2010 University of Nebraska Combined Research and Extension Plan of Work

Status: Accepted
Date Accepted: 05/27/09

I. Plan Overview

1. Brief Summary about Plan Of Work

Since 1988, the University of Nebraska–Lincoln Institute of Agriculture and Natural Resources (IANR) has served Nebraska by providing internationally-recognized science and education to assure the state's competitiveness in a changing world.Since its inception, IANR has followed a carefully developed and regularly revised strategic plan that sets the Institute's direction based upon clientele needs and concerns.During the last two years, IANR has gone through an in-depth planning process involving stakeholder input at listening sessions held at sites statewide.The input from these groups has formed the basis for the IANR 2008-2016 Strategic Plan.

The three themes that guide the work of the strategic plan include:

- Sustainable and economically viable food and biomass systems
- A quality environment and effective natural resource management
- Viable communities and appropriate quality of life for individuals and families

These themes are consistent with those of the past strategic plan; however, IANR's framework for addressing these themes has been sharpened to focus on the latest in scientific methodology, research practices, and delivery methods to keep Nebraska on the cutting edge of the future. IANR believes in achieving world-class excellence in: the life sciences, ranging from molecular to global systems; sustainable food, fiber, and natural resource systems that support a bio-based economy; economics and environments for a sustainable future; and human capital development of children, youth and families.

It is IANR's goal to reach this vision by: advancing knowledge along the continuum from fundamental research to application and education necessary to meet the current and emerging needs of the state; preparing professionals for the future; creating and implementing solutions to critical problems; expanding partnerships across UNL, the NU system, and beyond; cultivating public-private partnerships.

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	200.0	0.0	136.0	0.0
2011	200.0	0.0	136.0	0.0
2012	200.0	0.0	136.0	0.0
2013	200.0	0.0	136.0	0.0
2014	200.0	0.0	136.0	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
- Combined External and Internal University External Non-University Panel

2. Brief Explanation

The extension teams and work groups within each action plan will update their plans annually using stakeholder input and evaluation results from delivered programs.Also, every faculty member with a research appointment in the Agricultural Research Division (ARD) must have a current approved peer-reviewed project that defines his or her area of research investigation.The peer review process includes the Unit/Research and Extension head, one member of the faculty with relevant expertise, and the Associate Dean of ARD. Following review and acceptable revision, if necessary, the project outline is forwarded to USDA-CSREES for inclusion in the CRIS database.

Another review process, which combines merit and peer review, is the annual review by state commodity check-off boards of more than 100 research and extension funding proposals from extension and ARD faculty.Proposals selected for funding address the most significant problems currently facing the producer members of these boards and clearly communicate the research's relevance to user needs. Another review process provides additional valuable input to the extension and ARD planning efforts.

Department and Research/Extension Center comprehensive five-year reviews ensure program quality and relevance. Teams comprised of three to six external panel members and approximately two internal panel members from other departments conduct these reviews, which ensure that the programs provide focus to Nebraska's most pressing needs.
The planned programs included in this program of work reflect major focus areas identified in the IANR Strategic Plan. These focus areas reflect our citizens' concerns and needs as voiced by stakeholders, faculty and administrators. Various levels in the university have reviewed, approved and supported this plan.

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?

Ongoing input from stakeholder groups, ie. advocacy, advisory, and commodity groups help keep action team planscurrent.Several hundred people participating in IANR listening sessions confirm that we are addressing the critical issues that affect Nebraskans. A continuous listening process for planning efforts ensures that the plan of work is reviewed and updated regularly. The accuracy of the action plans is verified using the following methods:

- Teams meet face to face at least twice annually. Teams include both faculty of academic departments who understand long-term trends and faculty located in Extension offices who see on a daily basis the needs of Nebraska residents. Many of these faculty members of academic departments have joint research and extension appointments and can represent fundamental as well as applied research and extension education plans.
- Many action teams use monthly phone conference calls to stay on track.
- Action team leaders talk with subject-matter department administrators annually to ensure that the action team's goals are congruent with university department research and extension goals.
- Action teams meet with their stakeholders.
- Action teams refine programs to be delivered to ensure that content goals support needs identified by stakeholders and demographic trends.
- ARD faculty currently participating in multi-state projects receive research funding through the multi-state research component of the federal formula funds. These projects are selected and approved by regional director associations because they are high priority needs identified for multi-state activity.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

Below are examples of how research and extension address the needs of under-served and under-represented populations.

- ARD research programs related to human nutrition and healthy lifestyles were highlighted under the federal goals and key themes. The research results feed science-based information directly into UNL Extension programs that target under-served and under-represented populations.
- University of Nebraska–Lincoln Extension has built a strong partnership with Little Priest Tribal College and Nebraska Indian Community College. Through this partnership, Native American teens have become more involved in outside activities and interact with other youth and adults outside their schools. Program leaders say teens are more motivated and more interested in learning about activities. The Expanded Food and Nutrition Program and the Food Stamp Nutrition Education Program annually teach over 5,800 families and 15,000 youth from low resource (many are from the under represented populations) individuals and families how to make nutritionally sound food choices, use their food dollars wisely, and cook meals for their families that adhere to food safety principles.
- An Educator addresses the needs of Hispanic and Native American youth in Scotts Bluff County. This program engages middle and high school youth in after-school and community based programs.
- The College of Education and Human Science, Extension and the Nebraska Department of Education have undertaken a programmatic effort with targeted school districts to address needs of first generation families.

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

Goals and anticipated outcomes help focus educational programs.Plan of work goals identified include output and outcome indicators as well as proposed impacts that will be used as planning tools.Action teams refine evaluation indicators and survey questions so that data collected by action teams represents statewide program impact.Teams are collecting their data through their web sites.The teams are also increasing their ability to use technology and teaching tools though learning web sites that are available around the clock; e.g., http://lancaster.unl.edu/food and http://beef.unl.edu . They are using Polycoms, web conferencing through Adobe Connect and phone conferencing as teaching media.

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

Documentation of program impacts reinforce UNL Extension and Agricultural Research program effectiveness.The increasing number of multi-action team, multi-department and multi-state educational programs being delivered in multiple sites using multiple media reflect increased efficiencies in use of content development. The aggressive efforts of faculty to use electronic media to deliver educational programs helps achieve this efficiency but, more important, allows program clientele to participate in programming on their own time and at their own location. An output of the newly focused education concept is in the increase in relationships with departments and colleges external to traditional extension partners; e.g., College of Architecture, College of Fine and Performing Arts, Admissions, Journalism and Computer Science, Peter Kewitt Center for Computer Science, College of Education and Human Sciences, and College of Engineering.

IV. Stakeholder Input

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

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

Brief explanation.

