

Senate Agriculture, Broadband, and Rural Development Committee January 18, 2023

Agriculture, Food and Natural Resources Importance to Minnesota



\$112 billion
annual economic impact
from Minnesota's food and
agricultural sector

 **30%**
of state's workforce

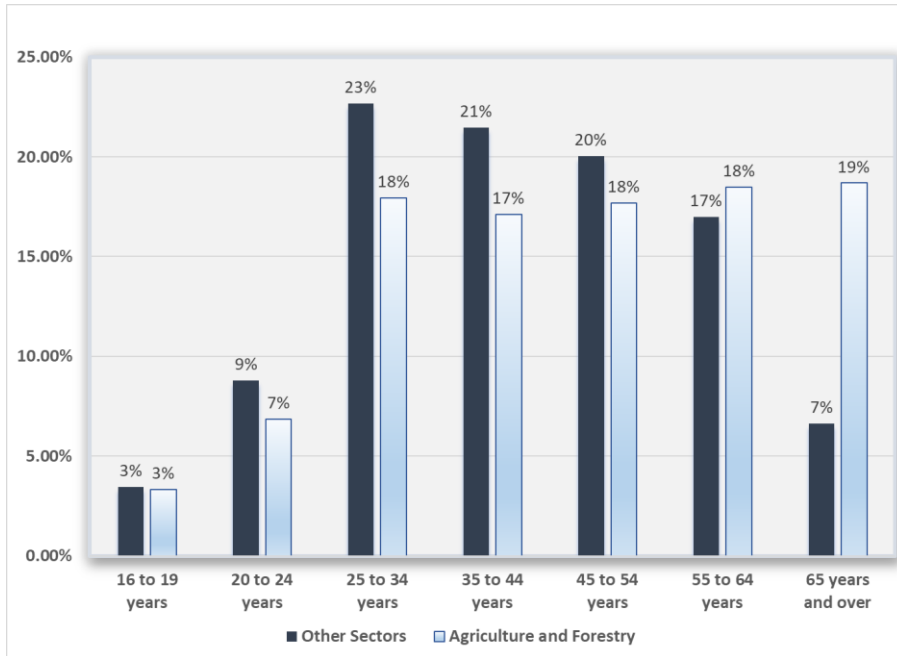
 **51%**
of state's land

\$17 billion 
annual agricultural sales

Sources:
State of Minnesota, Department of Agriculture, Department
of Labor and Industry, Board of Water and Soil Resources
AgriGrowth, 2020 Economic Contribution Report



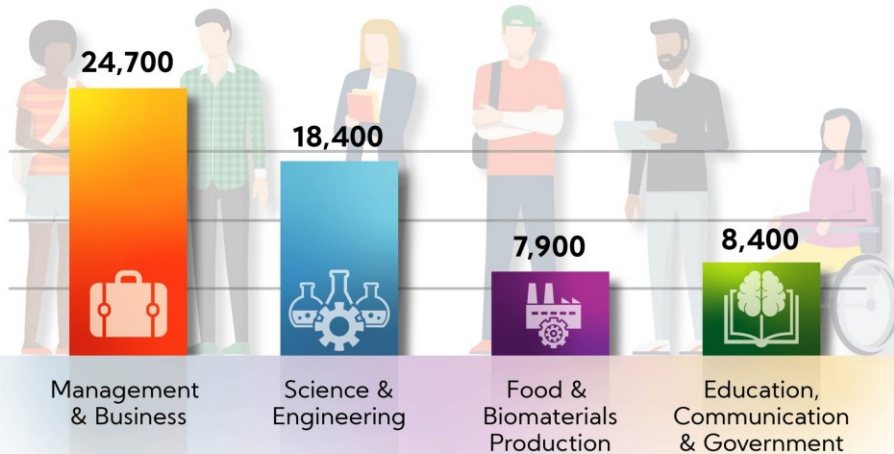
High Transition Likely With Age Distribution of AFNR Talent



- Need for new entrants
- Likely technology will substitute for workers.
- Opens need for STEM and technical skills.
- Communicating Opportunities

