricultural producers, land managers, natural resource specialists, researchers, Extension educators, land managers, regulators, and youth.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	1000	500	10000	0
2012	1000	500	10000	0
2013	1000	500	10000	0
2014	1000	500	10000	0
2015	1000	500	10000	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	5	0	5
2012	5	0	5
2013	5	0	5
2014	5	0	5
2015	5	0	5

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Projects

2011:1 **2012:**0 **2013:**1 **2014:**0 **2015:**1

V(I). State Defined Outcome

O. No.	Outcome Name
1	Dissemination Of Air Quality And Atmospheric Data Through Web Hits On The National Atmospheric Deposition Program Website
2	Identifying Ways Greenhouse Gases Can Be Removed From the Atmosphere

Outcome # 1

1. Outcome Target

Dissemination Of Air Quality And Atmospheric Data Through Web Hits On The National Atmospheric Deposition Program Website

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
1700000	1700000	1700000	1700000	1700000

3. Associated Knowledge Area(s)

- 132 - Weather and Climate
- 133 - Pollution Prevention and Mitigation
- 136 - Conservation of Biological Diversity
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Identifying Ways Greenhouse Gases Can Be Removed From the Atmosphere

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
200	200	200	200	200

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 132 - Weather and Climate
- 133 - Pollution Prevention and Mitigation
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations

Description

Demand for information and research may increase based on issuance of any government regulations of fossil fuel emission levels, discovery of viable alternative renewable energy sources, and reduced use of non-renewable resources. Extension program delivery to date has been minimal and anticipated reductions in Extension staff due to declining state funding may prohibit shifting resources to enhance programming in this area.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Description

{NO DATA ENTERED}

2. Data Collection Methods

Description

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Childhood Obesity

2. Brief summary about Planned Program

Leadership for childhood obesity research and education efforts rests primarily with the Department of Food Science and Human Nutrition, the Department of Human and Community Development, and the University of Illinois Extension Service. One example of the multidisciplinary efforts being made to combat childhood obesity is the "STRONG Kids" project. This project takes a comprehensive approach with the overarching vision to [1] discover and document salient predictors of and mechanisms through which individuals develop health-related behaviors and beliefs; and [2] to develop tailored prevention and intervention programs for families and children that promote healthy development, that are evidence-based, and that are grounded in developmental theory.

3. Program existence : New (One year or less)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	55%		15%	
704	Nutrition and Hunger in the Population	10%		35%	
724	Healthy Lifestyle	10%		15%	
802	Human Development and Family Well-Being	10%		20%	
805	Community Institutions, Health, and Social Services	5%		15%	
806	Youth Development	10%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Obesity among children in the United States has become a national public health concern. From 1976 to 2006, the rate of overweight children aged 2-5 years rose from 5% to 12.4%; for those aged 6-11 years, prevalence increased from 6.5% to 7.0%; and for those aged 12-19 years, prevalence increased from 5.0% to 17.6%. Little progress has been made in reaching the targeted prevalence of 5% set in the Healthy People 2010 initiative. According to the 2003-2004 Healthy Smiles, Healthy Growth data from the Illinois Department of Public Health, [39%] of Illinois' third grade students are at risk of being overweight [18%] or are overweight/obese [21%]. Overweight children are at risk of remaining overweight into adulthood, with being overweight by age eight predicting the most severe adult obesity. In response to this increasingly important problem, the President and First Lady have announced that they are making childhood obesity a top priority of the administration. In January of 2010 Health and Human Services Secretary Kathleen Sebelius announced that over $650 million in economic stimulus money would be invested in wellness and prevention programs aimed at obesity and smoking cessation.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Unfortunately, the assumption that childhood obesity will continue to be an increasingly important problem seems to be a safe one for at least the next several years. We believe that increasing public attention [incluiding the attention of the First Family] will result in an increase in resources devoted to not only the obvious causes such as a lack of nutrition research and education but also other, often less-recognized, causes such as media exposure, family stability, and peer networks. We believe that Illinois researchers and Extension educators are well-positioned to assists families in Illinois and beyond in reducing childhood obesity.

