

AGRICULTURE OUTCOMES

ABOUT THE INDUSTRY

A 2010 study by the Minnesota Department of Agriculture estimated the total economic impact of agriculture in the state at \$23.3 billion and the agricultural economy has improved greatly since then. The same study shows the total employment impact to be 149,384 jobs, which includes direct employment of 98,006.

According to the 2012 Census of Agriculture, Minnesota is home to more than 74,500 farms covering just more than 26 million acres, which is nearly half of the state's total land area. The market value of agricultural products sold in 2012 climbed to \$21.3 billion, a 61 percent increase since 2007.

Minnesota ranks fourth in the United States for total market value of products sold, including fourth in the value of crops and seventh in the value of livestock products. Minnesota is



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first in the number of turkeys, third in hogs and pigs, third in soybeans, third in grains and oilseeds, fourth in corn for grain, and seventh in milk from cows. It ranks in the top 15 in several other crop and livestock categories, including poultry and egg production, cattle and calves and vegetables.

Agriculture has several national apprenticeship programs, yet no registered apprenticeship programs are active in Minnesota. Many of the positions within the industry are new, emerging or experiencing significant technological shifts.

AGRICULTURAL INDUSTRY COUNCIL

Fifty-two people participated in the Agriculture Industry Council meetings.

- 19 members of industry and industry associations
- Nine education representatives
- Four labor and labor/education representatives
- 20 government, legislative and other representatives

Council members and additional representatives are listed in Appendix F.

The first Agriculture Industry Council meeting was conducted Aug. 14, 2014 at the Department of Labor and Industry. The purpose of the PIPELINE Project and the vision for success were shared with the Council.

Industry Council member Dr. Brian Buhr, Dean of University of Minnesota's College of Food, Agriculture and Natural Resource Sciences (CFAN), framed the issues facing the agriculture industry in Minnesota, especially related to workforce shortages statewide.

Current competency standards training models used in the United States and Europe were outlined. Through a facilitated process, the Council generated an inventory of abilities, knowledge and skills for high demand agriculture occupations; the occupations discussed at this meeting were used to generate a preliminary list of "apprenticeable" agriculture occupations.

After the first Industry Council meeting, the list of high-demand occupations was cross-referenced with DEED labor-market data, MnSCU listening sessions results and Wanted Analytics data. A survey was designed to identify the most "apprenticeable" agriculture occupations. The survey also served to validate industry specific competencies related to personal effectiveness, academic, workplace, and industry-wide technical skills based on the PIPELINE Competency Standards Models adapted from the U.S. DOL Competency Models in other industries, as agriculture models had not been developed prior to the PIPELINE Project.

The Department of Labor and Industry hosted the second Agriculture Industry Council meeting on Oct. 3, 2014. The meeting was dedicated to discussion and selection of three agriculture PIPELINE occupations.

Industry Council members were asked to identify industry experts in each of the selected agriculture PIPELINE occupations.

The final Agriculture Industry Council Meeting was hosted by DLI on Nov. 12, 2014. The Industry Council identified recommendations for moving forward with occupational competency standard development and potential next steps to increase dual-training delivery in agriculture.

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Occupations identified by the Agriculture Industry Council for PIPELINE competency modeling and dual-training planning are:

- **Agronomist**
- **Herd manager**
- **Skilled mechanic (agriculture)**

Full descriptions of these occupations are available in Appendix G.

AGRICULTURE RECOMMENDATIONS

Recommendations specific to the Agricultural industry are categorized by area of need:

1. Early exposure

While there are currently no registered apprenticeship programs in Minnesota, the agriculture Industry Council demonstrated a high level of interest and support for dual-training and apprenticeship. Agriculture is experiencing significant structural shifts in technology changes; resulting in emerging professions and potential opportunities to develop strong career pathways within the industry. Exposure and increased awareness to agriculture occupations is critical, especially for Minnesotans in suburban and urban locations who may have little understanding of this industry. Council members think it is important to promote greater awareness about “where Minnesota’s food comes from.” Hands-on experiences are important ways for individuals to assess their interest, aptitude, and suitability to professions within the industry. Council members believe that career exploration opportunities need to be directed at K-12 students, which requires providing training to support agriculture, food and natural resources instructors to begin this early career exploration process. Further, students need an early understanding of demand for strong Science, Technology, Engineering and Math (STEM) in agriculture as a foundation to career mobility within the industry.

2. Hiring and recruiting

The industry needs all levels of workers, including leaders, sales people, scientists, herd managers, financial workers, etc. A background or understanding of agriculture, including hands-on experience is beneficial in all of these occupations and more. Industry members anticipate a wave of retirements. This, compounded by industry growth, is resulting in significant concerns of workforce shortages.

Hiring is currently employer dependent. Industry Council members confirm that hiring is done at the entry-level with the expectation that trained employees will advance to manager roles. While current practices have a limited ability to meet the needs for some types of agriculture employees, it does not ensure the development of high-level managers and scientists. Industry Council members reinforce the importance of understanding the geographical recruitment and hiring needs and practices throughout the industry and state.

3. Skills and training

Agriculture is a multiple dimension industry. This sector has experienced significant technological shift in its operational practices. Employees need knowledge of power diesel, electrical circuits, plumbing, hydraulic systems, computer technology, reading technical specifications and instructions, metal fabrication, building construction, etc. Equipment that historically was manually controlled is now electronically controlled and wireless technology is common. Employees need a higher level of technological proficiency than in the past, but this does not lessen the need for manual skills. Technicians need to be highly skilled in a range of areas, including: manual mechanics, electronics, emerging technology, manufacturer specific technology, and have a commercial driver’s license. Animal

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care professionals need these skills, as well as an understanding of nutrition, animal monitoring and care. Sub-sectors of the industry must also understand standards for organic farming, conservation and animal care.

The delivery of related instruction and on-the-job training are critical for this industry and must be reviewed regularly to ensure curriculum, equipment, and technology are relevant to the changing needs of the industry. Education must be flexible and reflect the seasonality of the agriculture industry. Production cycle creates periods of very high labor demand (i.e. hours of work) and periods of low labor demand. Many positions require long hours and/ or night shifts. Language and cultural skills, as well as people management skills are necessary and increasingly multi-lingual skills and cross-cultural experience is valued.

Industry council members suggest partnering with one or more of their strong industry associations as the appropriate means of developing dual-training, rather than employer-by employer. This industry prefers cross training initiatives with short and stackable credentials that could fit the flexibility needs of agriculture and train the trainer programs that assist employers with refining their on-the-job training techniques.

4. Recommended next steps

- Continue to develop occupational competency standards for the careers selected by the Industry Council.
- Launch new dual-training programs in partnership with an agriculture Industry Council.
- Develop a marketing plan to exposure youth and adults to hands-on agriculture career exploration opportunities through summer camps, semester programs, cooperatives, internships, etc.
- Identify feasibility having regional dual-training coordinators throughout the state.
- Align agriculture education and supports to meet the needs of the industry in Minnesota.
- Survey current recruitment strategies for selected PIPELINE occupations throughout the state.
- Create urban agriculture recruitment programs for youth and adults.
- Identify how dual-training programs will increase employee retention.
- Identify how to measure the return on investment for employer having dual-training programs.
- Develop a tool kit to include resources for establishing dual-training programs and training for employers, mentors, and educators.