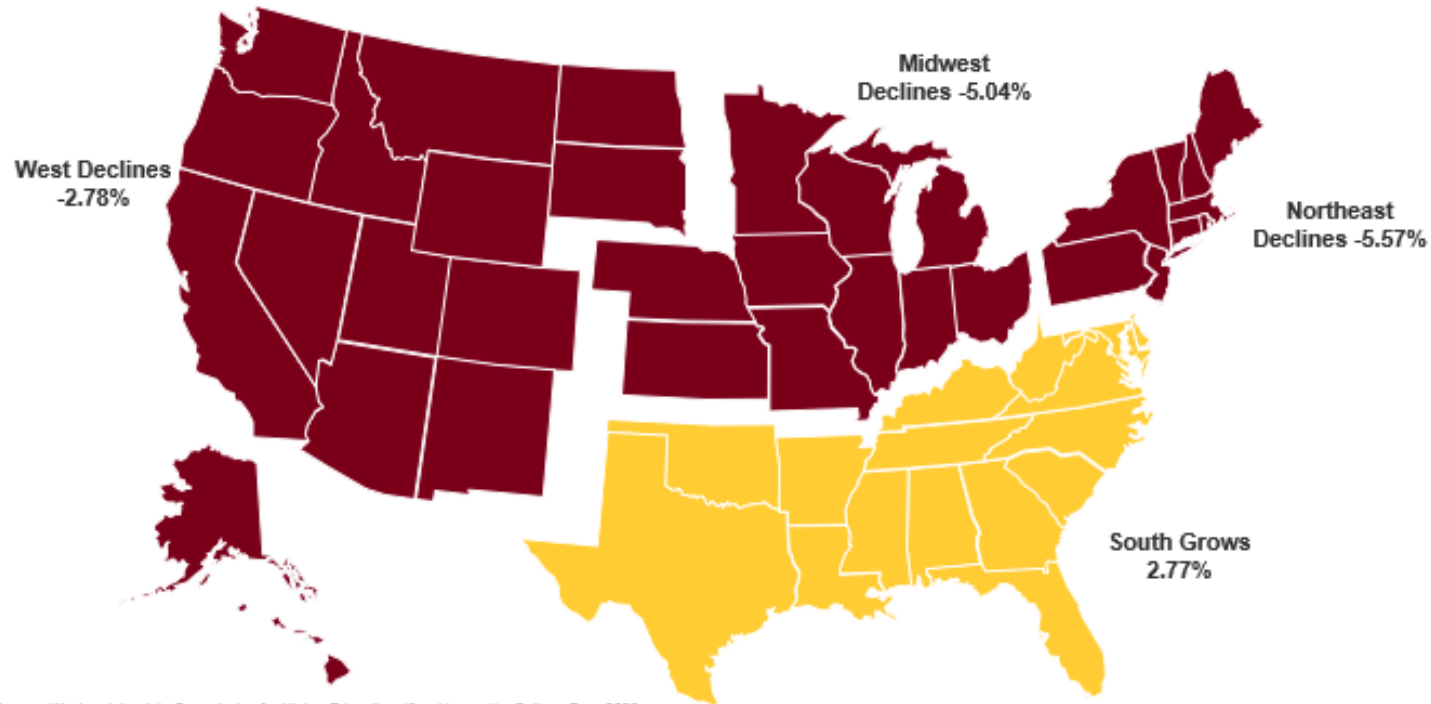
AFNR Career Opportunities: Balanced Market

On an Annual Basis, Expect **59,400** Job Opportunities for New College Graduates



Source: *Employment Opportunities for College Graduates in Food, Agriculture, Renewable Natural Resources and the Environment*
<https://www.purdue.edu/usda/employment/>

High School Graduates Will Decline



Source: Western Interstate Commission for Higher Education, *Knocking on the College Door 2020*

CFANS: Purpose Driven Education



Grand Challenge research and education investments

- Food security, agricultural productivity
- Invasive species and biodiversity/pest and disease dynamics
- Renewable energy and climate adaptation
- Water resources and uses
- Forestry
- Precision agriculture
- Educating future leaders in applied science and technology for agriculture, food and natural resource sciences

