

University of Nebraska Lincoln Combined Research and Extension Plan of Work 2021-2025

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I. Plan Overview

1. Executive Summary

The Institute of Agriculture and Natural Resources (IANR) is a part of the University of Nebraska-Lincoln and includes the divisions of teaching, research, and extension. Strategic planning is integral to IANR's function as a land-grant institution, and it prides itself on working as an integrated system and collaborative environment across the three mission areas. IANR strives to combine research, teaching and extension in a multidisciplinary, collaborative environment that encourages the best thinking and expertise from across the University and private enterprise to ensure Nebraska's competitiveness in a world of change and challenge. Six communities of practice were formed in 2011. Faculty from all IANR departments came together and rather than focus on individual department needs, they agreed to focus on areas of strength that they felt the institution as a whole could build upon. That type of bold collaboration and thinking is what was needed to propel Nebraska forward. We are striving to excel in these areas and invite collaborators and learners to become a part of the conversation. We welcome feedback, ideas, engagement, and support in our ongoing endeavor to make IANR a global leader in these key areas.

Communities of Practice:

Computational Sciences
Drivers of Economic Vitality for Nebraska
Healthy Humans
Healthy Systems for Agricultural Production and Natural Resources
Science Literacy
Stress Biology

To ensure that IANR's priorities reflect the needs of the state's residents there is ongoing, two-way dialogue between IANR and the people of the state. In 2018 strategic two-way dialogue moved to a new, higher plane as Vision for 2025 was implemented to ensure Nebraska's competitiveness in a world of change and challenge. This visioning process was created to determine how IANR will contribute to the critical need of doubling the world's food supply in order to feed over 9 billion people; address the shifting climate and environmental conditions; respond to the increasing need for energy sources; and consider how to help increase economic income opportunities for communities and thus the long-term economic growth for Nebraska. In Nebraska, one in four jobs is directly tied to agriculture or agribusiness, and the state strives to increase job opportunities in this field of expertise. IANR informs and engages partners and clientele in our focus areas of IANR are food, fuel, water, landscapes, and people.

These five focus areas are representative of the societal challenge areas of the National Institute of Food and Agriculture (NIFA). For example, in the Nebraska planning process "food" represents the continuum of food to fork, which includes production, food security and hunger, childhood obesity, nutrition and food safety, and science/food literacy. Resilient Food Production and Ecological Systems represents the productivity and sustainability of all of our natural resources. Water is highlighted because of the importance of water to our agricultural and natural resource systems in Nebraska. Fostering Healthy and Productive People represents the well-being of children, youth, and families as they interact with their environment.

The Future of Rural Communities is a crosscutting thread in each of these five focus areas. The importance was highlighted in 2013 by the establishment of a University of Nebraska system-wide initiative, the Rural Futures Institute (RFI), and the hiring of its executive director and support staff. Nebraska Extension established a new community-focused

faculty team called the Community Vitality Initiative for partnering with RFI and Nebraska communities. In 2019, the Vice Chancellor of IANR challenged all the Institute's rural community resources to explore how we could deepen our commitment, better articulate with how we work with rural communities and expand our impact. Community engagement dialogue is currently exploring the next generation of this work focused on rural community prosperity.

Recent conditions have proven challenging for many agricultural producers: flooding, inclement weather, and an economic downturn have taken their toll on Nebraskans and their communities. In response, Nebraska Extension developed and launched an initiative focused on strengthening Nebraska's agricultural economy in 2017. Research-based information from across multiple disciplines is helping producers reduce input costs, increase efficiencies and improve productivity of farm operations. Agricultural economic systems educators are serving to enhance our capacity to complete this work. Nebraska Extension was a key statewide collaborator during the historic flooding response and recovery efforts in 2019 and continuing in 2020.

IANR combines research, teaching and extension in a multidisciplinary, collaborative environment that encourages the best thinking and expertise from across the University and private enterprise; to ensure Nebraska's competitiveness in a world of change and challenge. The Vision for 2025 is IANR's guide for the next decade.