The University of Nebraska-Lincoln (UNL) Extension and Agricultural Research Division routinely collaborate to plan and develop programs.These divisions of the Institute of Agriculture and Natural Resources (IANR) have worked together to develop an IANR integrated strategic plan for more than 10 years.Listening sessions across the state provide significant input to the strategic planning process.Some of the listening sessions target specific (traditional and non-traditional stakeholder) groups while others are open to general stakeholder input. The listening sessions are always conducted in a way to foster input from all participants.

Extension action teams are asked to seek program input from a minimum of five key stakeholders annually (determined to represent a significant population or organization or to be a key leader). This input has been invited by some teams in a formal

manner with invitations to specific individuals while other teams use surveys of program participants. In each case the participants are encouraged to provide input for program planning and evaluation.

Most of the UNL academic departments and research and extension centers have advisory committees that represent stakeholder groups. These advisory groups are encouraged to provide input to both extension and research programs. The committees are selected to be representative of the stakeholders served by the unit.

County Extension Board members in a program called "County Conversations" ask Nebraskans a series of questions about Nebraska extension programs. Since these are one-on-one conversations it is easy for participants to respond.

As part of the development of our 4-H strategic plan a Web site provided an opportunity for stakeholders in all 93 counties to provide input.

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 External Focus Groups
- Use Advisory Committees

Brief explanation.

We use several methods to identify individuals and groups to provide input to our research and extension programs.

Extension action teams are responsible for identifying stakeholders familiar with the subject matter and related issues impacting state residents.

Unit advisory group participants are identified by administrators and faculty to represent the stakeholders with an interest in the specific unit's research and extension program. The participants typically represent commodity groups, the green industry, related industrial entities, and advisory groups for IANR such as Ag Builders of Nebraska and Community, Youth & Family Partners.

For IANR listening sessions host extension educators are asked to identify key community stakeholders. In addition, for some sessions general invitations to the public are made to achieve a broader range of input. Some listening sessions target leaders of specific groups to suggest participants.

Since the 4-H program used a stratified group process technique specific groups can be targeted. In addition, 4-H uses youth curriculum committee members to help identify critical curricula topics.

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

- Survey specifically with non-traditional individuals
- Meeting with traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Meeting specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of traditional Stakeholder individuals

Brief explanation

The IANR listening sessions are face-to-face meetings with traditional and non-traditional stakeholder individuals.Both Extension and the Agricultural Research Division often have representatives present at the sessions to help receive input from the stakeholders.Our institution considers itself fortunate that faculty (specialists, educators and researchers) engage in one-on-one relationships with many of the federal, state and local agencies in the state, commodity organizations, related industries, educational organizations, and a variety of non-profit organizations. This engagement provides significant stakeholder feedback. Extension action teams use a variety of methods to obtain input including face-to-face meetings, telephone surveys, asking for review of action plans with a written survey response, and surveys of program participants during specific program activities. The action teams seek to answer the following questions:Are the action plan's educational goals the highest priorities?

Does the action plan represent work that is complementary, but not duplicate, work of other organizations?Are there potential collaborators for these action plans?Are you, as a stakeholder, aware of potential grant/contract funding sources? Are there educational goals of the action plan that should be eliminated or handed off to other entities?Meetings with leaders within minority population audiences are held to help identify needs and programs to serve audiences such as Latino and Native American populations. The Extension Board County Conversations are one-on-one interviews.Questions asked by Extension Board members are: When you think about UNL Extension what are some of the things you value most?When you think of the benefits that UNL Extension brings to the community what comes to mind? What are key programs that we deliver better than anyone else? What are current and/or emerging needs that UNL Extension can address? What new audiences should we be considering? The Nebraska Rural Poll is sent to approximately 7,000 rural Nebraska residents with between 2,500 and 3,000 responses each year over the last 12 years. The poll asks for responses to a variety of rural issues.UNL requires that each administrative unit conduct a program review every five years. In most cases the units conduct some type of stakeholder input process such as surveys, one-on-one interviews, and focus group sessions to gather input for planning future research and education programs. Input from stakeholders for development of the 4-H strategic plan is obtained annually via an interactive web site and stratified focus groups.

3. A statement of how the input will be considered

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

Brief explanation.

UNL Extension and Agricultural Research Division believe that stakeholder input is essential to developing and delivering on target research and educational programs.

The IANR listening sessions continue to help identify priority issues for consideration as we consider research and education programs. The listening session engagement provides access to information about trends and issues that impact Nebraskans.The listening session feedback is provided to departments and extension actions teams.

The County Conversation summaries have been shared with all extension faculty and academic department administrators. Extension action teams use this information as they develop program plans.

The engagement with minority audience stakeholders is used to help plan and deliver programs that promotes cross cultural understanding and used to involve teens in local decision making and career planning.

Input from the Nebraska 4-H information gathering process is continually used to refine a Nebraska 4-H strategic plan. Stakeholders identified four target areas for youth development which were used as the basis for the plan. The strategic plan focus is now Science, Engineering and Technology; Life Skills; Healthy Lifestyles; and Career Education.

Through stakeholder involvement research and education programs target the highest priority needs.Research results are made available to a broader range of stakeholders.Extension education programs are better marketed across the state.Program co-sponsorships become more likely as others learn about programs.Collaborating entities become program participants.Collaborating entities become sources of matching funding for research and education programs.

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program #1

1. Name of the Planned Program

Sustainable and Economically Viable Food and Biomass Systems

2. Brief summary about Planned Program

Agriculture remains Nebraska's largest, most important industry. In 2005, the Nebraska Policy Institute reported that Nebraska agribusinesses provided nearly 31% of the state's total employment.IANR's research, education, extension and service programs have played an integral role in enhancing the competitiveness, increasing the profitability and improving the sustainability of the state's agriculture and agribusiness.As the industry evolves, IANR's research and education programs to bolster traditional agriculture while providing resources for alternative enterprises will be critical to sustained growth.IANR must continue to address the entire food production, processing, marketing, and consumption cycle, integrating producers' and consumers' concerns to provide a safer and more sustainable food production system.

IANR will maintain strong programs in production, major livestock species marketing and processing, traditional field crops and specialty crops such as dry edible beans and turf.The institute will place even greater emphasis on agriculture's role in developing bio-renewable energy through the development and integration of resource-efficient crop and livestock production systems.Finally, it will focus special attention on economically viable, environmentally compatible, integrated approaches for commodity production, protection and processing.

