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### PowerPoint on Water, Food, Energy, and Youth, Families and Communities

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**PowerPoint**  
**on**  
**Water, Food, Energy, and Youth, Families and Communities**

\* Thank you for this opportunity to speak with you today. It's always my pleasure to talk about the exciting work occurring in the Institute of Agriculture and Natural Resources.

Today I'm going to talk about four diverse areas in which we work. They are water, food, energy, and youth, families, and communities.

I also want to talk briefly about the role of the Institute of Agriculture and Natural Resources in Nebraska.

→ \* We have an economic role. A recent independent study shows the Institute provides Nebraskans a conservative 15-to-1 return for every state tax dollar Nebraska invests with us. That's money in Nebraskans' pockets, and that's important to us all. We are an economic engine for Nebraska.

→ \* We have a social responsibility role. As your land-grant university we carry the resources of the university to Nebraskans, working in wonderfully diverse ways, through research, teaching, and extension education, to contribute to Nebraska's good life. → \* Our scientists are among the most-cited agricultural researchers in the world, ranked eighth among U.S. universities, and 16<sup>th</sup> in the

world. That's significant for Nebraska.

"Here" are just a few of the many ways the Institute of Agriculture and Natural Resources is at work for Nebraska:

→ \* SLIDE: WATER

→ \* Our water researchers are teaming with USDA's Risk Management Agency to provide current groundwater levels across Nebraska via the Internet.

For more than 75 years, the university has recorded levels in groundwater wells statewide and reported findings annually in publications to aid decisions about groundwater use, management, and policy. Those color maps also are available online.

Through the new partnership, satellite uplink and computer equipment are being installed in 52 of the 5,800 wells monitored statewide to compile groundwater data. This will allow information about current levels to be shared immediately via the Web. Recent drought, coupled with recent water policy and legal decisions, have increased the need for more timely groundwater information.

→ \* Washed into streams, lakes, and rivers, soil becomes a major pollutant.

Our extension division's Erosion and Sediment Control Seminars teach building industry professionals about stormwater management issues and regulations to

reduce soil sediment losses from construction sites. Anywhere from 140 to 220 people, including engineers, architects, and grading contractors, have attended sessions annually since 2003. In 2006, 91 percent of participants said they would "apply new knowledge" from the seminar in their work.

We also research and provide education on the use of buffer strips and conservation tillage to decrease sediment movement into streams.

→ \* New Web-based technologies being developed at your university give farmers, ranchers, and others better tools to contend with drought. "A partnership" between the IANR-based national Drought Mitigation Center and university computer scientists has resulted in the National Agriculture Decision Support System, which hosts a variety of tools that help producers "assess" drought and other crop production risks. Other tools include the Drought Monitor, Drought Impact Reporter, Drought Risk Atlas, and the Vegetation Drought Response Index.


→ \* The Institute is a leader in addressing complex, important water management issues for Nebraska and the region. An extension demonstration project in the Republican River Basin focuses on teaching producers to achieve nearly full yields with less water.

The project showed a water miser strategy used 31 percent less water while reducing corn yields only 3 percent. Pumping costs-savings usually more than

offset yield loss. Overall estimated value of knowledge gained in 2006 was \$2.4 million, according to 130 program participants, who also said they saved at least two inches of water per acre.

 \* SLIDE: FOOD

Production, new product development, food preparation and safety, nutrition – these are just a few of the many, many areas relating to food in which our faculty and staff work. What we do helps keep our food supply safe and abundant. For instance:

 \* Research our scientists conducted with University of Florida colleagues led to new beef products, such as the flatiron steak, that added \$50 to \$70 in value per head over the past seven years. January 1, 2006, Nebraska had 2.6 million cattle on feed. At the *lower* amount of \$50 value-added per head, that's an additional \$130 million more for Nebraska cattle producers in 2006 alone.

While number of cattle on feed varies from year to year in our state, we can see that if you multiply \$130 million times that increase in value per head over the past seven years, we're approaching \$1 billion in added value to a Nebraska product in less than 10 years because of our scientists' work. It's not only producers who benefit. Consumers do, too, through a new, tasty, less expensive

cut of beef.