Engagement with Nebraska government leaders, stakeholders, representatives of organizations, faculty and students/youth continues. Listening sessions, surveys, departmental reviews, and input from advisory groups maintain public involvement which is critical to this vision's success. IANR identified eleven engagement zones in 2019 and hired engagement zone coordinators to elevate engagement internally and externally. Engagement zone coordinators will foster employee success in Extension programming, build strong stakeholder engagement and connect local people to the University of Nebraska-Lincoln.

In addition to focusing on priority areas, IANR strives to meet the needs of its Nebraska citizens through engagement in internationally-recognized science and education. This mission is being met by: advancing knowledge along a continuum from fundamental research to application; engaging learners in education that addresses the current and emerging needs of the state's residents; and teaching tomorrow's professionals through formal and nonformal learning settings. The ongoing cultivation of public-public and public-private partnerships helps make our mission achievable.

The importance of integrated missions is evident in the continued upward trajectory of grant/contract dollars received, the rigor/impact of educational programs delivered in both formal and nonformal settings, and in the placement of graduates in careers.

2. FTE Estimates

Year	1862 Extension	1862 Research
2021	232.0	162.0
2022	235.0	163.0
2023	237.0	165.0
2024	239.0	166.0
2025	240.0	167.0

II. Merit / Peer Review Process

Interdisciplinary extension issue teams, comprising faculty representing interest groups (beef systems; 4-H youth development; the learning child; community vitality initiative; cropping and water systems; food, nutrition and health; community environment, reaching one, reaching all; next generation extension; and disaster education), update their team 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) has a current approved peer-reviewed project that defines his or her area of research investigation. The peer review process for research projects includes the Unit and (if applicable) Research and Extension Center head, at least two faculty members with relevant expertise, and an Associate

Dean of ARD. Following review and acceptable revision (if necessary), the project outline is forwarded to USDA-NIFA for inclusion in the REEport database.

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

Academic units (subject matter departments and research, extension and education centers) complete a comprehensive five-year review to ensure program quality and relevance. Teams of three to six external panel members and two or three faculty panel members from other academic units conduct these reviews. The review team assesses the work of the academic unit to ensure that programmatic efforts and research focus on Nebraska's most critical needs. The review team completes its assessment by the development of a report that helps the administrative unit focus its work for the next five years. It is the responsibility of the IANR Deans to assist the unit administrator and faculty to accomplish the goals identified by the unit, as a follow-up to the review process.

Stakeholder input remains key to IANR success throughout the process mentioned above.

III. Stakeholder Input

1. Actions to Seek

Ongoing input from stakeholder groups, e.g. advocacy, advisory, and commodity groups, keeps extension team plans current. Ongoing relationships with stakeholder groups such as the Agriculture Builders of Nebraska (ABN) and Family, Youth and Community Partners (FYCP), Nebraska Association of County Extension Boards (NACEB), along with listening sessions led by IANR personnel and extension board reviews of local and regional programs, ensure that critical needs are addressed. Continuous listening processes ensure that the plan of work is reviewed and updated regularly. The accuracy of the teams plans is verified using the following methods:

- Extension issue teams meet regularly to assess their goals and progress made toward achieving them. These interdisciplinary 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.

Issue teams:

- * Use monthly phone and/or video conferencing to stay on track.

- * Consult with subject-matter department administrators annually to ensure that the issue team's goals are congruent with university department research and extension goals.

- * Engage with their stakeholders to garner input to determine future plans.

- * Refine programs to ensure that content goals support needs identified by stakeholders and demographic trends.

- * Are coached by members of the Extension Leadership Team to enhance sharing and collaboration efforts.

