

Brian Buhr, PhD Dean College of Food, Agricultural and Natural
Resource Sciences

August 14, 2014

MINNESOTA AFNR SECTOR OVERVIEW – ECONOMICS AND EMPLOYMENT

State of Minnesota - Agriculture

MN Agricultural Rankings (among all U.S. states):

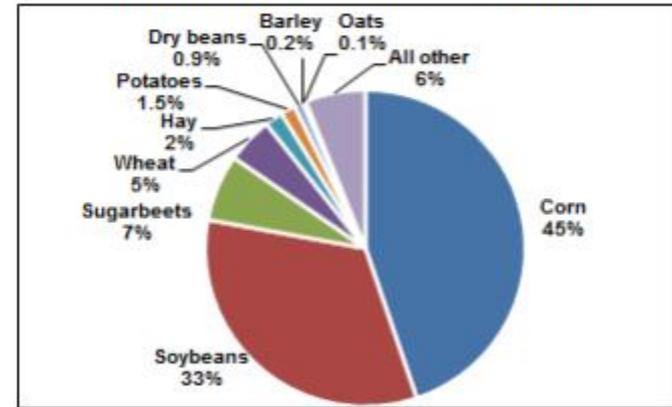
- No. 4 in crop cash receipts
 - No. 1 in sugarbeet, sweet corn for processing, green peas for processing
 - No. 2 in wild rice
 - No. 3 in soybeans, spring wheat, canola
 - No. 4 in corn, dry edible beans, flax seed
 - No. 5 in sunflowers
- No. 5 in total agricultural cash receipts
- No. 7 in livestock cash receipts
 - No. 1 in turkeys
 - No. 3 in hogs
 - No. 5 in mink pelts
 - No. 6 in milk, red meat, cheese

Ag Receipts....\$21.5 bill.

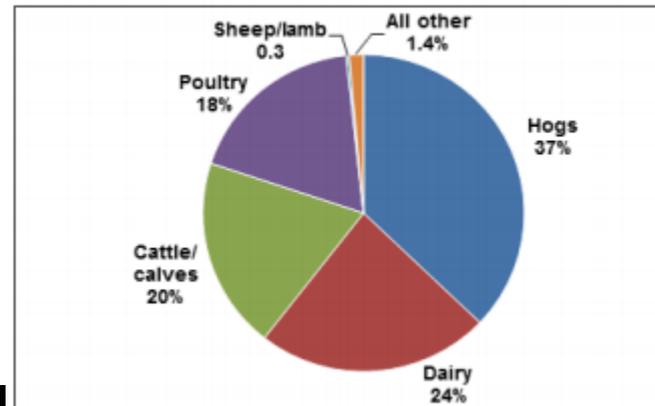
Add Forestry....\$9.7 bill.

MN GDP = \$324 Bill

MN Crops Production (%-share by value)



MN Livestock Production (%-share by value)