2. Ultimate goal(s) of this Program

The ultimate goal of this planned program is to provide research in areas such as human nutrition and family development that will help to identify the key causes of childhood obesity and to provide families with greater access through Extension educators to information that will help them in making smart food choices for their children [and for themselves as well] and adjust other behaviors determined to affect overweight and obesity.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	30.0	0.0	3.0	0.0
2012	30.0	0.0	3.0	0.0
2013	30.0	0.0	3.0	0.0
2014	30.0	0.0	3.0	0.0
2015	30.0	0.0	3.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Activities include a study of food assistance programs and nutrition and health outcomes across the lifespan, ongoing work under the STRONG Kids project [a comprehensive and interdisciplinary approach to the study of childhood obesity and health with the primary purpose of obtaining rich and integrative data in order to test theory-driven models of the effects of media and marketing on children's weight status and health within family and community contexts], efforts to develop sustainable, functional dietary intervention strategies to reduce obesity and other related diseases such as insulin resistance and diabetes, research toward developing an understanding of the characteristics of high protein ingredients and the resulting product qualities and to provide a guide for high protein soy foods development [which will provide more choices for better

nutrition for consumers], and continued work under the PONDER-G project [Prevent Obesity and Nutrition-related Diseases: Environmental Resources and Genomics], which aims to establish and recognize the basis of predictive, preventive and personalized interventions in the context of obesity. Additional activities include studying the addition of prebiotics food ingredients to enhance intestinal adaption and provide therapeutic advantage to children with gastrointestinal disorders, efforts to develop a sustainable, functional dietary intervention strategy to reduce obesity and other related diseases such as insulin resistance and diabetes, a characterization of processes and rheological profiles of high-protein foods targeted at alleviation of obesity, efforts through the National Soybean Research Laboratory [which is partially supported by Hatch funds] toward improving school lunch programs and the development and improvement of complementary protein and micronutrient supplements for early childhood nutrition, and work toward counteracting the complications of diabesity with vanadium.

Extension activities that address healthy food choices will be delivered by Expanded Food and Nutrition Education Program [EFNEP] staff and Supplemental Nutrition Assistance Program [SNAP] staff who conduct hands-on activities with children and their parents who have limited incomes. Education regarding the Food Guide Pyramid, food safety, and the importance of physical activity is stressed in preschool, school classrooms, and summer day camps and cooking schools. Materials are available for both youth and their parents. Through a new grant and partnership, Extension will work with school personnel to adopt the OrganWise, Inc. programs and materials to be offered in elementary classrooms. Teachers will be the primary deliverers of the program with Extension staff providing instruction periodically through the school year. In addition, two websites are available to the public in English and Spanish that provide information on diabetes, a potential consequence of obesity.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Newsletters ● Web sites ● Other 1 (Podcasts)

3. Description of targeted audience

Childcare providers, health professionals, researchers in the fields of economics, public health, and nutrition, policymakers charged with improving the wellbeing of low-income Americans, and program administrators overseeing food assistance programs, teachers, and preschool and elementary youth and their parents.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	700000	100000	500000	100000
2012	700000	100000	500000	100000
2013	700000	100000	500000	100000
2014	700000	100000	500000	100000
2015	700000	100000	500000	100000

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	12	0	12
2012	12	1	13
2013	12	0	12
2014	12	1	13
2015	12	0	12

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Research Projects

2011:1 **2012:**2 **2013:**1 **2014:**2 **2015:**1

V(I). State Defined Outcome

O. No.	Outcome Name
1	Knowledge Of Food That Is Low In Fat And High In Fiber And/Or The Importance Of Increasing Physical Activity Levels
2	Increased Consumption Of Foods Low In Fat And High In Fiber And/Or Increased Physical Activity Levels
3	Reduction In Children's Body Mass Index [BMI]

Outcome # 1

1. Outcome Target

Knowledge Of Food That Is Low In Fat And High In Fiber And/Or The Importance Of Increasing Physical Activity Levels

2. Outcome Type : Change in Knowledge Outcome Measure

2011:1000	**2012:**1000	**2013:**1000	**2014:**1000	**2015:**1000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Increased Consumption Of Foods Low In Fat And High In Fiber And/Or Increased Physical Activity Levels

2. Outcome Type : Change in Action Outcome Measure

2011:500	**2012:**500	**2013:**500	**2014:**500	**2015:**500

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Reduction In Children's Body Mass Index [BMI]

2. Outcome Type : Change in Condition Outcome Measure

2011:100	**2012:**100	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Description

External factors include anything which could encourage or impede the ability of children and their parents to make smart food choices. These include obvious factors such as access to foods that are high both in nutritional quality and in child acceptance and access to information provided by Extension educators in selecting foods that are both affordable and healthy. Also included is almost any factor that significantly impacts the life of a family, whether it be economic [such as a parent losing their job and feeling much more limited in the food choices they can make] or interpersonal [for example, a stable family is much more likely to engage in activities with their child such as going for walks that encourage physical fitness].