- * Additionally, extension-developed public value statements are used by stakeholders to tell others of the impact/public value of extension and then seek input for programmatic direction. (Go to: <https://extension.unl.edu/impact/> to see "Impacting All of Nebraska" impact summaries). Annual impact reports are developed and are available online for each issue team (and related areas); each includes a public value statement, which helps stakeholders understand the value of and differences being made by today's extension/research programs. Impact reports and public value statements are given to decision-makers and extension board members to help guide their advocacy efforts on behalf of IANR at the local, regional, and national levels.

- Agricultural Research Division faculty currently participating in multistate 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 multistate activity.

2. Methods to Identify

Nebraskans are very engaged with their university. Research and extension's strategic relationships with local, state, and federal decision-makers is valued. Advocacy groups, advisory groups for subject matter, departments, research and extension centers, and extension boards are utilized to gather input. The following are examples of how research and extension address the needs of underserved and underrepresented populations.

- Agricultural Research Division 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 Nebraska Extension programs that target underserved and underrepresented populations.
- Nebraska Extension has built a strong partnership with Little Priest Tribal College and Nebraska Indian Community College and recently hired an extension educator to focus on this population. Through this partnership, Native American teens have become more involved in outside activities and interact with youth and adults outside their schools.

The Expanded Food and Nutrition Program (EFNEP) and the Supplemental Nutrition Assistance Program-Education (SNAP-Ed) staff annually teach low income families and youth (many are from the underrepresented populations) how to improve their diets, improve their nutrition practices, stretch their food dollars further, handle food more safely, and increase their physical activity level. SNAP-Ed also implements Policy, Systems, and Environmental (PSE) change strategies in schools, communities and childcare settings to modify the environment to make healthy choices practical and available to community members.

- The College of Education and Human Sciences, extension and the Nebraska Department of Education have undertaken a programmatic effort with targeted school districts to address needs of first generation families.
- An extension educator in Scotts Bluff County addresses the needs of Hispanic and Native American youth. This program engages middle and high school youth in after-school and community-based programs. Coalitions of Hispanic and Native American individuals contribute to the success of this youth program. In northeast Nebraska an Extension educator is connecting Nebraska Extension youth development programs with Hispanic and Native American families.
- Ongoing efforts to recruit and retain a more diverse pool of faculty that can serve as a gateway into underserved and underrepresented populations are underway.
- In 2013, IANR participated in a Civil Rights Review through USDA NIFA and has developed or started several new initiatives to improve connections with underserved audiences. One direct outcome is a \$100,000 extension-funded competitive grant program for proposals that reach new audiences. A summary of our commitment to a diverse faculty and diversity of audiences reached by our education programs is found at: <https://ianr.unl.edu/diversity>
- In 2019, IANR hosted rural community prosperity listening sessions where Nebraskans were invited to share experiences and explore how the university can be most effective in strengthening the economic prosperity and vitality of rural communities.
- Nebraska Extension is committed to ensuring access and opportunity for all Nebraskans to receive, and benefit from, our programming. We will demonstrate excellence in valuing everyone as an important member of the communities that we already serve and those we seek to serve. Nebraska Extension offers "Navigating Difference (ND) Multicultural and Diversity Training and Intercultural Development Inventory (IDI)" professional development to faculty, staff and community members.

3. Methods to Collect

In 2018, Nebraska Extension launched the Extension 2025 Strategic Priorities Planning Process. Nebraska Extension partnered with the University's Bureau of Sociological Research to conduct a statewide random survey of 10,000 Nebraskans to determine how Nebraska Extension could most effectively meet their needs. These survey data are being used to determine program areas, staffing patterns, and programmatic outcomes. These data were supplemented by statewide stakeholder listening sessions designed to help identify extension programming priorities for the next five years.

The Nebraska Association of County Extension Boards (NACEB) engaged in a NextGEN NACEB initiative in 2018 designed to strengthen their relationships with extension and to enhance advocacy efforts for both extension and IANR. This effort included 10 face-to-face stakeholder engagement meetings throughout the state and an online engagement opportunity for extension board members. Additionally, there was an ongoing effort by extension boards to talk one-on-one with their neighbors and colleagues about needs within their geographic regions.