Because this planned program covers more than 20 knowledge areas, each knowledge area listed may represent additional areas as indicated below:

201, 203, 205 (202, 204), 206, 216 (214), 211, 212, 213, 215,302, 307, 301 (303, 304, 306, 308), 305, 315 (311, 312, 313, 314), 402 (401, 404), 501 (502,503,504), 511 (512), 601 (602, 604), 603 (609,610), 901 (902, 903)

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 : No

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	4%		11%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	4%		6%	
205	Plant Management Systems	11%		9%	
206	Basic Plant Biology	6%		7%	
211	Insects, Mites, and Other Arthropods Affecting Plants	3%		8%	
212	Pathogens and Nematodes Affecting Plants	3%		6%	
213	Weeds Affecting Plants	3%		3%	
215	Biological Control of Pests Affecting Plants	2%		3%	
216	Integrated Pest Management Systems	9%		5%	
301	Reproductive Performance of Animals	8%		6%	
302	Nutrient Utilization in Animals	5%		7%	
305	Animal Physiological Processes	2%		4%	
307	Animal Production Management Systems	8%		4%	
315	Animal Welfare, Well-Being and Protection	7%		4%	
402	Engineering Systems and Equipment	6%		4%	

501	New and Improved Food Processing Technologies	5%		5%	
511	New and Improved Non-Food Products and Processes	3%		4%	
601	Economics of Agricultural Production and Farm Management	8%		2%	
603	Market Economics	2%		1%	
901	Program and Project Design, and Statistics	1%		1%	
	Total	100%		100%	

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

1. Situation and priorities

Nebraska's long-term economic growth and citizen well-being depend upon economically viable and sustainable food and biomass systems. To remain viable, our IANR research, extension and education programs must focus on the development and improvement of resource-efficient, environmentally compatible, and economically viable food and biomass production systems with a greater focus on value-added production. To assure we reach our goals, we must address high energy costs through a focus on development of more energy-efficient production systems and incorporation/expansion of bio-energy as an integral production systems component.

Nebraska is already a major crop and livestock producing state and is uniquely positioned to become a major producer of bio-energy, particularly ethanol and soy diesel. Ethanol production from feed grain is a major and growing industry. Other potential growth areas include ethanol production from biomass and soy diesel from soybeans. To adequately support these growth areas, we must increasingly focus on expanding our research and extension programs in energy-efficient irrigated agriculture, use agricultural products for biofuel production and develop economic and environmentally compatible ways to use grain/biomass byproducts. We already have programs investigating feeding wet and dry distillers grain to livestock, and we will place even greater emphasis on these efforts in the future.We will also continue to develop water-efficient crop cultivars and integrated crop management decision tools to help producers develop systems approaches to crop and livestock production that reduce energy inputs and use natural resources such as water efficiently .

Value-added products, services and technologies will remain a major goal of our state programs. While ehthanol will continue to be a growth industry in the state, we will also continue and expand our research and extension value-added efforts in food processing; textiles, clothing and design; and biomedical/bioagricultural technology. These newer focus areas promise to support strong economic growth for both rural and urban communities.

2. Scope of the Program

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

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

1. Assumptions made for the Program

- We will ensure alignment between research and extension efforts throughout this program of work. •We will

retain current faculty positions.

- We see the continued major role of agriculture in the state.
- We will have financial support from state, university and federal programs that adequately support base programs.

Thus, IANR can continue to provide broad-based programs with the flexibility to respond quickly to emerging issues and address long-term citizen needs.

- Entrepreneurism and value-added products associated with agricultural production will be major contributors to rural and urban economic viability and state economic growth.

2. Ultimate goal(s) of this Program

Nebraska farmers, ranchers and agribusinesses will have effective, productive management systems.
Nebraska farmers and ranchers will have sustainable crop and livestock production systems.
Nebraska agricultural commodities and products will have viable domestic and global markets.
Nebraska's ag-based industries will have available an appropriate array of products and food technologies.

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
2010	78.0	0.0	86.0	0.0
2011	78.0	0.0	86.0	0.0
2012	78.0	0.0	86.0	0.0
2013	78.0	0.0	86.0	0.0
2014	78.0	0.0	86.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

•Conduct research and extension programs to develop/deliver new and improved crop and livestock integrated management programs. •Conduct research and extension programs to develop/deliver new and improved information to help producers create sustainable crop and livestock production programs. •Conduct research and extension programs to develop/deliver new and improved information to identify new and emerging markets and marketing strategies for agricultural products and agribusiness. •Conduct research and extension programs to develop/deliver information on new or improved food products and technologies and emerging efficiencies of production to Nebraska's ag-based industries.

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

Extension	
Direct Methods	Indirect Methods
• Group Discussion • Education Class • Workshop • Demonstrations • One-on-One Intervention	• Web sites • TV Media Programs • Newsletters

3. Description of targeted audience

Targeted audiences will include a broad range of small and large agricultural producers and processors.Nebraska-based processors, especially start-up companies, will receive high priority. Specific groups that will use the research and education programs include:

•Crop and livestock producers •State agribusiness •Food processing facilities •Natural Resource Districts
•Research and extension specialists •Extension educators •Commodity groups •Nebraska independent crop

consultants •Seed fertilizer and pesticide suppliers •Commercial pesticide applicators •Certified crop advisors •Neighboring state institutions •Scientists and engineers developing new knowledge

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 Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	37100	300000	750	2000
2011	37100	300000	750	2000
2012	37100	300000	750	2000
2013	37100	300000	750	2000
2014	37100	300000	750	2000

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

Expected Patent Applications

2010 : 2 **2011 :** 2 **2012 :** 2 **2013 :** 2 **2014 :** 2

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	175	45	220
2011	175	45	220
2012	175	45	220
2013	175	45	220
2014	175	45	220

V(H). State Defined Outputs

1. Output Target

- Number of scholarly publications and ouputs related to economically viable and sustainable food and biomass systems.

  2010 : 220 **2011 :** 220 **2012 :** 220 **2013 :** 220 **2014 :** 220

- Number of workshops, continuing education programs, web-based curricula and field days/tours related to economically viable and sustainable food and biomass systems.

  2010 : 445 **2011 :** 445 **2012 :** 445 **2013 :** 350 **2014 :** 350

- Number of Agricultural Research Division projects related to economically viable and sustainable food and biomass systems.

  2010 : 190 **2011 :** 190 **2012 :** 190 **2013 :** 190 **2014 :** 190

- Number of new extension publications and other education resources related to economically viable and sustainable food and biomass systems.

  2010 : 35 **2011 :** 35 **2012 :** 35 **2013 :** 35 **2014 :** 35

- Number of new or improved plant and animal genetic materials or resources related to economically viable and sustainable food and biomass systems.

2010 :15 **2011** :15 **2012** :15 **2013** :15 **2014** :15

- Number of new products and decsion tools developed and made available to clientele related to economically viable and sustainable food and biomass systems.