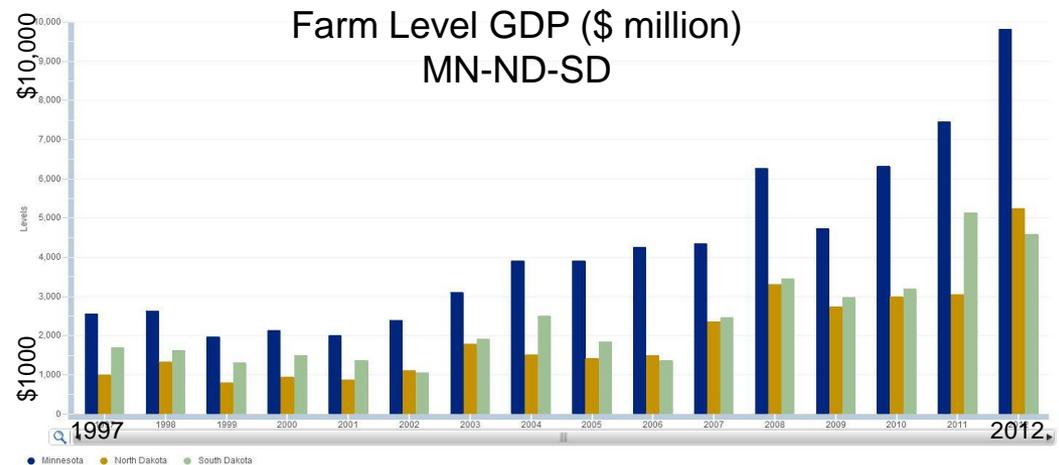


Source: MN Dept. of Agriculture

Value of Agriculture Growing

Key Factors

- Farm Price Impacts
- Acreage Increases
- Production Increases

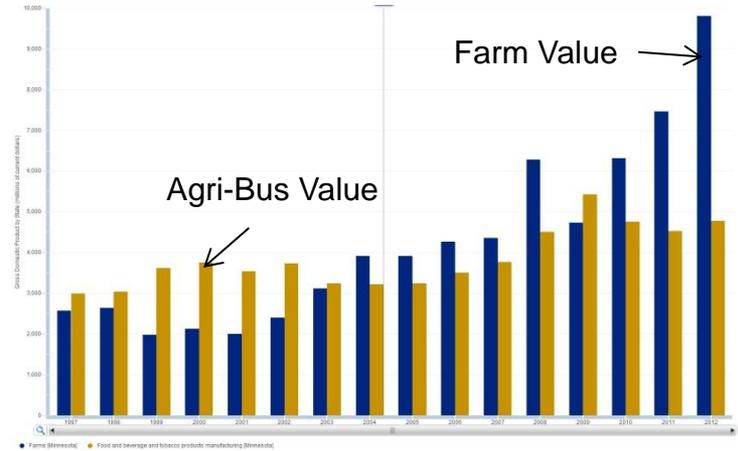


Agribusiness Value Adds 75-100% to Farm Value



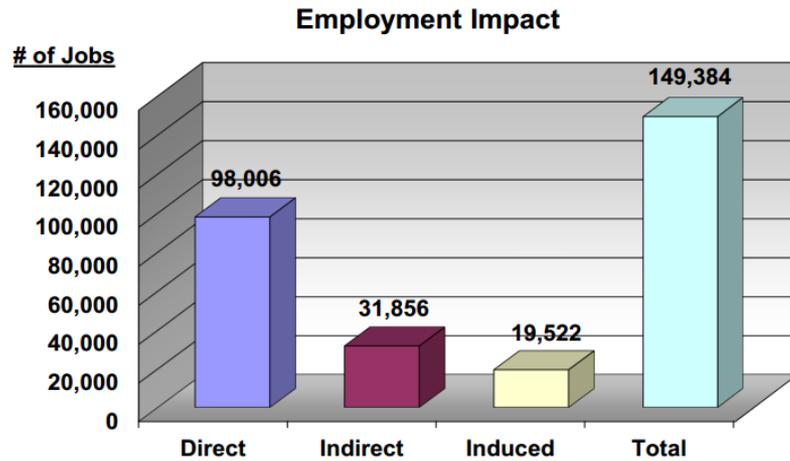
Top 3 Minnesota Manufacturers

- Cargill, 3M, CHS



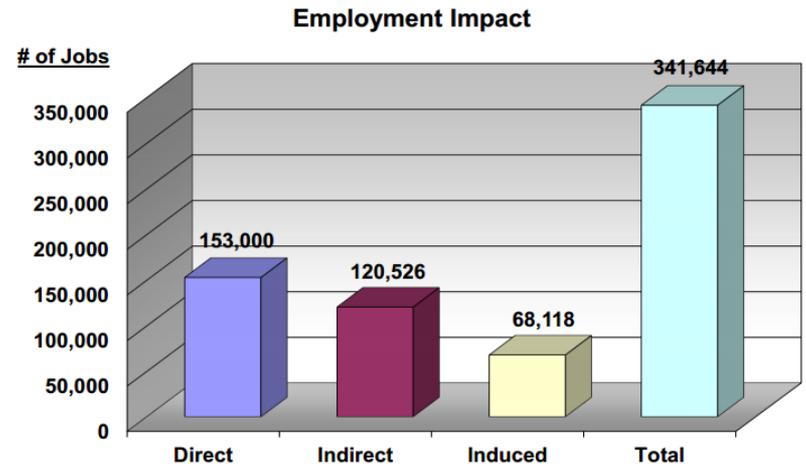
Minnesota Agricultural Employment

Economic Impact of Minnesota's Agriculture



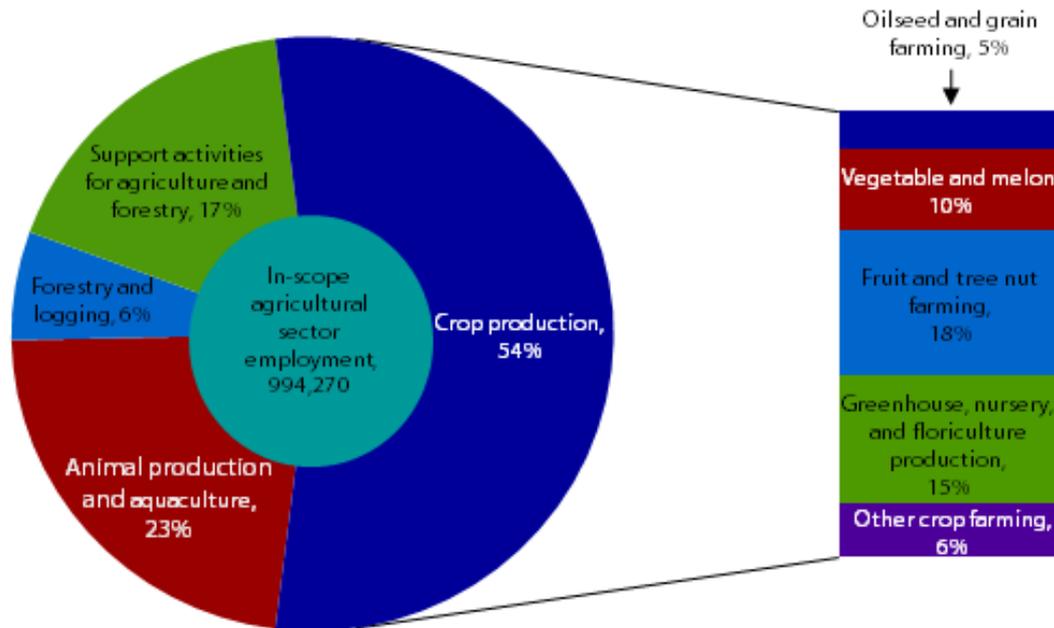
