

Agricultural Business, Supply & Service

Standards, Benchmarks & Performance Indicators (competencies)

Standard AB-1: Understand problem-solving, analysis, and decision-making in agriculture.

Benchmarks

A. Analyze situation, use problem-solving approach and make appropriate decisions.

1. Describe the types of record-keeping systems used in agriculture.
2. Analyze marketing and pricing alternatives for agricultural commodities.
3. Interpret charts, graphs, and maps to make specific decisions related to business

Standard AB-2: Understand leadership and ethics development in agriculture.

Benchmark

B. Apply principles of leadership and ethical behavior to selected situations in agriculture.

1. Delegate duties.
2. Manage conflict (personal and customer).
3. Facilitate group interaction (teamwork).
4. Take responsibility for mistakes and/or good work.
5. Become personally involved in professional or organizations.
6. Recognize relevant, ethical issues in business.

Standard AB-3: Understand the use of entrepreneurial knowledge and skills in agriculture.

Benchmark

C. Apply the principles of entrepreneurship in an agricultural experiential learning experience.

1. Analyze business organizations.
2. Identify skills required of a business owner.
3. Identify the personal characteristics of entrepreneurs.
4. Analyze the contents of a business plan.
5. Explain types of business ownership.
6. Identify the four types of agricultural business organizations.
7. Compare the advantages and disadvantages of the four types of agricultural business.
8. Explain the concept of competition.
9. Explain the concept of profit.

Standard AB-4: Understand basic computational and informational technology.

Benchmark

D. Apply computational and informational technologies to analyze and solve mathematical problems.

1. Calculate a least-cost ratio.
2. Utilize a database, word-processing, and spreadsheet program.
3. Calculate storage charges on grain.
4. Show awareness of various forms of electronic communication: e-mail, ftp, Worldwide Web.

Standard AB-5: Understand basic technical skills and knowledge in the occupational area of agricultural business, supply and service.

Benchmark

E. Apply technical skills in a hands-on experiential setting in agriculture.

1. List the steps used in purchasing fixed and variable assets in a business.
2. Explain opportunity cost.
3. Complete a cash flow projection worksheet.
4. Develop a balance sheet for business.
5. Complete a net worth statement.
6. Differentiate between marketing, pricing, and grading standards for agricultural commodities.
7. Analyze the concept of supply and demand.

Standard AB-6: Understand the principles of goal setting -personal and organizational.

Benchmark

F. Explain the goal setting process.

1. Compose a resume.
2. Demonstrate initiative.
3. Construct an application letter.
4. Utilize time effectively.
5. Demonstrate a proper interview.

Agricultural Mechanics

Standards, Benchmarks & Performance Indicators (competencies)

Standard AM-1: Understand problem solving, analysis, and decision-making in agriculture.

Benchmark

A. Analyze situation, use problem-solving approach and make appropriate decisions.

1. Measure and trouble shoot electrical circuits (to include charging and starting systems)using a circuit test.
2. Troubleshoot and diagnose malfunctions pertaining to engines.
3. Differentiate between cast iron, metallic arc, gas tungsten, TIG, oxygen/acetylene welding including the selection of equipment and supplies.

Standard AM-2: Understand leadership and ethics development in agriculture.

Benchmark

B. Apply principles of leadership and ethical behavior to selected situations in agriculture.

1. Take responsibility for mistakes and/or good work.
2. Manage time effectively.
3. Demonstrate initiative.
4. Follow rules and regulations.
5. Work effectively with others.
6. Respect the property of others.
7. Follow directions.
8. Comply with safety and health rules.

Standard AM-3: Understand the use of communication skills in agriculture – interpersonal and group; written and oral.

Benchmark

C. Use appropriate communication skills in a variety of occupational situations in agriculture.

1. Interpret and follow recommended service and maintenance schedules using operator 's manuals.
2. Explain the terms compression ratio, and piston displacement.
3. Listen effectively.

StandardAM-4: Understand basic computational and informational technology.

Benchmark

D. Apply computational and informational technologies to analyze and solve mathematical problems.

1. Demonstrate proper measurement and layout of a mechanics project.
2. Show awareness of various forms of electronic communication: -mail, ftp, Worldwide Web.

Standard AM-5: Understand basic technical skills and knowledge in the occupational area of agricultural mechanics.