2010 :10 **2011** :10 **2012** :10 **2013** :10 **2014** :10

V(I). State Defined Outcome

O. No	Outcome Name
1	Nebraska farmers will increase profitability through adoption of research and extension information provided by IANR programs (measured by value placed on the information by clientele).
2	Nebraska ranchers and feeders will increase profitability through adoption of research and extension information provided by IANR programs (measured by value placed on the information by clientele).
3	Nebraska farmers and ranchers will have sustainable food and biomass systems through adoption of best management practices (measured by percent of clientele adopting best management practices).
4	Nebraska will have access to a highly trained and educated workforce for economically viable and sustainable food and biomass systems (indirectly measured by number of undergraduate and graduate students receiving degrees).
5	Nebraska farmers and ranchers will rely on IANR research and extention programs to assure an economically viable and sustainable food and biomass system (measured by percent of state acreage and livestock represented at education programs).

Outcome #1

1. Outcome Target

Nebraska farmers will increase profitability through adoption of research and extension information provided by IANR programs (measured by value placed on the information by clientele).

2. Outcome Type : Change in Condition Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
133400000	133400000	133400000	100000000	100000000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems
- 206 - Basic Plant Biology
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems
- 402 - Engineering Systems and Equipment
- 601 - Economics of Agricultural Production and Farm Management
- 603 - Market Economics
- 901 - Program and Project Design, and Statistics

Outcome #2

1. Outcome Target

Nebraska ranchers and feeders will increase profitability through adoption of research and extension information provided by IANR programs (measured by value placed on the information by clientele).

2. Outcome Type : Change in Condition Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
81262000	81262000	81262000	45262000	45262000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 216 - Integrated Pest Management Systems
- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 307 - Animal Production Management Systems

- 315 - Animal Welfare, Well-Being and Protection
- 402 - Engineering Systems and Equipment
- 601 - Economics of Agricultural Production and Farm Management
- 603 - Market Economics
- 901 - Program and Project Design, and Statistics

Outcome #3

1. Outcome Target

Nebraska farmers and ranchers will have sustainable food and biomass systems through adoption of best management practices (measured by percent of clientele adopting best management practices).

2. Outcome Type : Change in Action Outcome Measure

2010 :70 **2011 :** 70 **2012 :** 70 **2013 :**70 **2014 :**70

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems
- 206 - Basic Plant Biology
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems
- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 307 - Animal Production Management Systems
- 315 - Animal Welfare, Well-Being and Protection
- 402 - Engineering Systems and Equipment
- 501 - New and Improved Food Processing Technologies
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management
- 603 - Market Economics
- 901 - Program and Project Design, and Statistics

Outcome #4

1. Outcome Target

Nebraska will have access to a highly trained and educated workforce for economically viable and sustainable food and biomass systems (indirectly measured by number of undergraduate and graduate students receiving degrees).

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :100 **2011 :** 100 **2012 :** 100 **2013 :**100 **2014 :**100

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems
- 206 - Basic Plant Biology
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems
- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 307 - Animal Production Management Systems
- 315 - Animal Welfare, Well-Being and Protection
- 402 - Engineering Systems and Equipment
- 501 - New and Improved Food Processing Technologies
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management
- 603 - Market Economics
- 901 - Program and Project Design, and Statistics

Outcome #5

1. Outcome Target

Nebraska farmers and ranchers will rely on IANR research and extention programs to assure an economically viable and sustainable food and biomass system (measured by percent of state acreage and livestock represented at education programs).

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 64	2011 : 64	2012 : 64	2013 : 64	2014 : 64

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. 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
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems
- 307 - Animal Production Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 603 - Market Economics

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

• Downturn in the state economy could impact outcomes.• Natural, disease or human-driven catastrophes would impact outcomes.• Complete refocus of University of Nebraska program priorities would affect outcomes.

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

1. Evaluation Studies Planned

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

Description

We will conduct evaluations through the life of this program of work through multiple listening sessions each year; through the formal and informal evaluations completed in conjunction with workshops, field days, continuing education workshops and peer reviews of planned research and extension programs; and from external peer panels during six-year reviews of unit and issue-based reviews of teaching, research and extension programs.

2. Data Collection Methods

- Structured
- Observation
- Journals
- On-Site
- Sampling

Description
{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program #2

1. Name of the Planned Program

A quality Environment and Effective Natural Resource Management

2. Brief summary about Planned Program

Abundant natural resources allow agricultural production that fuels a majority of Nebraska's economic activity. And agriculture's economic strength relies heavily on responsible surface and ground water management that provides irrigation in more than 50 percent of crop production. Nebraska's land and water resources also support a myriad of biological resources. Wildlife habitat provides for hunting, fishing and other outdoor recreation. Stewardship of Nebraska's natural resources, therefore, is vital for a sustainable economic future and high quality of life.

IANR's natural resource-related research and extension programs will focus on:

- Development and implementation of technologies to manage Nebraska's water resources.
- Development and implementation of technologies to manage livestock waste
- Development and implementation of technologies to manage soil and range resources.
- Protection of natural resources to ensure adequate inventories to meet resource managers' needs.
- Development and implementation of technology to mitigate environmental change.
- Protection of Nebraska's forestry, aquatic and natural resources for future use and enjoyment.

IANR will provide its extension programming through the following entities: Natural Resources and Environment, Integrated Crop Management, Integrated Animal Systems Management and Community and Residential Environment action team work groups. The institute will also continue to conduct important research, much of which will be interdisciplinary.

Because this planned program covers more than 20 knowledge areas, each knowledge area listed may represent additional areas as indicated below:

101, 102 (104), 111, 112 (203, 205, 211, 213, 215, 216), 121, 122, 123, 124, 125, 131, 132, 133 (203, 205, 211, 213, 215, 216, 723), 135 (136), 141 (722), 403 (722), 404, 405, 605

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 : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	2%		3%	
102	Soil, Plant, Water, Nutrient Relationships	17%		15%	
111	Conservation and Efficient Use of Water	17%		17%	
112	Watershed Protection and Management	12%		12%	
121	Management of Range Resources	10%		8%	
122	Management and Control of Forest and Range Fires	1%		1%	
123	Management and Sustainability of Forest Resources	1%		1%	
124	Urban Forestry	1%		1%	
125	Agroforestry	1%		1%	
131	Alternative Uses of Land	1%		2%	
132	Weather and Climate	9%		10%	
133	Pollution Prevention and Mitigation	12%		12%	
135	Aquatic and Terrestrial Wildlife	7%		8%	
141	Air Resource Protection and Management	1%		0%	
403	Waste Disposal, Recycling, and Reuse	3%		1%	

404	Instrumentation and Control Systems	1%		1%	
405	Drainage and Irrigation Systems and Facilities	2%		3%	
605	Natural Resource and Environmental Economics	2%		4%	
	Total	100%		100%	

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

1. Situation and priorities

Nebraskans expect continued improved natural resource management. With more than eight million acres of irrigated land in Nebraska, irrigation management education will play a critical role in conserving limited water supplies and protecting water quality.