Source: Minnesota Department of Agriculture, 2010

Economic Impact of Minnesota's Agricultural Industry (Multiplier Effect)



Employment by Sector

Figure 1. Employment percentage of agricultural subsectors, November 2011

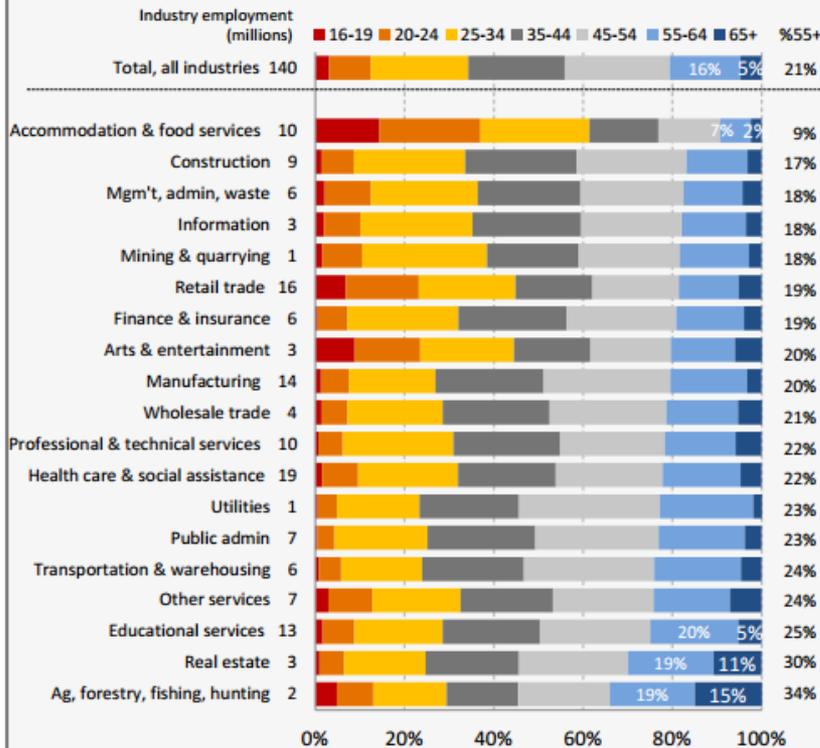


Source: U.S. Bureau of Labor Statistics.

Need for Next Generation Workforce in Agriculture

The industries with the highest shares of workers 55+ are agriculture, real estate, and education. Workers 55+ make up at least 25% of employment in these industries.