Benchmark

E. Apply technical skills in a hands-on experiential setting in agriculture.

1. Demonstrate installation of a simple electrical circuit with switch, receptacles, and over current protection.
2. Demonstrate work with electricity in a safe manner.
3. Identify factors for selecting motors and protection devices based upon types of application.
4. Explain the function and operating principles of two-stroke and four-stroke gasoline diesel engine systems.
5. Perform routine care, maintenance and perform tune-up of a gasoline engine.
6. Describe basic principles of electricity and define electrical related terminology.
7. Describe importance of proper grounding systems and ground-fault protection.
8. Describe relationship between volts, ohm, amps, watts and kilowatts.
9. Identify symbols from basic wiring circuits.
10. Describe characteristics of a quality weld.
11. Set up equipment, prepare metal and complete corner, fillet, lap and butt welds on mild steel in various positions with wire fed braze and arc welders.
12. Maintain clean and orderly work area.
13. Select and properly use hand and power tools.
14. Use shop tools in a safe manner.

Agricultural Production

Standards, Benchmarks & Performance Indicators (competencies)

Standard AP-1: Understand problem solving, analysis, and decision-making in agriculture.

Benchmarks

A. Analyze situation, use problem-solving approach and make appropriate decisions.

1. Analyze the economic impact of production agriculture on the economy.
2. Describe the value of computerized record keeping for decision-making.

Standard AP-2: Understand the concept of cooperation and community service/teamwork.

Benchmark

B. Demonstrate cooperation and teamwork skills.

1. Respect the property of others.
2. Follow directions.
3. Interact with others in a courteous and tactful manner.
4. Cooperate with others.
5. Work effectively with others.

Standard AP-3: Understand basic computational and informational technology.

Benchmark

C. Apply computational and informational technologies to analyze and solve mathematical problems.

1. Evaluate and demonstrate use of current technology in land surveying and measuring.
2. Utilize digitized soil surveys to establish a soil sampling methods and formulate a nutrient.
3. Utilize computerized record analyze in making production, management and marketing decisions.
4. Show awareness of various forms of electronic communication: e-mail, ftp, Worldwide Web.

Standard AP-4: Understand basic technical skills and knowledge in the occupational area of production agriculture.

Benchmark

D. Apply technical skills in a hands-on experiential setting in agriculture.

1. Identify basic laws and governmental regulations related to agricultural production
2. Identify components of water systems.
3. Explain soil and water conservation practices and their part in federal program compliance.
4. Explain the factors involved with seed and plant selection.
5. Identify and demonstrate plant growth and reproduction.
6. Identify and select biological and chemical pest controls for agronomic production.
7. Design storage establishment improvement practices/grazing systems.
8. Identify and compare the operation of grain harvesting, handling, drying, and storage systems.

Agricultural Projects

Standards, Benchmarks & Performance Indicators (competencies)

Standard P-1: Understand problem solving, analysis, and decision-making in agriculture.

Benchmark

A. Analyze situation, use problem-solving approach and make appropriate decisions.

4. Sketch a simple line drawing of a three dimensional object showing top, bottom, and front views.

Standard P-2: Understand leadership and ethics development in agriculture.

Benchmark

B. Apply principles of leadership and ethical behavior to selected situations in agriculture.

9. Take responsibility for mistakes and/or good work.
10. Manage time effectively.

Standard P-3: Understand the concept of cooperation and community service/ teamwork.

Benchmark

C. Demonstrate cooperation and teamwork skills.

1. Facilitate group interactions (teamwork).
2. Follow rules and regulations.
3. Work effectively with others.
4. Respect the property of others.
5. Follow directions.
6. Comply with safety and health rules.
7. Utilize equipment correctly as shown/demonstrated by a supervisor.
8. Cooperate with others.
9. Accept supervision willingly.
10. Ask for help when needed.

Standard P-4: Understand the use of communication skills in agriculture – interpersonal and group; written and oral.

Benchmark

D. Use appropriate communication skills in a variety of occupational situations in agriculture.

4. Develop a bill of materials and projected cost list.
5. Utilize service or cooperator 's manuals, and catalogs to complete a job.

Standard P-5: Understand the principles of goal setting – personal and organizational.

Benchmark

E. Explain the goal setting process.

1. Prioritize a series of tasks.
2. Define goals.

Standard P-6: Understand the principles of planning.

Benchmark

F. Apply planning strategies in agriculture mechanics.

1. Interpret plans and working drawings.
2. Complete a simple construction project of good quality.
3. Work within guidelines.

Standard P-7: Understand basic computational and informational technology.

Benchmark

G. Apply computational and informational technologies to analyze and solve mathematical problems.

3. Calculate board fee, square feet, and linear foot of lumber or metal.
4. Demonstrate proper measurement and layout of a project.

Standard P-8: Understand basic technical skills and knowledge in the occupational area of agricultural mechanics.