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)

Description

Questions addressing choices of food high in fat or high in fiber will be identified and added to the pre- and post-cooking school evaluations. BMI data will be collected by schools offering OrganWise Guys, Inc. and accessible to Extension. Programs that focus on jump roping will gather data related to levels of physical activity.

2. Data Collection Methods

- Sampling
- On-Site
- Observation

Description

Pre- and post-test paper evaluations completed by youth cooking school participants; BMI collected before and after by schools implementing OrganWise Guys, Inc. materials; and observation of daily activity levels of youth in multiple day summer programs.

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Global Food Security and Hunger

2. Brief summary about Planned Program

While we have attempted to segregate programs for this Planned Program, perhaps more so than any other theme global food security is an issue that flows throughout virtually every Planned Program in this report. Educators under the "4-H Youth Development" planned program work to fight hunger by helping youth to develop healthier eating habits, work in "Agricultural and Biological Engineering" improves productivity in areas such as the utilization of intelligent machines, work in "Agricultural and Consumer Economics" in areas such as international law and improving production through better agribusiness management, "Animal Health" and "Plant Health" through production, "Biofuels" through efforts to minimize the impact of crop use for fuel on food availability, and the obvious linkages to "Food Safety" and "Childhood Obesity".

3. Program existence : New (One year or less)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	5%		10%	
133	Pollution Prevention and Mitigation	5%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	25%		25%	
205	Plant Management Systems	25%		0%	
216	Integrated Pest Management Systems	25%		0%	
604	Marketing and Distribution Practices	10%		10%	
701	Nutrient Composition of Food	0%		20%	
703	Nutrition Education and Behavior	0%		10%	
704	Nutrition and Hunger in the Population	5%		15%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

A recent Food Security Assessment published by the USDA Economic Research service highlighted the difficult realities we are currently facing. The report found that the number of food-insecure people in seventy developing countries is expected to continue increasing [in large part due to the global economic downturn]. The ERS estimates that the number of food-insecure people in these seventy countries is now well over 800 million. Given that Illinois usually ranks second in both

corn and soybean production and accounts for nearly 6 percent of agricultural exports, priority will be given to enhancing the quality of these products to meet global needs. Likewise given our existing priorities in areas such as nutrition education, food development [in particular soy foods], and production efficiency the College of Agricultural, Consumer and Environmental Sciences is well-positioned to provide solutions that will make meaningful improvements in the lives of food-insecure populations locally, nationally, and globally.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

With the recent disaster of hurricane Katrina still fresh in our minds, the need for improved access to basic necessities for at-risk populations was further highlighted by the horrifying earthquake that hit Haiti in early 2010. We are confident that even in the difficult economic climate facing our state and our nation that the importance of this issue will insure that resources are available to continue to conduct research and outreach programs addressing food security. We are also confident that while many of these programs focus on local needs, that the knowledge developed and disseminated will have a reach far beyond the borders of our state.

2. Ultimate goal(s) of this Program

The ultimate goal of this Planned Program is to utilize ACES expertise across the entire food security chain from production [in areas such as plant an animal health] to marketing and distribution [in areas such as agricultural and consumer economics] to consumption [in areas such as nutrition education and diet adequacy] to improve the quantity and quality of food and drinking water available to at-risk populations.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	23.0	0.0	5.0	0.0
2012	20.0	0.0	5.0	0.0
2013	20.0	0.0	5.0	0.0
2014	20.0	0.0	5.0	0.0
2015	20.0	0.0	5.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Please note that this is a new Planned Program added at the request of Director Roger Beachy.

