Occupation: Agriculture Technicians

O*NET Code: 19-4012.00

Competencies - On-the-Job Training (paid):

1. Record data pertaining to experimentation, research, or animal care.
2. Collect animal or crop samples. Examine animals or crop specimens to determine the presence of diseases or other problems.
3. Support pest or weed control operations, including locating and identifying pests or weeds, selecting chemicals and application methods, or scheduling application.
4. Perform crop production duties, such as tilling, hoeing, pruning, weeding, or harvesting crops.
5. Perform general nursery duties, such as propagating standard varieties of plant materials, collecting and germinating seeds, maintaining cuttings of plants, or controlling environmental conditions.
6. Transplant trees, vegetables, or horticultural plants. Care for plants or animals.
7. Determine the germination rates of seeds planted in specified areas.
8. Assess comparative soil erosion from various planting or tillage systems, such as conservation tillage with mulch or ridge till systems, no-till systems, or conventional tillage systems with or without moldboard plows.
9. Research sustainable agricultural processes or practices and crop management methods.
10. Research diseases or parasites.
11. Test quality of materials or finished products.
12. Project Management Software —Use Microsoft Office Suite to schedule and attend meetings, collaborate with team members, manage project tasks, and track progress.
13. Spreadsheet software — Microsoft Excel: Use Microsoft Excel to analyze data, create spreadsheets, and perform calculations.
14. Utilize graphics, photo imaging, or mapping software to communicate and share information.
15. Analyzing Data or Information — Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts.

16. Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work.

17. Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems.

18. Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

19. Establishing and Maintaining Interpersonal Relationships — Developing constructive and cooperative working relationships with others.

20. Communicating with People Outside the Organization — Communicating with people outside the organization, representing the organization to customers, the public, government, and other external sources.

Agriculture Technicians

The Related and Supplemental Instruction (RSI) detailed below supports preparing for the competencies applied in on-the-job paid apprenticeship hours. The required **150 unpaid RSI per year** is delivered via a combination of online and in-person studies, activities, events, and collaborative projects with Open Source Ag.

Competency Exploration and Practice = 150 hours

Agriculture Technician Skills: 60 +- hours

- Record data pertaining to experimentation, research, or animal care.
- Measure or weigh ingredients used in laboratory testing.
- Prepare data summaries, reports, or analyses that include results, charts, or graphs to document research findings and results.
- Set up laboratory or field equipment as required for site testing.
- Prepare laboratory samples for analysis, following proper protocols to ensure that they will be stored, prepared, and disposed of efficiently and effectively.
- Collect animal or crop samples. Examine animals or crop specimens to determine the presence of diseases or other problems.
- Support pest or weed control operations, including locating and identifying pests or weeds, selecting chemicals and application methods, or scheduling application.
- Respond to general inquiries or requests from the public.
- Perform crop production duties, such as tilling, hoeing, pruning, weeding, or harvesting crops.
- Record environmental data from field samples of soil, air, water, or pests to monitor the effectiveness of integrated pest management (IPM) practices.
- Conduct studies of nitrogen or alternative fertilizer application methods, quantities, or timing to ensure satisfaction of crop needs and minimization of leaching, runoff, or denitrification.
- Conduct insect or plant disease surveys.
- Maintain or repair agricultural facilities, equipment, or tools to ensure operational readiness, safety, and cleanliness.

- Prepare land for cultivated crops, orchards, or vineyards by plowing, discing, leveling, or contouring.
- Operate farm machinery, including tractors, plows, mowers, combines, balers, sprayers, earthmoving equipment, or trucks.
- Perform laboratory or field testing, using spectrometers, nitrogen determination apparatus, air samplers, centrifuges, or potential hydrogen (pH) meters to perform tests.
- Perform tests on seeds to evaluate seed viability.
- Perform general nursery duties, such as propagating standard varieties of plant materials, collecting and germinating seeds, maintaining cuttings of plants, or controlling environmental conditions.
- Transplant trees, vegetables, or horticultural plants.
- Prepare or present agricultural demonstrations.
- Determine the germination rates of seeds planted in specified areas.
- Assess comparative soil erosion from various planting or tillage systems, such as conservation tillage with mulch or ridge till systems, no-till systems, or conventional tillage systems with or without moldboard plows.
- Examine characteristics or behavior of living organisms.
- Research sustainable agricultural processes or practices.
- Research diseases or parasites.
- Test quality of materials or finished products.
- Care for plants or animals.
- Research crop management methods.

O*NET

The skillsets below reflect priorities requested by employers and noted in the O*NET code for this sector: https://www.onetonline.org/link/details/19-4012.00

Microsoft Office Suite: 15+- hours

- Project Management Software: Utilize Microsoft Teams and Outlook to schedule and attend meetings, collaborate with team members, manage project tasks, and track progress.
- Presentation software: Microsoft PowerPoint: Create engaging visualizations.
- Spreadsheet software: Use Microsoft Excel to analyze data, create spreadsheets, and perform calculations.
- Word processing software: Use Microsoft Word to create and edit professional documents, reports, and correspondence.

Technology: 15+- hours

- Support and maintain computer databases and analytical or scientific software.
- Communicate projects and progress utilizing computer aided design CAD software.
- Utilize Geographic Information Systems (GIS) and Geographic Positioning Systems (GPS) to communicate and share data.
- Utilize graphics, photo imaging, or mapping software to communicate and share information.

Communication: 20+- hours

- Communicating with Supervisors, Peers, or Subordinates: Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

- Establishing and Maintaining Interpersonal Relationships: Developing constructive and cooperative working relationships with others.
- Communicating with People Outside the Organization: Communicating with people outside the organization, representing the organization to customers, the public, government, and other external sources.
- Resolving Conflicts and Negotiating with Others: Handling complaints, settling disputes, and resolving grievances and conflicts, or otherwise negotiating with others.
- Performing for or Working Directly with the Public: Performing for people or dealing directly with the public.
- Interpreting the Meaning of Information for Others: Translating or explaining what information means and how it can be used.

Analysis: 20+- hours

- Identifying Objects, Actions, and Events: Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
- Getting Information: Observing, receiving, and otherwise obtaining information from all relevant sources.
- Analyzing Data or Information: Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts.
- Organizing, Planning, and Prioritizing Work: Developing specific goals and plans to prioritize, organize, and accomplish your work.
- Making Decisions and Solving Problems: Analyzing information and evaluating results to choose the best solution and solve problems.
- Evaluating Information to Determine Compliance with Standards: Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.
- Processing Information: Compiling, coding, categorizing, calculating, tabulating, auditing, or verifying information or data.

Operations: 20+- hours

- Inspecting Equipment, Structures, or Materials: Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Monitoring Processes, Materials, or Surroundings: Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.
- Documenting/Recording Information: Entering, transcribing, recording, storing, or maintaining information.
- Estimating the Quantifiable Characteristics of Products, Events, or Information: Estimating sizes, distances, and quantities; or determining time, costs, resources, or materials needed to perform a work activity.
- Repairing and Maintaining Mechanical Equipment: Servicing, repairing, adjusting, and testing machines, devices, moving parts, and equipment that operate primarily based on mechanical (not electronic) principles.