Benchmark

H. Apply technical skills in a hands-on experiential setting in agriculture.

15. Maintain clean and orderly work area.
16. Select and properly use hand and power tools.
17. Identify common building materials, hardware and their uses.
18. Recondition tools such as twist drill, chisels, and punches.
19. Use shop tools in a safe manner.
20. Demonstrate knowledge of kinds of wood.
21. Identify what type of wood is better for projects.
22. Demonstrate the ability to purchase wood.
23. Evaluate project after it has been completed.

Animal Science

Standards, Benchmarks & Performance Indicators (competencies)

Standard AS-1: Understand problem solving, analysis, and decision-making in agriculture.

Benchmarks

A. Analyze situation, use problem-solving approach and make appropriate decisions.

3. Analyze the economic impact of production agriculture on the economy.
4. Identify and compare the operation of equipment and facilities involved with livestock for optimum production efficiency.
5. Identify major genetic characteristics of animal breeds (including hybrids) and examine their uses in animal breeding systems and scientific principles.

Standard AS-2: Understand the concept of cooperation and community service/teamwork.

Benchmark

B. Demonstrate cooperation and teamwork skills.

6. Respect the property of others.
7. Follow directions.

8. Interact with others in a courteous and tactful manner.
9. Cooperate with others.
10. Work effectively with others.
11. Facilitate group interaction (teamwork).
12. Comply with safety and health rules.

Standard AS-3: Understand the concept of career development and improvement (lifelong learning).

Benchmark

C. Develop strategies to make a successful transition from school to work.

1. Identify career opportunities in animal science.

Standard AS-4: Understand basic technical skills and knowledge in the occupational area of production agriculture.

Benchmark

D. Apply technical skills in a hands-on experiential setting in agriculture.

1. Demonstrate safe and humane animal handling techniques.
2. Identify major genetic characteristics of animal breeds and plant varieties.
3. Evaluate various animal feeding programs including ration development and feedstuff analysis.
4. Identify major genetic characteristics of animal breeds (including hybrids) and examine their uses in animal breeding systems and scientific principles.
5. Identify breeds most widely used today.
6. Identify characteristics used to judge an animal.
7. Follow proper procedures in identification of animals.
8. Identify symptoms of diseases and parasites in animals and how to prevent, control, and get rid of them.
9. Explain the terminology used with a certain species of an animal.
10. Determine where an animal originated.

Horticulture

Standards, Benchmarks & Performance Indicators (competencies)

Standard H-1: Understand problem solving, analysis, and decision-making in agriculture.

Benchmarks

A. Analyze situation, use problem-solving approach and make appropriate decisions.

1. Identify and differentiate between (may be a combination of) disease damage, pest and insect damage, chemical and environmental damage in a plant.
2. Use observational techniques to identify healthy, quality plants.
3. Choose an appropriate plant for a specific location in a home or business.

4. Choose plants of appropriate mature size, shape, texture, and function for a given site.

Standard H-2: Understand the principles of planning.

Benchmark

B. Apply planning strategies in horticulture.

1. Plan planting schedules.
2. Identify basic inventory procedures and techniques.
3. Develop a planting plan.
4. Prepare, design and plant a dish garden.
5. Develop a vegetable garden plan.
6. Utilize time effectively.

Standard H-3: Understand basic computational and informational technology.

Benchmark

C. Apply computational and informational technologies to analyze and solve mathematical problems.

1. Use a word processing, database and spreadsheet program.
2. Show awareness of various forms of electronic communication-mail, ftp, Worldwide Web.
3. Use the following hardware components: keyboard, mouse, disk drive, and monitor.

Standard H-4: Understand basic technical skills and knowledge in the occupational area of Horticulture.

Benchmark

D. Apply technical skills in a hands-on experiential setting in agriculture.

1. Fertilize media/soil.
2. Maintain houseplants.
3. Prepare plant media.
4. Apply nutrients, soil amendments, by preparing a compost pile.
5. Prepare/plant seeds.
6. Label plants.
7. Use correct horticulture terminology.
8. Label and price products.
9. Explain the propagation of plants by budding, grafting, and tissue culture techniques.
10. Maintain clean and orderly work area.
11. Identify midwestern turf grasses by common name.
12. Identify soil types for their fruit and vegetable production characteristics.
13. Prepare/transplant seedlings, cuttings, and daughter plants.
14. Explain the process of photosynthesis.
15. Explain factors affecting plant growth: light, water, temperature, humidity, nutrients (micro/macro) soils, atmosphere, and pollutants.
16. Define and identify hardiness zones.
17. Explain the system of scientific nomenclature for plants (e.g., families, genus, species).
18. Explain plant propagation from seed, cuttings, divisions, and layering.

19. Explain lawn and turf maintenance.