→ \* IANR-developed wheat varieties that perform well in Nebraska fields and offer the quality characteristics millers and bakers demand are grown on about 60 percent of Nebraska's wheat acreage and worth roughly \$45 to \$50 million annually to Nebraska producers, based on increased yield alone. Yield improvement in these varieties means Nebraska wheat growers can feed nearly four million more people a year than they did on the same acreage in the 1960s.

→ \* Proper nutrition helps keep individuals healthy and reduce disease. UNL Extension's Expanded Food and Nutrition Education Program, or EFNEP, teaches limited-resource parents with children and youth-at-risk how to meet daily nutritional requirements. A cost-benefit analysis shows that for every \$1 spent on EFNEP, a potential health savings of \$2-\$8 may result from the prevention or delayed onset of nutrition-related chronic diseases and conditions among participants.

→ \* When we talk about food, it isn't limited to human consumption. Institute work in feeding to cattle co-products from Nebraska's expanding ethanol and grain-processing industry has become a major cattle feed, thanks largely to pioneering IANR research.

In the Panhandle, research and education has proved birdseed a viable alternative crop. It's total direct impact on the region now is projected at \$4.5 million per year.

And, we have a new Food Technology for Companion Animals major starting this fall. Pet food is big business these days. That certainly was brought fully to everyone's attention this year when we read and heard the big stories about pets who became ill or died because of tainted pet food.

→ \* SLIDE: ENERGY

→ \* 1. Nebraska has a number of comparative advantages for corn grain-ethanol production compared to other states. There are tremendous opportunities to integrate crop, livestock and biofuel production systems to favorably-position Nebraska producers vis-a-vis other states, which will become increasingly important as ethanol production capacity expands throughout the U.S.

→ \* 2. Accelerating the rate of gain in corn and soybean yields while also achieving substantial improvements in water and fertilizer use efficiency are the key challenges to ensuring economic and environmental sustainability of both the Nebraska biofuel and livestock industries.



\* 3. Efficient and expanded use of biofuel coproducts (such as distillers grains) in livestock feed rations to replace the loss of corn diverted to produce ethanol is of critical importance to maintaining profitability in the Nebraska cattle industry.



\* 4. We see exciting opportunities for rural communities to develop renewable energy resources from wind and biogas production to reduce dependence on fossil fuels and to provide additional rural development opportunities.

5. Some people say expansion of the biofuel industry is the most important, positive factor affecting Nebraska agriculture since World War II. Our Agronomist Ken Cassman, who heads the Nebraska Center for Energy Science Research, a collaboration between the university and the Nebraska Public Power District, says this:



\* SLIDE: YOUTH, FAMILIES AND COMMUNITIES

While there are so many more things I'd like to talk with you about today, I know for time's sake I need to wrap up. Let me do so with just a few examples of



the ways the Institute is at work for Nebraska in the areas of youth, families and communities.

First, did you know our extension division's 4-H program is a national leader in youth participation, reaching approximately 118,000 Nebraska youth yearly? That's one of every three eligible youth in this state who gain life skills and knowledge while having fun learning through 4-H.

→ \* At the request of Nebraska judges, extension partnered with our legal system to develop a curriculum and materials to teach people about guardianship responsibilities. The result is a court-mandated, three-hour training session and resources approved by the Nebraska Supreme Court and others. Nearly 1,000 people in 11 of the state's 12 judicial districts were trained from fall 2004 through November 2006. Guardians/conservators say they are more comfortable with their roles, more knowledgeable about their responsibilities, and better prepared to represent their wards' best interests. More than 2,000 guardians/conservators are appointed annually in Nebraska.

→ \* Our EDGE program – EDGE standing for Enhancing, Developing and Growing Entrepreneurs – gives rural entrepreneurs skills needed to create or expand their businesses, or decide if business ideas are feasible. Since 1993 NebraskaEDGE has helped nearly 2,400 Nebraskans transform their ideas into

viabile business opportunities. A recent survey showed more than 70 percent of participants increased their business volume since participating in EDGE, while 33 percent, or one-third, added employees. That's great news for Nebraska communities, where each job matters.

→ \* These are just a few of the many ways the Institute of Agriculture and Natural Resources is at work for Nebraska.

→ \* Thank you again for inviting me here today. I will be glad to answer any questions.

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