A sustained drought, increased competition for finite water resources, depletion of ground water aquifers, reallocations of surface water supplies through interstate water compacts and implementation of new Nebraska legislative bill (LB 962) threaten profitable agricultural production in Nebraska and endanger rural communities' economic stability.

At the same time, recreational and environmental interests are questioning the water management policies resulting from these factors. Farmers, ranchers, Natural Resources District personnel, resource managers, policy makers and agricultural lenders are uncertain about the viability of water management policies, the long-term consequences of resource use alternatives and the optimal mechanisms and management strategies to achieve outcomes envisioned by planning processes. All these stakeholders need research-based scientific information and decision-support systems to make effective decisions and manage limited water supplies most efficiently and profitably.

To provide appropriate and scientifically accurate information to all stakeholders, scientists must measure components of the water balance in existing cropping systems and new cropping systems that may provide economic sustainability and water conservation. They must then integrate the resulting data into effective strategies to manage existing water resources, quantify management trade-offs and formulate effective water conservation practices. Ultimately, success requires that scientists take research results and transform and deliver them to stakeholders and policy makers in understandable and usable formats.

The approximately 50 percent of Nebraska’s land area that is pasture and rangeland provides the basic support for the extensive livestock industry. We must manage these grasslands to support the livestock industry and to provide wildlife habitat and other environmental benefits. Effective livestock manure management is also critical to sustain the livestock industry and protect the environment.

2. Scope of the Program

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

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

1. Assumptions made for the Program

- Water and other natural resources are critical to Nebraska's well-being.
- New policies and regulations will require producers to make changes in their water management and other production practices.
- University of Nebraska–Lincoln has faculty resources to address research and extension program needs related to environmental protection and natural resource management.
- Producers and policy makers will need improved water management tools and basic knowledge to address Nebraska's critical water issues.

- Producers will adopt new practices if those practices demonstrate effectiveness and positive economic impact.

2. Ultimate goal(s) of this Program

- Nebraskan's will have the appropriate technologies to manage and protect limited water supplies.
- Nebraska livestock producers will have and adopt the appropriate practices to manage livestock manure in ways that protects the environment and are economically feasible.
- Nebraska's soil and range resources will be managed to enhance the quality of the resource and sustain crop and livestock production.
- Inventories of Nebraska's natural resources will effectively serve the needs of resource managers and policy makers.
- Nebraskans will be able to adapt to and manage environmental change and assure the appropriate protection of forestry, aquatic, wildlife and other 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
2010	44.0	0.0	35.0	0.0
2011	44.0	0.0	35.0	0.0
2012	44.0	0.0	35.0	0.0
2013	44.0	0.0	35.0	0.0
2014	44.0	0.0	35.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

IANR will conduct research and deliver extension education programs that will enable Nebraska agricultural water users to use water in ways that maximize efficiency and profitability, protect water quality and meet regulatory requirements. Key elements of this effort include:
Development of an improved understanding of basic plant, water, soil and climate relationships. Evaluation of alternative water delivery systems including sprinkler irrigation technologies and sub-surface drip irrigation systems.
Evaluation of alternative irrigation water management strategies for all irrigation system types and particularly for situations where deficit irrigation is necessary.
Development of adapted crop varieties, using either conventional breeding programs or genetic modification, that are more drought tolerant, perform well in deficit irrigation situations or require less evapotranspiration for profitable production.
Evaluate alternative crops that require less applied irrigation water or are adapted to non-irrigated production, that will fit into Nebraska cropping systems and for which a market exists.
Evaluate opportunities for shifting from irrigated to non-irrigated production or other enterprises that will maintain producer and community economic viability and sustainability.
Develop decision-making support systems that enable producers, policy makers, financial institutions and others to make critical decisions regarding crop production and water resources use.
Enhance research and extension education programs that will increase the scientific knowledge base and public understanding of the occurrence, movement and quality of ground water; factors that impact the quantity and quality of surface water; the interrelationships between ground water and surface water; and the ecology of Nebraska's ground water and surface water systems.
Develop research and extension education programs that analyze the water resource and economic impacts of existing or proposed public policies.
Enhance research and extension education programs that enable Nebraskans to protect ground water and surface water quality and respond to regulatory requirements.
Enhance research and extension education programs that will enable communities and individuals to better understand and use

appropriate technologies to protect the quality of drinking water supplies and to remove contaminants when drinking water standards are exceeded.
Research-based information will be provided for individuals, groups and decision makers that will enable informed decisions relative to use of limited water supplies and protection of water quality.

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

Extension	
Direct Methods	**Indirect Methods**
• Demonstrations • Education Class • One-on-One Intervention • Workshop • Group Discussion	• Web sites • TV Media Programs • Newsletters

3. Description of targeted audience

Nebraska farmers and ranchers, along with landowners, are the primary target audience for this work. In addition, target audiences will include land managers, bankers, agricultural consultants and agribusiness professionals who provide products and services to farmers and ranchers. The program's research and education efforts will provide valuable information for state and local policy makers (especially Natural Resource District Boards of Directors) as their make decisions regarding natural resources issues. The program will provide agency staff with the knowledge they need to carry out the agency responsibilities and mandates.

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 Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	10000	20000	8000	20000
2011	10000	20000	8000	20000
2012	10000	20000	8000	20000
2013	10000	20000	8000	20000
2014	10000	20000	8000	20000

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

Expected Patent Applications

2010 : 1 **2011 :** 1 **2012 :** 1 **2013 :** 1 **2014 :** 1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	35	15	50
2011	35	15	50
2012	35	15	50
2013	35	15	50
2014	35	15	50

V(H). State Defined Outputs

1. Output Target

- Scholarly publications and outputs related to water management and water quality.

  2010 : 50 **2011 :** 50 **2012 :** 50 **2013 :** 50 **2014 :** 50

- Number of water management and water quality education workshops/presentations, continuing eudcation programs, web-based curricula and field days/tours.

  2010 : 150 **2011 :** 150 **2012 :** 150 **2013 :** 150 **2014 :** 150

- Number of Agricultural Research Division projects that include water management and water quality as a key component.

  2010 : 50 **2011 :** 50 **2012 :** 50 **2013 :** 50 **2014 :** 50

- Number of new extension publications and other education resources developed.

  2010 : 20 **2011 :** 20 **2012 :** 20 **2013 :** 20 **2014 :** 20

- Number of scholarly publications and outputs addressing environmental and natural resources issues other than water management and water quality.

  2010 : 30 **2011 :** 30 **2012 :** 30 **2013 :** 30 **2014 :** 30

- Number of Agricultural Research Division projects that address environment and natural resource issues other than water management and quality.