10 research and outreach centers across Minnesota

7 continents 

on which CFANS scientists connect Minnesota with research and business opportunities

27 programs

14 undergraduate and 13 graduate programs in disciplines involving food, agricultural, and natural resource sciences

660 degrees 

awarded to undergraduates and graduates by CFANS in 2021–22 to help fill critical needs in Minnesota's agriculture, food, and natural resource workforce

People

1,765	Undergraduates
553	Graduate Students
232	Faculty
854	Staff
30,456	Alumni

Fall 2022



With a legacy of bringing discoveries to life through science, CFANS educates the next generation of leaders to anticipate and adapt to a changing state and world, and solves the real challenges of nourishing people while enriching the environments in which we live. We are able to do this through the support of alliances with agricultural and natural resource partners.

\$5 million state investment in agricultural productivity to hire new scientists and technicians to work in seven key areas through the Agricultural Research, Education, Extension and Technology Transfer (AGRETT) program.

1. Crop and livestock productivity
2. Microbial science
3. Water quality and climate resilience
4. Agricultural technology and decision-making
5. Nutrient recycling and management
6. Agro-ecological innovation
7. Technologies for managing pest resistance and climate adaptation

88% 

of CFANS students complete an internship in their major*

*Data from 2019-20

\$3.2 million

in CFANS scholarships are awarded to undergraduate students each year

89% 

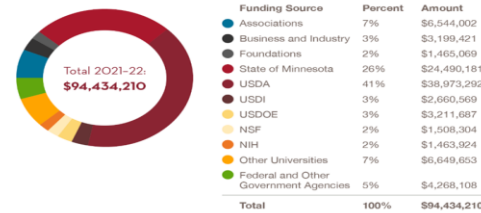
of CFANS graduates are employed or continuing their education within 6 months of graduation

*Data from 2019-20

Undergraduate Hometowns



Sponsored grant awards received



Sponsored grant awards leverage state funding **\$94,434,210** adds to Sponsored Grant Award Projects **\$21,953,054** + State Special Funding

CONNECT WITH US TO LEARN MORE



cfans.umn.edu



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COLLEGE OF FOOD, AGRICULTURAL AND NATURAL RESOURCE SCIENCES



CFANS Agriculture, Food, and Natural Resources Preparing Students w/ Solutions Based Science



Climate
Adaptation
and
Solutions



Sustaining
Growth in
Agricultural
and Forestry
Productivity



Protecting
and
Restoring
Natural
Resources
and Native
Ecologies



Supporting a
Healthy
Planet and
Healthy
People



Conserving
Resources
Through
Advanced
Bio-
Utilization

Preparing Students for Next Gen AFNR Jobs

Food Sciences

- Nutrition Researchers
- Food Safety Managers
- Research Technicians
- Sensory and Consumer Scientists
- Clinical Dieticians
- Quality Assurance
- Food product development.

Engineering

- Process Engineers
- Environmental Engineers
- Bioprocess Engineers
- Plant Managers
- Water Resource Engineers
- Advance robotics and sensors.
- Biofuels and Biorenewables

Scientists

- Genomic Science
- Plant and Crop Breeders
- Environmental scientists
- Aquatic Biologists
- Soil Scientists
- Wildlife Biologists
- Foresters
- Animal Nutrition and Health
- Forest Carbon Validation
- Precision Ag Systems

Economics & Education

- Data Science and Analytics
- Financial Analysts
- Supply Chain Analysts
- Environmental Policy Analysis
- Food Systems Analysts
- Forestry Data Analysts.
- Soil and water quality experts.
- Education & Communications

Climate Experts

- Climate Adaptation and Climate Mitigation Specialists
- Sustainability analysts
- Resilient natural and built systems.
- Adapting urban and rural forests.
- Combating Invasive species

What Attracts Students to CFANS



Located in the heart of the greatest collection of food and agribusiness companies in the world.



Curriculum requires experiential learning.



Livestock facilities and 180 crop acres ON residential urban campus.



Comprehensive University with Vet Med, Med School, Engineering, Law and Public Health.



