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Innovating Agriculture and Natural Resources to 2025

Food, Energy, and Water Security – for Healthy People in Vibrant Communities

The Opportunity

Nebraska is at the epicenter of global food production. One in three jobs in Nebraska is directly tied to agriculture or agribusiness, and, the richness of the natural resource base in the state makes it a leader internationally in production of agricultural products and services. However, to successfully meet the nutrient needs of a healthy global population expected to exceed 9 billion people by 2050, global food production must double during this same time period. This rapid increase in production must be sustainable and occur fully in concert with reductions in the use of our precious natural resources, especially water, under increasingly shifting climate and environmental conditions. Additionally, with increasing energy needs to fuel the world's growing economy, competition for resources between food and energy production must also be optimized for the benefit of the global population. The challenges and opportunities have never been greater for the people who are stewards of Nebraska's agricultural and natural resources, and for the University of Nebraska's Institute of Agriculture and Natural Resources at work for them.

Innovation is Essential

To meet these challenges, IANR must innovate, fully embrace, and execute an entrepreneurial culture.

In a context of finite resources, we need scientific and technological breakthroughs to help us meet the complex challenges facing society. Addressing the big problems will require involvement of the entire community in seeking solutions. With changes in funding arrangements and sources, demographics, and technologies, coupled with the power of the knowledge bio-based economy, we must consider new approaches and models to empower and embolden the human talent in our faculty, staff, and partners. We must reduce cumbersome bureaucracy that has built up in our systems and processes, build a vibrant and dynamic community that will attract and retain the top scientists and solution enablers to our campus, clear the path to allow focused, systems-based multidisciplinary teams to develop solutions for the future, and sharpen and focus how we communicate and translate our solutions to our stakeholders. We must do so while fully engaging the minds and hearts of all University of Nebraska students, some of whom will be the agricultural entrepreneurs, innovators, and leaders of tomorrow, and all of whom must be equipped as citizens to fully appreciate the importance of our food and natural resource system.

Connecting the Dots to Change the Future

IANR operates at the core of the University's land-grant mission. Expectations of IANR have never been higher in the University's history. We have an excellent and committed team of faculty and staff and are

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at one of the peaks in our history in student enrollment and engagement. We also are seeking and experiencing unprecedented donor support of major initiatives such as the Engler Agribusiness Entrepreneurship Program, the global Water for Food Institute, and the UNL Life Sciences Initiative. The Nebraska Innovation Campus is now under development and offers great promise to UNL, particularly for IANR, with its thematic expectations around the same key priorities.

IANR has a strategic plan and framework for 2008-2016 that is well articulated and on target to address the major issues in our mission area. However, we now must develop a more focused approach that capitalizes on these opportunities enabling IANR to “connect the dots” in a manner that will ensure major impact on our strategic plan goals. And, we need to do so with boldness in stating the expectation for direct impacts in these goals, with systems in place to measure them in economically and socially meaningful terms to our stakeholders and partners.

Boldly Declaring Our Intent

As public servants and stewards at work for Nebraska through its land grant university, we are seeking by the year 2025 to:

- Increase production efficiency of Nebraska agriculture by 25%;
- Increase efficiency of water utilization for agriculture by 15%;
- Decrease the median age of rural Nebraska by 2.5%;
- Develop and transfer at least 25 new technologies to Nebraska entrepreneurs;
- Decrease bureaucracy in IANR business processes, hiring, personnel and programmatic evaluation, and financial management by 50%; including a 25% reduction in administrative overhead ;
- Increase the amount and diversity of the IANR funding by 50%, including moving beyond reliance on state appropriations and NIFA;
- Increase extramural support from the NIH, NSF and other governmental agencies and the private sector for basic and translational research in IANR by 50%;
- Increase our University of Nebraska partnerships outside of IANR by 25%;
- Increase our partnerships with Federal and state agencies by 25%;

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- Increase our partnerships with Big 10 and strategic land grant university partners by 25%, including providing the leadership to effectively enact a Big 10+ in agriculture and the life sciences;
- Increase our private industry partnerships by 100%, including obtaining commitments to build on Innovation Campus from at least five companies;
- Double student internship opportunities within Nebraska.
- Through interactive, hands-on demonstrations and exhibits, introduce agricultural production and sources of renewable energy to UN undergraduates, 20,000 members of the general public and 10,000 K-12 students per year.
- Double the number of 4th grade students in Nebraska that know where their food comes from.
- Provide Out-State tours (similar to the Roads Scholars tours for faculty) for 500 UNL students per year to promote agricultural and natural resources awareness and an understanding of rural communities.
- Double the number of Summer Internships with an emphasis in Research, Management and Entrepreneurship.
- Double the number of CASNR students involved in campus-based research and civic engagement.
- Significant collaborations in Study Abroad and teaching/research interactions with other Big 10 Institutions.
- ***Be clearly identified as one of the top 5 universities in agriculture and life sciences, natural resources, and human sciences.***

Rolling Up Our Sleeves

To achieve such bold goals, we must engage in a collective effort to innovate many of the ways we do business. In early November 2010, the leadership team of IANR, including all of the department heads, district directors, deans, associate and assistant deans, and vice chancellors opened the door in this conversation at a retreat in Nebraska City. We agreed that we would commit ourselves, through engagement with our faculty and staff, to address these challenges so ***that by the end of the current fiscal year (i.e. June 30, 2011) we would have a road map for implementing these innovations.*** This will require significant work, passion, and commitment in the coming months to bring this to fruition.