  2010 : 30 **2011 :** 30 **2012 :** 30 **2013 :** 30 **2014 :** 30

- Number of education workshops/presentations, continuing education programs, web-based curricula and field days/tours that address environment and natural resource issues other than water management and quality.

  2010 : 40 **2011 :** 40 **2012 :** 40 **2013 :** 40 **2014 :** 40

V(I). State Defined Outcome

O. No	Outcome Name
1	Irrigators will gain new knowledge and awareness of water conservation practices, crop water use rates, limited irrigation, irrigation scheduling and new irrigation technologies.
2	Nebraska farmers, ranchers, businesses and home owners will adopt new practices that will improve water management and protect water quality. This will be measured as the percentage of education program participants who indicate that they have adopted or plan to adopt new practices.
3	Livestock producers will continue to gain knowledge and awareness of appropriate practices to manage livestock manure.
4	Livestock producers will develop comprehensive nutrient management plans (CNMPs) and use best management practices for livestock manure handling and storage.
5	Nebraska farmers will increase their knowledge and awareness of how integrated pest management and pesticide best management practices can help protect water quality.
6	Nebraskans will gain increased awareness and knowledge of natural resources including wildlife, forest resources and rangeland and the relationship between natural resources stewardship, sustainability, economic viability and the environment.
7	Consumptive water use by irrigated crops will be reduced. The outcome measure will be the percent reduction of estimated consumptive water use when the current year is compared to the estimated consumptive water use in calendar year 2006. The consumptive water use will be estimated using the irrigation water pumped in Natural Resources Districts that require the use of water measurement devices.
8	Nebraska will not exceed its allocation of water in the Republican River as allowed by the interstate compact with Kansas and Colorado. Nebraska's allocation is 49% of the average annual water supply. The output measure will be the percent of the Republican River average annual water supply used by Nebraska.

Outcome #1

1. Outcome Target

Irrigators will gain new knowledge and awareness of water conservation practices, crop water use rates, limited irrigation, irrigation scheduling and new irrigation technologies.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :2000	**2011 :** 2000	**2012 :** 2000	**2013** :2000	**2014 :**2000

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 404 - Instrumentation and Control Systems
- 405 - Drainage and Irrigation Systems and Facilities

Outcome #2

1. Outcome Target

Nebraska farmers, ranchers, businesses and home owners will adopt new practices that will improve water management and protect water quality. This will be measured as the percentage of education program participants who indicate that they have adopted or plan to adopt new practices.

2. Outcome Type : Change in Action Outcome Measure

2010 :70	**2011 :** 70	**2012 :** 70	**2013** :70	**2014 :**70

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 121 - Management of Range Resources
- 131 - Alternative Uses of Land
- 132 - Weather and Climate
- 403 - Waste Disposal, Recycling, and Reuse
- 405 - Drainage and Irrigation Systems and Facilities
- 605 - Natural Resource and Environmental Economics

Outcome #3

1. Outcome Target

Livestock producers will continue to gain knowledge and awareness of appropriate practices to manage livestock manure.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :500	**2011 :** 500	**2012 :** 500	**2013** :500	**2014 :**500

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation
- 403 - Waste Disposal, Recycling, and Reuse
- 405 - Drainage and Irrigation Systems and Facilities
- 605 - Natural Resource and Environmental Economics

Outcome #4

1. Outcome Target

Livestock producers will develop comprehensive nutrient management plans (CNMPs) and use best management practices for livestock manure handling and storage.

2. Outcome Type : Change in Action Outcome Measure

2010 :300	**2011 :** 300	**2012 :** 300	**2013** :300	**2014 :**300

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 112 - Watershed Protection and Management
- 121 - Management of Range Resources
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 403 - Waste Disposal, Recycling, and Reuse
- 405 - Drainage and Irrigation Systems and Facilities
- 605 - Natural Resource and Environmental Economics

Outcome #5

1. Outcome Target

Nebraska farmers will increase their knowledge and awareness of how integrated pest management and pesticide best management practices can help protect water quality.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :2000	**2011 :** 2000	**2012 :** 2000	**2013** :2000	**2014 :**2000

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 121 - Management of Range Resources
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 125 - Agroforestry
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 605 - Natural Resource and Environmental Economics

Outcome #6

1. Outcome Target

Nebraskans will gain increased awareness and knowledge of natural resources including wildlife, forest resources and rangeland and the relationship between natural resources stewardship, sustainability, economic viability and the environment.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 6000 **2011 :** 6000 **2012 :** 6000 **2013 :** 6000 **2014 :** 6000

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources
- 122 - Management and Control of Forest and Range Fires
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 125 - Agroforestry
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 135 - Aquatic and Terrestrial Wildlife
- 141 - Air Resource Protection and Management
- 403 - Waste Disposal, Recycling, and Reuse
- 405 - Drainage and Irrigation Systems and Facilities

Outcome #7

1. Outcome Target

Consumptive water use by irrigated crops will be reduced. The outcome measure will be the percent reduction of estimated consumptive water use when the current year is compared to the estimated consumptive water use in calendar year 2006. The consumptive water use will be estimated using the irrigation water pumped in Natural Resources Districts that require the use of water measurement devices.

2. Outcome Type : Change in Condition Outcome Measure

2010 :	2011 :	2012 :	2013 :	2014 :
5	10	10	10	10

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 132 - Weather and Climate
- 404 - Instrumentation and Control Systems
- 405 - Drainage and Irrigation Systems and Facilities
- 605 - Natural Resource and Environmental Economics

Outcome #8

1. Outcome Target

Nebraska will not exceed its allocation of water in the Republican River as allowed by the interstate compact with Kansas and Colorado. Nebraska's allocation is 49% of the average annual water supply. The output measure will be the percent of the Republican River average annual water supply used by Nebraska.

2. Outcome Type : Change in Condition Outcome Measure

2010 :	2011 :	2012 :	2013 :	2014 :
49	49	49	49	49

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 605 - Natural Resource and Environmental Economics

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

The following factors may significantly affect program outcomes:
Weather conditions such as prolonged drought.
Economic constraints that can threaten potential investment in new water management technology and management.

Restrictions on water use that can impact irrigated agriculture.
Implementation of new legislation and development of regulations by Natural Resource Districts. Competition for limited water supplies among agriculture, wildlife, recreation and muncipalities.
Conflicts between ground water and surface water users.

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

1. Evaluation Studies Planned

- During (during program)

Description

We will use program participant surveys as the primary evaluation method. We will administer a mix of surveys at program completion and use follow-up surveys to determine actions taken. We will use Information from state and federal agencies to estimate the adoption of practices to address natural resource issues. Information from the Nebraska Department of Natural Resources will be used to determine the compliance with the Republican River Interstate Compact. Data from Natural Resource Districts will provide information relative to irrigation water use for making estimates of irrigated crop water consumptive use with comparisons made to the base year of calendar year 2006.