Only doctoral degree granting programs in AFNR in Minnesota and diversity of experiences.

Experiential Education Resources St. Paul Campus Research and Teaching

MAES FARM

180 acres available
for research

34 faculty with field
projects

21 unique crops grown on
the farm



Undergraduate Majors

Agricultural Education

Agricultural Communication and Marketing

Agricultural and Food Business Management

Animal Science

Applied Economics

Bioproducts and Biosystems Engineering

Environmental Sciences, Policy and Management

Fisheries, Wildlife and Conservation Biology

Food Science

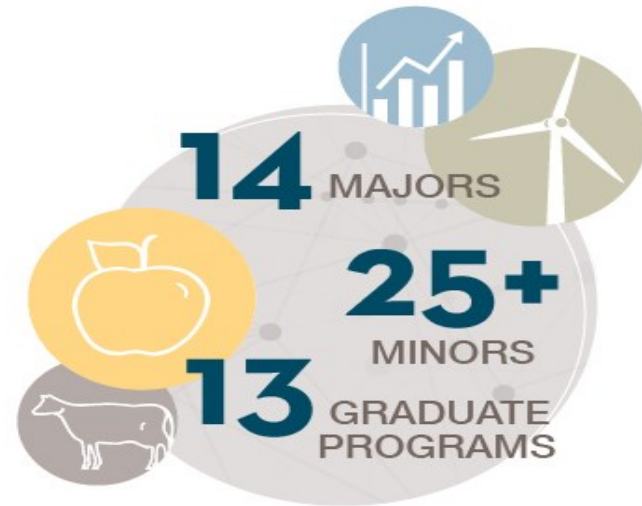
Forest and Natural Resource Management

Nutrition

Plant Science

Sustainable Agriculture and Food Systems

Sustainable Systems Management



Experiential Opportunities for Learning

Undergraduate
employment in teaching
and research (labs/fields)

Undergraduate Research Opportunity Program

- Students work with faculty mentor to define self-developed research project for credit and funding

Student Study Abroad
Programs

Internships Programs –
Business, Government,
NGOs & Community

Student Organic Farm,
Research and Outreach
Centers

Land-Grant Legacy Scholars Serving Greater Minnesota

Empowering students from Greater Minnesota to make positive impacts in their communities across the state.

- 73 Scholars currently enrolled, most diverse cohort arriving in Fall 2022
- LGLS Retention Rate = 96% (highest for any CFANS student population)
- Average Fall 2021 GPA: 3.365
- We have graduated 9 LGLS Scholars, with 10 more graduating Spring 2022
- LGLS Scholars currently **represent 43 of the 80 counties** within Greater MN



