

ENVISION 2030

AGRICULTURE

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Background

North Dakota has long been a leader in agricultural production, development of value added businesses, and agricultural innovations. In fact, the 30,000 farms and ranches in the state help North Dakota to lead the nation in production of 11 different agricultural commodities and put the state in the top ten in the production of 16 additional commodities (National Agricultural Statistics Service, 2016). Soil type, climate, and growing conditions vary across that state which, in turn, means that crop and livestock production systems also vary. On the eastern side of the state, the rich soils of the Red River Valley produce high value crops such as sugar beets and potatoes while the native grasslands and pastures in western North Dakota are known for productive ranches and cattle. In every region of the state, producers focus on identifying the best mix of crops and livestock for their particular operation and resource base. Over the past 20 years, the cropping mix has changed with advances in genetics, weed control, precision agriculture, as well as rainfall patterns, resulting in dramatic growth of corn and soybean acreage in North Dakota and the entire region. This change, coupled with continued interest in specialty crops as well as interest in enhanced livestock development will ensure a dynamic and exciting future for production agriculture in North Dakota.

North Dakota also has a strong record of development of value added processing for agricultural commodities. In some cases, these ventures have been farmer-owned while in other cases, they are facilities owned by familiar corporations or agribusinesses. Regardless, processing and further refinement of raw agricultural products and commodities continues to be a priority for North Dakota's agricultural sector as it adds value, enhances market stability, and adds jobs to local economies. Whether it is milling flour from spring wheat, producing ethanol from corn, shipping specialty soybeans to buyers in Asia, marketing farm equipment designed and produced in the state to global customers, or other innovative value added ventures, North Dakota continues to be a leader in feeding a growing population and enhancing agriculture productivity around the world.

Across the world, agriculture continues to undergo rapid change. Technologies such as global positioning systems, autonomous drive, and unmanned aerial systems are adding complexity and precision to farming operations across the globe and North Dakota is no exception. Global economics, world trade, and changing consumer preferences are adding market opportunities for farmers in the region while at the same time increasing risk and volatility at the farm gate. Consumers are more interested in how and where food is produced, the nutritive value of food products, as well as the environmental and social impacts of production. Access to information, speed of information delivery, and changes driven by social media are accelerating the rate at which information about food production can be delivered and how it reaches consumers. Unfortunately, some of these changes in how information is delivered have been accompanied by a plethora of information sources,

some of which purposely mislead consumers and push for changes which would be detrimental to societal and agricultural goals.

These global changes are creating opportunities for students in the NDUS system who are interested in careers in agriculture and food production. The university system must respond by ensuring graduates are well prepared for these new careers, as well as more traditional careers. To do so will require a concerted effort by faculty, administrators, legislators, and industry leaders to provide a platform for student learning and the flexibility to adapt to these changes in the coming years.

Nationwide, demand for agricultural graduates is strong and the number of job openings is predicted to outstrip the number of graduates in the coming years (Purdue University, 2015). In fact, the report indicates that over 20,000 jobs will go unfilled annually due to the shortage of agriculture graduates across the United States.

Student interest in agriculture in North Dakota is strong. A record number of high schools across the state of North Dakota now have FFA chapters and membership continues to grow (84 FFA Chapters and 5,401 FFA members; Aaron Anderson, Agriculture Education Supervisor, North Dakota Department of Career and Technical Education, personal communication). In Minnesota, numbers of FFA members and involvement is also strong. There are over 190 agricultural programs at high schools in Minnesota with 10,808 Minnesota FFA members (Joel Larson, Program Specialist, Minnesota Department of Education personal communication).

As the Baby Boomer generation approaches retirement age, additional opportunities for new graduates will emerge. Given the dynamic conditions surrounding agriculture and the student interest that exists, a great opportunity awaits the NDUS. Continuing to enhance program offerings and curricula to provide graduates who are ready to take on a variety of roles and responsibilities in production agriculture, food processing, business, and marketing will be critically important to the success of North Dakota's farms, ranches, and agribusinesses.

Factors Driving Change Across the Agricultural Landscape

- Global economics and trade agreements
- Changing weather patterns
- Technological revolution
- Farm profitability potential
- Increasing consumer interest in food production
- Increasing government regulation
- The dichotomy of the shift to larger and larger farms and more and more interest in local foods, beginning farmers, and local markets

Skills NDUS Agriculture Graduates Need

- Technical expertise
- Critical thinking skills
- Problem solving skills
- Communication and interpersonal skills
- Financial and marketing skills
- An appreciation of the importance of agriculture locally, nationally, and globally
- Appreciation for global nature of agriculture and the production systems and food consumption patterns of other cultures
- Ability to adapt to change
- Emphasis on lifelong learning

Agriculture Pillar Goals

2019

- Raise awareness of the need for increased food quality and production to meet growing demand as it will be and important driver of employment opportunities
- Enhance working relationship with 4-H, FFA, and general farm organizations across the state to ensure K-12 students are aware of opportunities in agriculture
- Foster and enhance relationships with teachers and administrators in secondary education that do not have agricultural programs but have students potentially interested in careers in agribusiness, technology, science, and other areas critical to agriculture
- Work collaboratively with other agencies (NDSU Extension Service, ND Agricultural Experiment Station) to ensure educational and research needs across agriculture in North Dakota are met
- Ensure curriculums at NDUS institutions provide opportunities to develop not only technical expertise but also skills such as critical thinking, problem solving, oral and written communication, an appreciation for global nature of agriculture, and a commitment to lifelong learning
- Engage employers and stakeholders to assess projected needs for employees and to determine new or emerging fields and skills which will be necessary
- Expand business education to create value added opportunities and diversity to farm income

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- Work with agricultural industry leaders and legislators to ensure the ongoing technology needs of the modern agricultural classroom are met (e.g. precision farming, robotics, etc.)
- Enhance agricultural internship opportunities to expose students to career opportunities early in their educational process
- Enhance the infrastructure of rural communities to address labor shortages in agriculture and affiliated enterprises in conjunction with other stated educational efforts for workforce development

- Develop additional opportunities for students to gain international experience
- Seek resources to increase accessibility of courses, as well as certificate and degree program offerings through online and other distance technology

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- Proactively seek opportunities to develop curricula for new and emerging programs and disciplines needed by agriculture in order to provide graduates who are ready to step into these new careers and employment opportunities
- Continue to seek industry partnerships and collaborations for training and workforce development programs which meet the needs of the changing landscape of agriculture
- Seek appropriate international collaborations to help extend the educational model to other regions of the world

References

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