2. Data Collection Methods

- Sampling
- Observation
- Mail
- Other (Agency data)
- On-Site

Description

Most program activity will involve some type of survey of program participants. Some selected programs will have more formal, in-depth surveys after the sequence of program activities to determine practice changes and adoption of new technology. Faculty will collect some data by observing practices within selected geographic regions over a period of time. Data from the Nebraska Department of Natural Resources and Natural Resources Districts will be obtained directly from the individual agencies.

V(A). Planned Program (Summary)

Program #3

1. Name of the Planned Program

Viable Communities and Appropriate Quality of Life for Individuals and Families

2. Brief summary about Planned Program

Strong people, strong families and strong communities lead to a more stable society. Multiple issues impact Nebraska's communities, families, youth and children. Economically, some communities take a strong and proactive approach to economic, community and family-related issues while others struggle to remain viable.

IANR's community, and appropriate individual andfamily-related research and extension programs, will focus on:

- Development and implementation of technologies to help assure a safe, pathogen-free food supply to guard public health.
- Development and implementation of technologies to help assure Nebraskans have knowledge to make effective choices about their health, wellness and food choices.
- Development and implementation of technologies to help families contribute to community viability and maintain a sustainable lifestyle to provide safe and secure future for their children.
- Development and implementation of technologies to help assure Nebraska's community members have the knowledge to be effective leaders.
- Development and implementation of strategies to apply entrepreneurship strategies to current programming and provide the communities with the tools necessary empower them to promote and expand entrepreneruship efforts.

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 : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
607	Consumer Economics	1%		1%	
608	Community Resource Planning and Development	5%		3%	
701	Nutrient Composition of Food	12%		7%	
702	Requirements and Function of Nutrients and Other Food Components	12%		22%	
703	Nutrition Education and Behavior	10%		7%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	14%		21%	
721	Insects and Other Pests Affecting Humans	1%		1%	
722	Zoonotic Diseases and Parasites Affecting Humans	1%		1%	
723	Hazards to Human Health and Safety	6%		6%	
724	Healthy Lifestyle	1%		1%	
801	Individual and Family Resource Management	4%		1%	
802	Human Development and Family Well-Being	14%		18%	
803	Sociological and Technological Change Affecting Individuals, Families and Communities	4%		7%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	4%		1%	
805	Community Institutions, Health, and Social Services	1%		2%	

806	Youth Development	10%		1%	
	Total	100%		100%	

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

1. Situation and priorities

Three key items guide this plan:

- Agriculture and related food processing are Nebraska's main industry. It is essential that agricultural related industry maintain the public trust.
- Nebraska ranks near the bottom of the states in health/wellness of children.It is critical for the next generation that health, physical activity and related increases in medical costs be addressed.
- Nebraska's 550 small towns and cities must have leadership and economic tools to survive.Some small communities are disappearing because of resources lost.To maintain the communities we have as vital places for people to live and work educational intervention is essential.

2. Scope of the Program

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

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

1. Assumptions made for the Program

- Land grant universities can develop and deliver educational programs to help individuals, families and communities make more informed decisions:knowledge change leads to behavior change and behavior change leads to condition change.
- Education increases human capital.
- Out-migration of young, educated residents will accelerate community decline.
- Medical costs will increase if healthy eating and activity behaviors are not addressed.
- Youth can positively affect their communities.
- Strong family units enhance community potential and economies.

2. Ultimate goal(s) of this Program

- Food and food processing establishments will use safe food handling practices that safeguard public health. Nebraskans will have more healthful eating and activity behaviors that may reduce health care costs.
- Community leaders will be confident in their decision making roles and help communities retain vitality.
- Youth will become informed decision makers and active community members who contribute to economic and family vitality.
- Communities will use available tools to strengthen their economic base; i.e., mentoring of entrepreneurs.
- Families will increase financial assets by reducing debts.

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
2010	75.0	0.0	15.0	0.0
2011	70.0	0.0	15.0	0.0
2012	70.0	0.0	15.0	0.0
2013	70.0	0.0	15.0	0.0
2014	70.0	0.0	15.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

The institute will conduct research and deliver extension education programs that will enable Nebraskans to strengthen their families and communities. Output efforts will help reduce food-borne illness, increase healthy eating and active behaviors, increase number of self-confident community leaders and increase the number of communities with access to tools to aid economic development, i.e. entrepreneurship.
Increasingly, learners lead time-pressed lives and want to access educational information at their convenience. While face-to-face teaching remains an ongoing focus of our efforts, many learners may choose to access educational information online through Internet sites, module learning and ask-an-expert. Therefore, we will employ a blend of teaching strategies to accomplish our educational goals and research of reaching individuals who want just-in-time research-based information and in depth behavior changing educational experiences.

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

Extension	
Direct Methods	Indirect Methods
• Education Class • One-on-One Intervention • Demonstrations • Group Discussion • Workshop	• Other 1 (Podcasting) • TV Media Programs • Newsletters • Web sites • Public Service Announcement

3. Description of targeted audience

Our targeted audiences include:

1. Food processing and retail establishment owners and staff
2. Children, youth and families
3. Youth and adults in community leadership roles
4. Entrepreneurs
5. Local and state decision makers

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 Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	10000	20000	50000	20000
2011	10000	20000	50000	20000
2012	10000	20000	50000	20000
2013	10000	20000	50000	20000
2014	10000	20000	50000	20000

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

Expected Patent Applications

2010 : 0 **2011 :** 0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	10	10	20
2011	10	10	20
2012	10	10	20
2013	10	10	20
2014	10	10	20

V(H). State Defined Outputs

1. Output Target

- 1) Number of scholarly publications and outputs related to viable communities and appropriate quality of life for individuals and families projects accepted.

  2010 : 20 **2011 :** 20 **2012 :** 20 **2013 :** 20 **2014 :** 20

- 2) Number of extension in-depth community, family and Individual topic-related educational workshops.

  2010 : 100 **2011 :** 100 **2012 :** 100 **2013 :** 100 **2014 :** 100

- 3) Number of extension community, family and individual program-related curricula, publications and other educational resources developed.

  2010 : 12 **2011 :** 15 **2012 :** 15 **2013 :** 15 **2014 :** 15

- 4) Number of Agricultural Research Division projects that focus on community and appropriate quality of life for individuals and families issues.