Activities include National Soybean Research Laboratory-managed school lunch projects which are improving the awareness of the benefits of soy among youth, providing technical assistance to microenterprises that use soy foods [helping in-country businesses to become a part of creating nutrition solutions to the challenges of fighting malnutrition and diseases such as HIV/AIDS in their country], ongoing plant biotechnology research that shows promise of producing commercial products that will add value to corn and/or soybean producers or other participants in the corn/soy value chains, research with important ramifications in developing breeding programs and in devising crop management strategies for manipulating grain composition in maize, improved management of the soybean cyst nematode, work that examines the long-term sustainability of global agriculture and implicates the excessive use of synthetic nitrogen fertilizers, often purchased via government subsidies, as depleting soil productivity capacity [long-term fertilizer response trials suggest that excessive N fertilization leads to a reduction over time in the labile soil N pool and actually results in an increase in the need for N fertilization], toxicological analysis of new emerging drinking water disinfection by-products, and a study of sensory characteristics affected by the food system in soy products with the long-term goal of developing successful soy foods targeted for mainstream food products in the U.S to provide better nutritional options and variety of products with quality to the consumers, and to eventually change consumer perception of soy foods.

Extension activities in this area will focus on corn and soybean crop production and management including integrated pest management and pork production. Activities will include the statewide Corn and Soybean Classics Conference [which highlight the latest research] and the two-day regional Crop Management Conference, field days at research stations, pesticide safety application training, distance education presentations, and distance diagnostics of corn and soybean pests.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● One-on-One Intervention ● Demonstrations	● Newsletters ● TV Media Programs ● Web sites

3. Description of targeted audience

The target audience includes populations living in underdeveloped parts of the world, producers, processors, and consumers of corn and soybean products, scientists involved in trying to improve grain composition in corn, policy makers, regulators, water scientists, and state and federal agencies involved in water issues, and soy food manufacturers, distributors, and producers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	15000	25000	0	0
2012	15000	25000	0	0
2013	15000	25000	0	0

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2014	15000	25000	0	0
2015	15000	25000	0	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	12	8	20
2012	12	8	20
2013	12	8	20
2014	12	8	20
2015	12	8	20

V(H). State Defined Outputs

1. Output Target

- Number Of Completed Hatch Research Projects

2011:1 **2012:**2 **2013:**1 **2014:**2 **2015:**1

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number Increasing Knowledge Of New Corn And Soybean Crop Management Techniques
2	Number Changing Application Of Recommended Pest Control Practices For Corn And Soybean Production
3	Dollars Saved Through Safe And Effective Pesticide Application

Outcome # 1

1. Outcome Target

Number Increasing Knowledge Of New Corn And Soybean Crop Management Techniques

2. Outcome Type : Change in Knowledge Outcome Measure

2011:500	**2012:**500	**2013:**500	**2014:**500	**2015:**500

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 133 - Pollution Prevention and Mitigation
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 604 - Marketing and Distribution Practices
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number Changing Application Of Recommended Pest Control Practices For Corn And Soybean Production

2. Outcome Type : Change in Action Outcome Measure

2011:1500	**2012:**1500	**2013:**100	**2014:**100	**2015:**100

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 133 - Pollution Prevention and Mitigation
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 604 - Marketing and Distribution Practices
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Dollars Saved Through Safe And Effective Pesticide Application

2. Outcome Type : Change in Knowledge Outcome Measure

2011:6000000	**2012:**6000000	**2013:**100000	**2014:**100000	**2015:**100000

3. Associated Knowledge Area(s)

- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities

Description

Since a great deal of plant research is done in the field rather than the laboratory, it is much more difficult to control for confounding variables, any one of which can make results more difficult to interpret. Examples include unusually harsh [or unusually mild] growing seasons, unforeseen invading pests, and contamination from outside pollutants. These are especially important given the long time horizon of many plant studies. These same factors affect decisions that producers and homeowners make with respect to crop management.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)

Description

Evaluation of practice changes by participants at the Corn and Soybean Classic conferences is anticipated but not yet designed. Specific indications of knowledge change related to topics presented at the regional crop management conference will be collected at the end of the program. Changes in application of pesticides as a result of participation in Extension delivered pesticide safety education programs [PSEP] will be collected in 2011 and 2012.

2. Data Collection Methods

- Whole population
- On-Site

Description

A retrospective report of knowledge applied by Corn and Soybean Classics participants will be collect the following year from returnees. End-of-session evaluation will be distributed during or at the end of the regional crop management conferences. PSEP participants will provide retrospective information on their pesticide application through an instrument distributed on site before the training begins.