University Outcomes for Nebraska Agriculture

University Outcomes for Nebraska Agriculture, prepared by the Ag 40 Group, provides a comprehensive vision for how the Nebraska University (NU) System can play a central role in advancing the state's agricultural sector.

Vision for the NU System's Role in Agriculture:

The NU System is called to be a leader in agricultural education, research, and community engagement, aligning itself as a next-generation land-grant university. This would involve setting standards for creativity, discovery, and outreach, with a focus on transforming lives in Nebraska and beyond through agricultural innovation. The university's commitment to agriculture must be strongly emphasized and relentlessly communicated to reflect the state's agricultural priorities in everything from the land-grant's tri-part mission, along with policy development and community engagement. We believe the following strategies will enable the NU System to achieve that vision.

PRIORITIES AND ALIGNMENT FOR THE FUTURE :

A significant recommendation is to ensure that the future priorities and alignment in the NU System are the most advantageous for the Institute of Agriculture and Natural Resources (IANR) for it to be the premier land-grant administrative unit of the NU System and the entire country. Future changes to the campuses and the NU System should be implemented in a way that prioritizes UNL's land-grant mission and the IANR in ways to keep it fiscally strong and significantly growing over time. IANR's influence in the NU System decision-making process needs to be enhanced to ensure strategic investments in IANR while at the same time excluding it from certain budget reductions. This will ensure that the agricultural economy is prioritized when allocation of University resources and budget discussions take place. If structural changes are needed to accomplish these goals, we are willing to work with the NU System and its leadership to expand the University's commitment to agriculture.

LAND-GRANT AND SYSTEM-WIDE ENGAGEMENT:

Land Grant Mission

We ask that the leadership of the NU System fully implement Nebraska Statute 85-942, which requires that the entire University of Nebraska be recognized as the land-grant institution to engage in instruction, research, and public service and that these three parts of the University's mission are interdependent. In that context, more efforts are needed to assure substantial cross pollination between all disciplines under the NU System umbrella and IANR.

System-wide Engagement

IANR should have a presence on all campuses within the NU System. This system-wide alignment is intended to facilitate collaboration across disciplines and improve outcomes in agriculture, food systems, environmental sustainability, and public health. It builds on IANR's 5-Year Strategic Direction (2024-2028) to position Nebraska as a global leader in three core pillars: **Strengthening Agricultural Ecosystems**, **Improving Health and Well-being**, and **Promoting Progress and Prosperity**.

Nebraska Extension

As part of IANR, Extension is the key outreach mechanism, serving as a bridge between the university and the public, ensuring that farmers, ranchers, and consumers – all Nebraskans – benefit from innovative research and programs.

RESEARCH PRIORITIES AND CONTRIBUTIONS:

Lead in agricultural research, focusing on challenges such as:

- **Policy Recommendations**: Engage in local, state, and federal policy discussions, providing expert scientific-based advice on issues critical to agriculture with input from stakeholders, such as property taxes, livestock development, water management, workforce development, trade, and emerging areas like biotechnology and climate change. Building partnerships and relationships with local, state, and federal elected leaders will help facilitate this.

- **Water Management:** There is a call to update fertilizer and manure application recommendations using modern technology, addressing both production efficiency and environmental concerns, such as water quality and quantity.

- **Greenhouse Gas (GHG) Sequestration**: Accelerated research on GHG sequestration would assist farmers and ranchers measure and capitalize on their environmental contributions, aligning agriculture and carbon programs with sustainability goals.

- **Livestock Development:** Enhancing the relevance to all livestock stakeholders through comprehensive needs assessment, stakeholder engagement, program, and research facilities development.

Specialized Areas of Focus:

- **Precision and Regenerative Agriculture**: The university should complete the National Center for Resilient and Regenerative Precision Agriculture (NCRRPA) on Innovation Campus, in collaboration with the USDA. This center would focus on innovative, sustainable farming methods that conserve resources and increase productivity.

- **Regenerative Protein Production**: The NU System should lead research efforts to develop more sustainable and humane protein production practices. Areas of focus include reducing methane emissions, increasing water and feed efficiency, and creating advanced methods to mitigate stress in livestock.

- **National Security and Cybersecurity for Agriculture**: The document proposes the creation of a Cybersecurity Center for Agriculture and Food Production. This center would review threat activity, assess vulnerabilities, and suggest mitigation strategies to ensure the security of the nation's food supply from feedstock to shelf. Also, this center would help ensure Nebraska agriculture is seen as the most sustainable ag supply in the world.

- **Nebraska Ag-Tech Innovation Accelerator:** Leveraging the opportunity presented by the USDA-NCRRPA facility, this proposed facility would significantly assist the development of practical tools from scientific discoveries made by entrepreneurs, industry and UNL and USDA scientists could more quickly get into the hands of the nation's farmers, ranchers, and producers. It would expand on the efforts of The Combine – a statewide initiative supporting high-growth entrepreneurs in food and agriculture – and provide unparalleled experiential learning opportunities for agriculture and technology students to retain high-potential talent in the state.

Innovative Breakthroughs for the new Bio-Economy:

Foster a vibrant, collaborative research environment that encourages breakthroughs in various areas of agriculture to help bridge Nebraska producers with the new bio-economy and global demand for sustainable ag products.

- **Profitability of Crops and Livestock**: Research should aim to enhance the efficiency and sustainability of crops and livestock production to help ensure that producers benefit from their innovative practices.

- **Sustainable Aviation Fuel**: The development of sustainable aviation fuel from agricultural products is seen as a key area of innovation.

- **Digital Agriculture Tools**: Advanced digital tools, including Artificial Intelligence (AI), to increase farm and livestock productivity and sustainability should be a priority, positioning Nebraska as a global leader in these innovative technologies.

- **Bioproducts:** Advance inter-disciplinary research utilizing grains, oilseeds, or value-added products as the feedstock in development of bioproducts.

Medicine and Human Well-being:

The university's research should also focus on the intersection of agriculture, rural Nebraska, public health, and human wellness. Specifically, understanding the animal and human microbiome and developing foods that improve health outcomes are areas of focus. Furthermore, the university should enhance awareness through education, with assistance from Extension, on nutrition, food security, and overall wellness, contributing to the well-being of all Nebraskans.

Addressing Consumer Perception of Agriculture:

As demographics shift and fewer people are directly involved in farming, the gap between consumers and producers has grown, often leading to misperceptions about modern agricultural practices. Consumers may harbor doubts about the safety of food and the sustainability of agricultural practices, particularly when it comes to the use of technology in farming. The document emphasizes the need for the university to play a role in educating the public and improving trust in modern agricultural techniques. The NU System can help bridge this gap, ensuring that consumers become more confident in the sustainability, safety, and efficiency of today's agriculture and their food.

Conclusion:

This document, along with IANR's Strategic Direction, seeks to align Nebraska's agricultural sector through interdisciplinary research, sustainable practices, and an educated, innovative workforce. Together, they present a systematic framework for IANR and the NU System to drive economic, social, and environmental benefits in Nebraska through agriculture, with a commitment to a responsive, future-oriented approach in addressing both state and global challenges. This alignment of the future should be assessed semi-annually to ensure sufficient accountability is in place and goals/metrics are being achieved.