  2010 : 20 **2011 :** 20 **2012 :** 20 **2013 :** 20 **2014 :** 20

V(I). State Defined Outcome

O. No	Outcome Name
1	Nebraska's will gain knowledge to make effective choices about their health, wellness and diet. The long-term goal of reducing obesity and increasing physical activity of children is essential. Individuals will increase knowledge of food selection and preparation with reduced fat and/or calories, USDA serving sizes and importance of adequate time spent in physical activity each day and increased understanding of the relationships between diet and physical activity to improve personal health. Individuals will select, prepare and eat recommended amount of fruits, vegetables, low-fat proteins and dairy and whole grains. In addition, individuals will better balance their intake of calories with their energy expenditures.
2	Nebraska's communities will have access to the tools they need to retain current residents and businesses and create opportunities for new residents and businesses. Community leaders and business owners will understand the importance of strategic planning, support business development techniques and information technology to support community's development. Businesses within communities will work to be more profitable, entrepreneurs will be supported by the communities and informational technology will be used effectively to support community growth. Communities will have planned for the future, new entrepreneurial businesses will have been created, and informational technology will be used to create partnerships between the community's public and private sectors.
3	Nebraska's youth will be informed decision makers and remain active members of their communities as they reach adulthood. This will be measured by surveys, interviews and case studies to document evidence of the benefits (impact) to a community for involving youth in the decision making process. Nebraska will have evidence of the roles and responsibilities that youth are assuming at the community level such as being included on community agendas, leading community decisions and helping establish community policies. Community members will have an increased understanding of how youth can engage with adults in a community decision making process to solve problems impacting their communities. Youth and adults will report improved decision making and problem solving skills. The number of youth engaged as partners in community civic activities will increase.
4	Food handlers will practice safe food handling procedures to reduce food-borne illness outbreaks. This will be measured by comparing annual Nebraska statistics from Nebraska Health and Human Services (NHHS) for reduced incidents of food-borne illness because of safe food handling, decreased medical costs due to food-borne illness outbreaks and decreased days lost from work. Food handlers (food service workers, food processors and livestock producers) will increase their knowledge of safe food handling practices measured by increased knowledge about adequate food handling and preparation and animal management practices. Food handlers will implement safe food handling practices for the reduction of food borne illnesses because of strategies learned through ServSafe, HAACP and Quality Assurance.
5	Families will contribute to community viability and maintain sustainable lifestyle to provide a safe and secure future for their children. Long-term: Families will increase financial assets by decreasing debts. Intermediate: Individuals and families will (1) establish long-term financial goals to guide decision making, (2) will decrease spending, and (3) will practice saving regularly. Short-term: Individuals and families will (1) evaluate spending patterns, (2) identify income and expenses, (3) make and implement a budget, and (4) develop and implement a savings plan.

Outcome #1

1. Outcome Target

Nebraska's will gain knowledge to make effective choices about their health, wellness and diet. The long-term goal of reducing obesity and increasing physical activity of children is essential. Individuals will increase knowledge of food selection and preparation with reduced fat and/or calories, USDA serving sizes and importance of adequate time spent in physical activity each day and increased understanding of the relationships between diet and physical activity to improve personal health. Individuals will select, prepare and eat recommended amount of fruits, vegetables, low-fat proteins and dairy and whole grains. In addition, individuals will better balance their intake of calories with their energy expenditures.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 500	**2011 :** 500	**2012 :** 500	**2013 :** 500	**2014 :** 500

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being

Outcome #2

1. Outcome Target

Nebraska's communities will have access to the tools they need to retain current residents and businesses and create opportunities for new residents and businesses. Community leaders and business owners will understand the importance of strategic planning, support business development techniques and information technology to support community's development. Businesses within communities will work to be more profitable, entrepreneurs will be supported by the communities and informational technology will be used effectively to support community growth. Communities will have planned for the future, new entrepreneurial businesses will have been created, and informational technology will be used to create partnerships between the community's public and private sectors.

2. Outcome Type : Change in Action Outcome Measure

2010 : 15	**2011 :** 15	**2012 :** 15	**2013 :** 15	**2014 :** 15

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 608 - Community Resource Planning and Development
- 801 - Individual and Family Resource Management
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 805 - Community Institutions, Health, and Social Services

Outcome #3

1. Outcome Target

Nebraska's youth will be informed decision makers and remain active members of their communities as they reach adulthood. This will be measured by surveys, interviews and case studies to document evidence of the benefits (impact) to a community for involving youth in the decision making process. Nebraska will have evidence of the roles and responsibilities that youth are assuming at the community level such as being included on community agendas, leading community decisions and helping establish community policies. Community members will have an increased understanding of how youth can engage with adults in a community decision making process to solve problems impacting their communities. Youth and adults will report improved decision making and problem solving skills. The number of youth engaged as partners in community civic activities will increase.

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

Outcome #4

1. Outcome Target

Food handlers will practice safe food handling procedures to reduce food-borne illness outbreaks. This will be measured by comparing annual Nebraska statistics from Nebraska Health and Human Services (NHHS) for reduced incidents of food-borne illness because of safe food handling, decreased medical costs due to food-borne illness outbreaks and decreased days lost from work. Food handlers (food service workers, food processors and livestock producers) will increase their knowledge of safe food handling practices measured by increased knowledge about adequate food handling and preparation and animal management practices. Food handlers will implement safe food handling practices for the reduction of food borne illnesses because of strategies learned through ServSafe, HAACP and Quality Assurance.

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
2000	2000	2000	2000	2000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 721 - Insects and Other Pests Affecting Humans
- 722 - Zoonotic Diseases and Parasites Affecting Humans
- 723 - Hazards to Human Health and Safety
- 805 - Community Institutions, Health, and Social Services

Outcome #5

1. Outcome Target

Families will contribute to community viability and maintain sustainable lifestyle to provide a safe and secure future for their children. Long-term: Families will increase financial assets by decreasing debts. Intermediate: Individuals and families will (1) establish long-term financial goals to guide decision making, (2) will decrease spending, and (3) will practice saving regularly. Short-term: Individuals and families will (1) evaluate spending patterns, (2) identify income and expenses, (3) make and implement a budget, and (4) develop and implement a savings plan.

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	100	100

3. Associated Institute Type(s)

•1862 Extension
•1862 Research

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Downturn in the state's economy will impact outcomes.
Natural, disease or human-driven catastrophes will affect outcomes.
Unforeseen budget reductions that limit the creation of new knowledge or the curtailment of extension educational programs would impact outcomes.

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

1. Evaluation Studies Planned

- Case Study
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Retrospective (post program)
- Before-After (before and after program)

Description

Research and extension faculty will use a range of evaluation strategies written into the programs developed to assess program impact.Indicators of success have been identified for each goal and will be used as indicated above.

2. Data Collection Methods

- On-Site
- Sampling
- Mail
- Case Study

Description

Studies will be conducted through Hatch projects and extension educational programs. All studies will be certified by the Institution Review Board of the University of Nebraska-Lincoln.