CFANS Graduate Programs

Agricultural Education

Animal Science

Applied Economics

Applied Plant Sciences

Bioproducts and Biosystems Science, Engineering and Management

Conservation Sciences

Entomology

Food Science

Land and Atmospheric Science

Natural Resources Science and Management

Nutrition

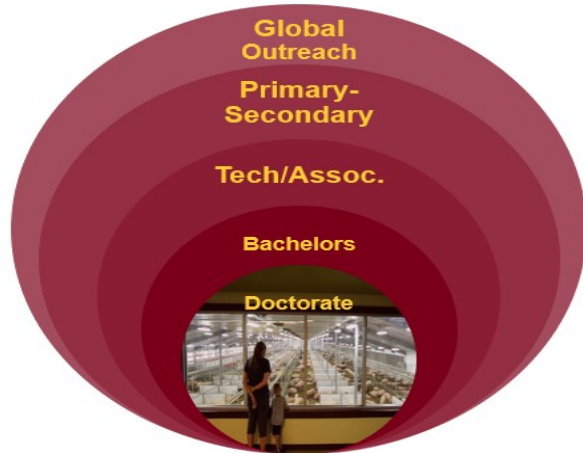
Plant Pathology

Water Resources Science

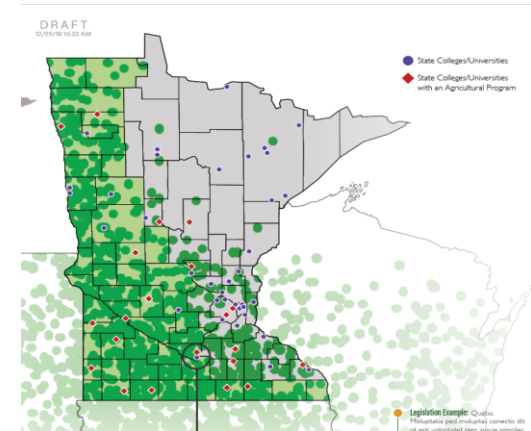


Our AFNR Educational Ecosystem

- Bachelors
- Masters
- PhD's



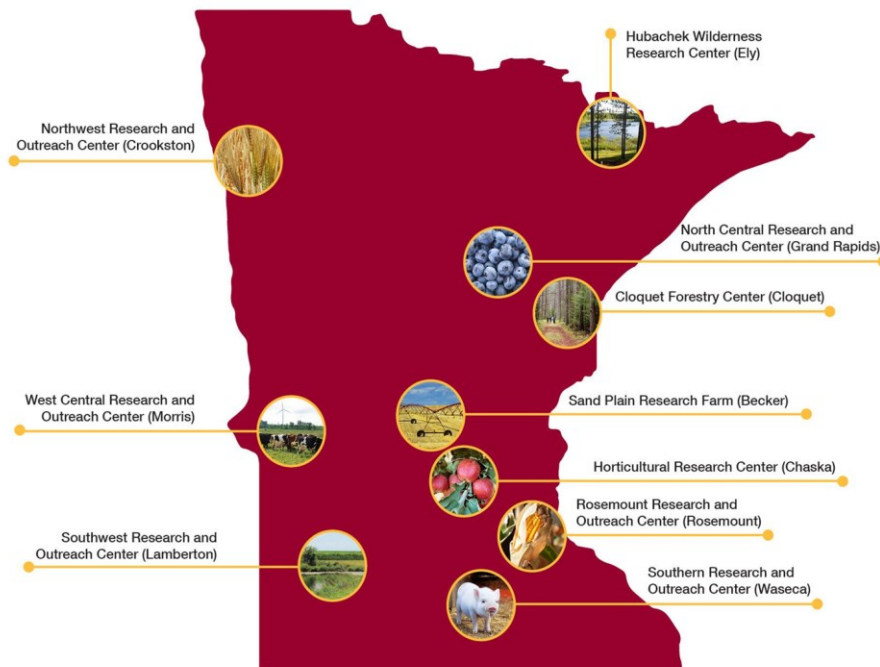
- Extension
- MN State Partnerships (2-year)
- Center for Farm Financial Management and other outreach resources
- College in the Schools
- Post-Secondary Ed Ops (PSEO)
- FFA
- MAELC
- Arboretum
- Bell Museum
- Partners: GreenSeam, MBOLD, Dept. of Ed., MDA, Agrigrowth



Meeting the Future

Next Gen Ag/Advancing Hybrid Strategies

- Placing minors online so students across UMN System can enroll
- NexGenAg - UMN System Wide Strategic Plan, MPact 2025
- “Mntersection” initiative partnership with UMN Crookston and CFANS
- UM-Crookston developing Rural Leadership program w/ certificates and degrees
- Hybrid experiential learning at Research and Outreach Centers and online minors for non-traditional students (CHOS)
- FAARM – Future of Advanced Agricultural Research in Minnesota w/ Riverland College.



Thinkers, Doers and Dreamers

Graham Brothers

- Mike Graham, Bayer Crop Science
- Geoff Graham, Corteva Agriscience
- Stewards of Ag leadership, innovation and knowledge sharing
- Innovation in plant breeding, plant genetics



Thinkers, Dreamers, Doers

Norman Borlaug

- Norman Borlaug, Father of the Green Revolution
- Nobel Peace Prize, Presidential Medal of Freedom, Congressional Gold Medal, and National Medal of Service for work in alleviating world hunger.
- UMN Degrees in Forestry and Plant Pathology





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OF MINNESOTA

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AND NATURAL RESOURCE SCIENCES