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To initiate this process, we have commissioned eleven ***Innovating Agriculture and Natural Resources to 2025*** innovation teams to develop recommendations and implementation plans. These teams are being led by members of the IANR administrative team (* is the team lead) and they are charged with engaging the community of faculty and staff in IANR in their discussions and planning during spring semester 2011, beginning immediately after the IANR All Hands meeting on January 13, 2010. The teams and their stated charges are:

- **Evaluation Reformation** (Susan Fritz*, Dann Husmann, Susan Williams, Ron Yoder, Gary Brewer): *Reengineer the personnel and programmatic evaluation process with emphasis on productivity and impacts, reduction of faculty and administrator workload, rewarding of team approaches, fairness with objective performance differentiation, and consideration to changes in frequency and timing for senior faculty.*
- **Acquiring, Retaining, and Developing Human Talent** (Marjorie Kostelnik*, Deb Hamernik, Don Adams, David Hardin, Paul Black): *Evaluate how IANR can enhance its development of faculty and staff through appointment flexibility, identification of faculty talent needs through cluster hiring processes, faculty and staff professional development and new skills training, and workplace environment.*
- **Business and Financial Process Reengineering:** (Alan Moeller*, David Jackson, Linda Boeckner, Jeff Bassford): *The charge is to take a critical look at key business and financial processes with the goal of streamlining and increasing the effectiveness of these processes across IANR and with their interface with NU systems, including linkages with the VCRED. Consideration should be given to integration of related processes across departmental boundaries while eliminating extraneous steps and redundancies, including hiring, grant management, facilities management, best practices across business centers and other UNL and system-wide entities, and elimination of redundant non-electronic and signatory processes.*
- **Communications, Branding, and External Relations** (Mark Balschweid*, Beth Birnstihl, Rolando Flores, Mark Lagrimini, Jill Brown): *To develop a strategic and cohesive communications and marketing plan for IANR that focuses on “branding” of IANR and UNL, streamlining of media materials and relations, enhancement of online strategy and presence, and significantly enhances external fund-raising efforts with the NU Foundation for programmatic and student support.*
- **Entrepreneurship Education and Integration** (Beth Birnstihl*, Dan Duncan, Mark Gustafson, John Markwell, Twig Marston): *Focus on means to systematize an entrepreneurial culture in IANR including the development of entrepreneurial components to job descriptions, an entrepreneurship boot camp, an Entrepreneur in Residence program, and synergies with the Engler Agribusiness Entrepreneurship Program, UNL College of Business Administration, Nebraska Department of Economic Development and Gallup Enterprises.*

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- **Transforming Food and Natural Resource Literacy** (Steve Waller*, Rick Koelsch, John Markwell, Mark Balschweid, Marilyn Schnepf): *To develop an integrated plan for enhancements in comprehensive student programs including interdisciplinary programs in the life sciences, NU system-wide food and natural resource literacy programming and requirements, general curriculum, minors, online options, 4-H and FFA curricula, life-long learners curricula.*
- **Multidisciplinary Innovation and Implementation** (Deb Hamernik*, Paul Black, David Hardin, Julie Johnson, Jim Steadman): *To critically evaluate how base funding is employed with attention to how to promote and advance multidisciplinary innovation, how to build teams effectively linking basic and translational research, and how to leverage all faculty and staff resources effectively across campus, including the developing Nebraska Innovation Campus.*
- **Strategic Partnership Development** (Dan Duncan*, Kathleen Lodl, Rolando Flores, Ron Yoder, Don Wilhite): *Development of strategic partnerships will be key to the future success of IANR. Focus of this group will be on the development of operational guidelines and core principles surrounding private-public, public-public, regional, international, and Big Ten/CIC initiatives.*
- **Capturing and Measuring Return on Investment** (David Jackson*, Z B Mayo, Steve Kachman, Larry Berger, Larry Van Tassell): *The mission of this group will be to develop benchmarks and metrics for the evidence-based value resulting from IANR investments, accounting as well as possible for all returns—including social and environmental, and including how to validate impact measures.*
- **Renewing Focus on the Future of Rural Nebraska** (Elbert Dickey*, Susan Fritz*, Larry Van Tassell, Rick Koelsch, Twig Marston, Don Adams, Linda Boeckner, Susan Williams): *Evaluate how IANR should collectively engage its resources to have measured impacts on rural Nebraska including decreasing the median age, educating teachers for rural Nebraska, exploring the possibilities for an experimental/Ag Magnet high school, curricular reform, economic and business development, and retention of college educated citizens in rural communities.*
- **Creating and Fostering a Dynamic IANR Community** (Kathleen Lodl*, Larry Berger, Michael James, Jim Steadman, Mark Lagrimini and IANR Liaison Committee): *Identifying opportunities to further enhance the dynamic environment and community spirit of IANR.*

The team leads will report to the Deans Council on a monthly basis beginning on February 16th to allow tracking of progress toward a re-convening of the Leadership Team for an adoption and implementation retreat to be held in July 2011 in concert with the summer tour of the Ag Builders of Nebraska.

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The resulting implementation plan will be presented to the IANR community in September 2011 at the first annual **IANR Food and Energy Security Colloquium** when we will gather to honor the past year's achievements and invite to our campus a world renowned scholar to present the first annual **Food Security Honor Lecture**.

Background Reading:

- Implementing the New Biology: Decadal challenges linking food, energy, and the environment: Summary of a workshop, June 3-4, 2010. *National Research Council*. Available at: http://www.nap.edu/catalog.php?record_id=13018
- Transforming agricultural education for a changing world. NRC of the National Academies (2009)
- The entrepreneurial university. Holden Thorp and Buck Goldstein. *Inside Higher Education*, 9/27/10. <http://www.insidehighered.com/views/2010/09/27/thorp>
- IANR Strategic Plan
- Batelle Report (2007)