% of industry employment in each age bracket, sorted by ascending share of workers 55+, 2011

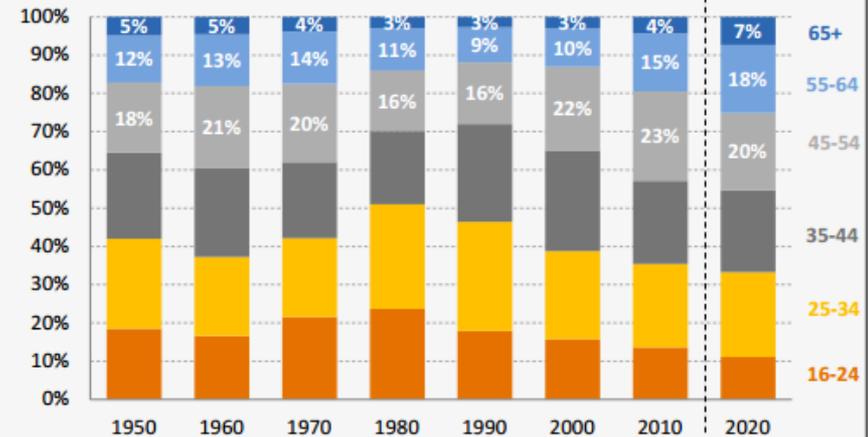


Analysis: Stanford Center on Longevity.
Source: BLS.

N-13

By 2020, 25% of the labor force will be age 55+, up from 12% in 1990.

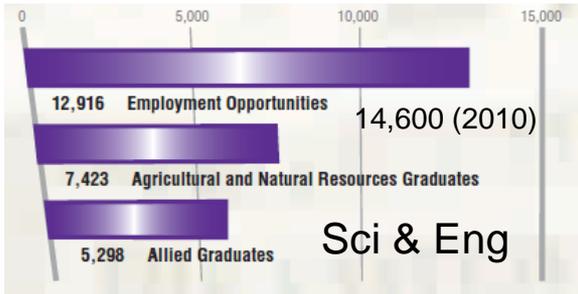
Percent distribution of the labor force, by age, 1950-2020



Analysis: Stanford Center on Longevity.
Source: BLS.

L-6

Career Opportunities: Expected Shortfall



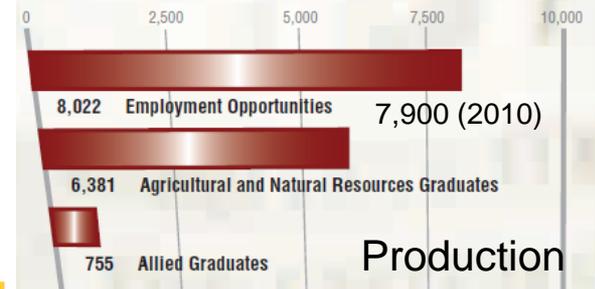
Source: USDA and Purdue University, "Employment Opportunities in AFNR" 2005 and 2010
http://www.csrees.usda.gov/nea/education/part/education_part_employment.html

See: <http://www2.ca.uky.edu/agripedia/agmania/career/LIST.asp>

For Extensive List of Positions in Agriculture

See: <http://www.bls.gov/ooh/>

For Outlook on Opportunities and Wages in Agricultural Fields



Reported Areas of Need

- Mechanics, Engineering, Robotics/Sensors/IT
 - Associates through PhD
- Regulatory Sciences
 - Bachelors, J.D.,
- Plant Sciences
 - Associates through PhD
- Farm Management and Farm Labor
 - High school through B.S.
- Environmental Sciences
 - B.S. through PhD
- Agricultural Education/Communications
- Food Technology and Food Safety



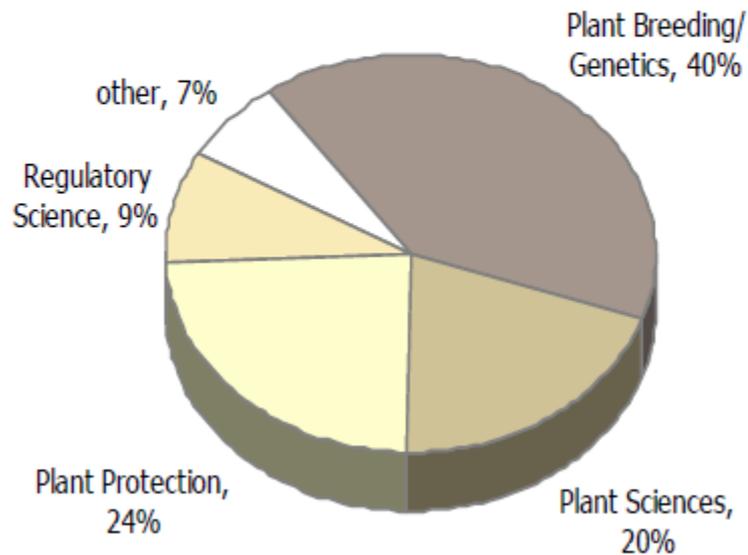
Coalition for Sustainable Agricultural Workforce (CSAW): Crop Science Professional Workforce Needs

