 Minnesota Dual-Training Pipeline
Competency Model for Agricultural Occupation: Agronomist

Employer-Specific Requirements

Occupation-Specific Competencies*
- Crop Production Advising
- Insect Repellent and Herbicides
- Chemical Mixing and Application
- Conduct Field Trials/Test Plots
- Crop Scouting
- Crop Protection Knowledge
- Educator to Farmers/Growers

Industry-Sector Technical Competencies*
- Water Optimization, Drought Strategies
- Plant Genetics, Soil Science, Conservation
- Pest Management
- Crop Production Services
- Crop Nutrient Principles
- Weed Control, Sales Techniques
- Crop Disease

Industry-Wide Technical Competencies
- Principles of Agriculture
- Production
- Maintenance, Installation and Repair
- Supply Chain Logistics
- Quality Assurance, Continuous Improvement
- Sustainable and Renewable
- User and Customer Support
- Health, Safety, Security

Workplace Competencies
- Business Fundamentals
- Teamwork
- Adaptability and Flexibility
- Customer Service Focus
- Planning and Organizing
- Problem Solving, Decision Making
- Working With Tools and Technology
- Checking, Examining and Inspecting
- Sustainable Practices

Academic Competencies
- Reading and Writing
- Science
- Technical Mathematics Skills
- Basic Computer Skills
- Communication: Listening and Speaking
- Critical and Analytic Thinking
- Information Literacy

Personal Effectiveness Competencies
- Interpersonal Skills
- Integrity
- Professionalism
- Initiative
- Dependability and Reliability
- Adaptability and Flexibility
- Lifelong Learning

Based on: Competency Model Employment and Training Administration, United States Department of Labor.

*Pipeline recommends the Industry-Sector Technical Competencies as formal training opportunities (provided through related instruction) and the Occupation-Specific Competencies as on-the-job training opportunities.
Agronomist – An agronomist is a person trained in agronomy, who works in the agricultural sector, gives advice on the cultivation of crops, and deals with the plant growth. This person usually works with agricultural product companies and agricultural cooperatives.

Industry-Sector Technical Competencies

Related Instruction for dual training means the organized and systematic form of education resulting in the enhancement of skills and competencies related to the dual trainee’s current or intended occupation.

- **Plant genetics** – Knowledge of the fundamental processes controlling production, quality, and enhanced use for crops.

- **Water optimization/drought strategies** – Understand maximizing water usage and conservation methods in drought situations.

- **Soil science/conservation** – Training in soil as a natural resource and principles of resource conservation management.

- **Pest management** – Understand principles of crop protection and pest control.

- **Crop production services** – Training to assist farmers/growers with crop production.

- **Crop nutrient principles** – Knowledge of nutrients required for healthy, productive crops.

- **Weed control** – Understanding of the tools available for weed control.

- **Crop disease** – Training to reduce the economic and aesthetic damage caused by plant diseases.

- **Sales techniques** – Fundamentals of sales focused on the agricultural industry.
Occupation-Specific Competencies

On-the-Job Training (OJT) is hands-on instruction completed at work to learn the core competencies necessary to succeed in an occupation. Common types of OJT include job shadowing, mentorship, cohort-based training, assignment-based project evaluation and discussion-based training.

- **Crop production advising** – Ability to counsel growers in various aspects of crop production.

- **Insect repellent and herbicides** – Select and recognize proper application methods for insect repellents and herbicides.

- **Chemical mixing and application** – Safely mix and apply chemicals to crops.

- **Conduct field trials/test plots** – Use scientific methodology when conducting field trials and evaluating test plots.

- **Crop scouting** – Assess crop performance and pest pressure to evaluate economic risk from pest infestations and disease, as well as to determine the potential effectiveness of pest and disease control interventions.

- **Crop protection knowledge** – Use crop protection knowledge to advise farmers/growers on how to use seeds, fertilizers, herbicides, insecticides, fungicides, and other products for maximum results.

- **Educator to farmers/growers** – Serve as an educator for the farmer/grower community on crops, hybrids, varieties, resource management and other factors affecting crop production.

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