Extension is a partner with the 1994 land-grant institutions in our state. Extension and the Nebraska Indian Community College (NICC) have had a continuous partnership to support the implementation and management of tribal college extension programs in three different NICC communities. IANR extension faculty who work routinely with the tribal colleges serve as a conduit to move content and planning information between these entities. Research opportunities are also being explored with these colleges.

The Nebraska Panhandle has both recent and longtime Hispanic residents. An extension educator in the Scottsbluff area works with audiences and local planning groups to ensure a cross-cultural understanding. The program is in three parts: history of Mexican people in the Panhandle, cross-cultural communications, and formal education for audiences working with English language learners. This workshop is presented for public school educators, health professionals, students in education, health and human services employees, community leaders, chambers of commerce members, and companies. This is just one example of extension's engagement as a teacher for other organizations that seek increased understanding and involvement with all of our state's residents. In addition, Nebraska is working to increase the number of extension educators who can target diverse youth audiences. For example, a Spanish-speaking 4-H educator works specifically with underserved audiences in northeast Nebraska.

Nebraska Extension continues to partner with Iowa State University on a joint educator position. This person is working on business development and youth entrepreneurship, focusing on Latino audiences in the Sioux City, Nebraska, area.

4. How Considered

Input from stakeholders is used to identify emerging issues for both research and extension, and to help set priorities. Stakeholders are also invited to provide input during the selection of administrators; for example, stakeholders serve as members of search committees for unit administrators, deans, vice chancellors, etc. Local stakeholders are invited to interview extension educators for positions located in their geographic regions.

Stakeholders expect IANR and its divisions of research, extension, and teaching to remain focused on critical issues facing Nebraska. They expect the land-grant institution to do cutting-edge work that is well regarded by the academy, has global impact, and is of value to Nebraska's residents and economy. Stakeholders recognize that programming priorities must be established. During 2015, 18 extension issue teams were developed from the direction of our stakeholders to address the issues and needs of Nebraskans. In addition, 10 interest groups were formed under these issue teams to directly develop research-based programs and information that will positively impact these stakeholders, allowing them to make informed decisions relevant to these issues. New and innovative collaborative team models are in developmental stages within IANR.

IV. Critical Issues

1 Resilient Food Production and Ecological Systems

Description:

This program focuses on using basic and applied research in the life/agricultural sciences to generate knowledge critical to productivity in animal/plant agriculture, engineering, natural resources, climate, and sustainable energy. Research efforts span the basic/fundamental to the applied, relating to crop/animal systems, bioenergy feedstocks, and the natural landscapes in which these systems exist. Extension programs continue to transfer new knowledge to producers, helping them optimize productivity while ensuring financial and environmental sustainability of Nebraska's farms/ranches. Undergraduate/graduate education programs support research and extension efforts, ensuring a highly educated workforce essential to modern agriculture.

Term: Long

Science Emphasis Areas

Agroclimate Science

Bioeconomy, Bioenergy, and Bioproducts
Environmental Systems
Food Safety
Sustainable Agricultural Production Systems

2 Fostering Healthy and Productive People

Description:

This program focuses on using basic and applied research in the life/agricultural sciences to generate knowledge critical to maximizing productivity in food sciences; business/community vitality; entrepreneurship; healthy living; and development and success of young children, youth, and families. Research efforts span the basic/fundamental to the applied/translational, relating to nutrition/health, food safety, early childhood, youth development, family strengthening, and community capacity building. Extension programs will engage clientele by translating existing and new research to Nebraskans that optimize productivity and likelihood of success. These efforts will be supported by undergraduate/graduate education designed to contribute the state's long-term economic growth.

Term: Long

Science Emphasis Areas

Education and Multicultural Alliances
Family & Consumer Sciences
Food Safety
Human Nutrition
Youth Development