- molecular biologists/geneticists, molecular biology/informatics
- ecologists, ground water ecologists, non-target ecology
- environmental chemists/toxicologists
- environmental modelers
- entomologists
- plant breeders (molecular marker experience)
- plant pathologists
- plant physiologists
- regulatory science, regulatory toxicology
- statisticians
- weed scientists



CSAW Degree Needs

Domestic Ag Scientist Hires
by Discipline
Percentage of FTEs



Domestic Ag Scientists
Academic Requirement
percentage of FTEs

- 46% Doctoral
- 27% Masters
- 26% Bachelors

Respondents Agree:

- Pipeline is not full.
- Challenges finding applicants
- Difficult hiring experience
- Need to retrain hires.

Source: CSAW 2013 Agricultural Science Workforce Census

Competencies Desired

- Communications and Leadership
- Problem Solving Analytical Skills
- Field Experience
- AFNR Literacy
- Disciplinary Training
- Technology Familiarity and Skills
- Language Skills



Source: UM, CFANS Career Services and MnSCU, "Meeting Minnesota's Workforce Needs", December 2012.

Pipeline Issues

- K-12 AFNR awareness is low.
- Strong competition for labor – Bakken!
- Improvements in education institution alignment.
- Strong demand for associate and B.S. Limits availability of advanced degrees.
- Need to appeal to under-represented populations to expand potential pool.
- Need for public/private collaboration to identify needs and strategies.

Opportunities and Pitfalls

Opportunities

- Worthy, Bold & Ambitious Mission and Vision
- STEM Intensive
- “Real” and Varied Work Environment
- Global Employment
- Retirement wave → advancement
- Engaged Network

Pitfalls

- Agricultural Perception/Image
- Disassociation of People from Natural Environment
- Cyclical Industry
- Location Challenge
- Hours/Seasonality
- Wages and Salaries

The College of Food, Agricultural AND Natural Resource Sciences Grand Challenge

To deliver research and education in provision of food, fiber, bio-energy, bio-products AND ecosystem services to expanding populations and economies WHILE sustaining productivity, sustaining and healing people and natural resources AND advancing a civil, just and prosperous society.



College of Food, Agricultural and Natural Resource Sciences

- 1,939 undergraduates
- 15 majors & 22 minors
- 692 graduate students
- 13 graduate programs



College of Food, Agricultural and Natural Resource Sciences

Undergraduate Student Profile

- Average ACT 26.1
- Average High School Rank 82%

Where our undergraduates come from:

- 888 Twin Cities
- 415 Greater Minnesota – *70 of Minnesota's 87 counties*
- 267 Wisconsin
- 217 Other US States
- 147 International



College of Food, Agricultural and Natural Resource Sciences

Undergraduate Academic Programs

- Agricultural Education
- Agricultural and Food Business Management
- Agricultural Industries and Marketing
- Animal Science
- Applied Economics
- Bioproducts Marketing and Management
- Environmental Sciences, Policy and Management
- Fisheries and Wildlife
- Food Systems*
- Forest Resources
- Nutrition
- Plant Science*
- Pre-Bioproducts and Biosystems Engineering

College of Food, Agricultural and Natural Resource Sciences

*Transforming undergraduate education to
prepare students for the future workforce and
be a national leader in instructional innovation*

New majors

- Food Systems
- Renewable energy

Combined majors

- Plant Science
- Forestry and recreation
management

College of Food, Agricultural and Natural Resource Sciences

CFANS Students surveyed in 2011:

- 87% of graduates are in jobs or continuing their education within 6 months of graduation
- 76% are in jobs related to their majors
- Salary mean - \$35k



College of Food, Agricultural and Natural Resource Sciences

Graduate Education programs

- Animal Science
- Applied Economics
- Applied Plant Sciences
- Bioproducts and Biosystems Science, Engineering and Management
- Conservation Biology
- Entomology
- Food Science
- Land and Atmospheric Science
- Natural Resource Science and Management
- Nutrition
- Plant Biological Sciences
- Plant Pathology
- Water Resources Science