

Animal Science 2

Exam Information	Description
Exam number 123 Items 43 National Career Cluster Agriculture, Food & Natural Resources Certification available Yes	The Animal Science 2 industry certification assesses learners' knowledge of a wide range of animal agriculture principles, including anatomy and physiology, health maintenance, waste disposal, and facilities. Learners will be tested on the efficient production and effective management of selected animal enterprises, including beef and dairy cattle, swine, sheep and goats, poultry, and equine. Practices in veterinary medicine and those associated with small animal care are included.

Exam Blueprint and Performance Skills

Standard	Percentage of exam score
1. Candidate Organizations in Agricultural Ed.	8%
2. Agricultural Experience in Agricultural Ed.	4%
3. Principles to Improve Livestock Production	56%
4. Alternative Animals in Agriculture (optional)	0%
5. Small Animal Care Industry	15%
6. Safe and Efficient Livestock Production	7%
7. Veterinary Medicine	7%
8. Biotechnology in the Animal Industry	3%

*Includes performance skill evaluation

Standard 1 - Candidate Organizations in Agricultural Ed.

Candidates will develop personal, leadership, and career skills through candidate organization participation.

Objective 1 Assess the role of candidate organization participation in developing personal and leadership skills.

1. Identify important personal skills and the strategies to use in developing the skills.
2. Identify important leadership skills and the role of candidate organization participation in developing the skills.

Objective 2 Assess the role of candidate organization participation in developing career skills.

1. List and describe proficiency awards appropriate for animal science.
2. List and describe career development events appropriate for animal science.
3. Relate the importance of supervised agricultural experience to candidate organization achievement.
4. Utilize candidate organization and supervised agricultural experience participation to gain advanced degrees of candidate organization membership.

Optional: Standard performance evaluations on the final page of this document

Standard 2 - Agricultural Experience in Agricultural Ed.

Candidates will explain the maintenance and expansion of supervised agricultural experience programs in agricultural education.

Objective 1 Maintain and use agricultural experience records.

1. Explain how agricultural experience records are maintained from year to year.
2. Explain how to summarize and analyze agricultural experience records.

Objective 2 Devise long-range plans for expanding agricultural experience programs.

1. Evaluate the overall quality of a current agricultural experience and determine how to make it more productive or profitable.
 2. Explain factors that should be considered in expanding an agricultural experience program.
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3. Explain how placement agricultural experience and ownership agricultural experience programs may be expanded.

Optional: Standard performance evaluations on the final page of this document

Standard 3 - Principles to Improve Livestock Production

Candidates will apply management principles to improve livestock production systems.

Objective 1 Select the management principles appropriate for the beef industry.

1. Identify types of beef production systems.
2. Determine which breeds of beef animals are appropriate for the location, available facilities, and production system.
3. Select beef animals to improve herd genetics.
4. Determine the most cost-effective feeds for supplying a balanced ration for beef animals.
5. Describe the influence beef grade has on preparation procedures and retail price.
6. Compare and contrast beef marketing options.
7. Determine how federal price supports and marketing orders affect beef product prices.

Objective 2 Analyze dairy production practices.

1. Select dairy cattle to encourage herd improvement.
2. Determine the advantages and disadvantages of the major breeds of dairy cattle.
3. Determine practices in the care and management of dairy cattle to improve production and overall herd health.
4. Evaluate milk samples for quality and off-flavor characteristics.
5. Discuss the cheese-making process and identify different varieties of cheese.
6. Discuss consumer issues related to dairy production practices (e.g., rBST use).
7. Compare and contrast dairy marketing options.
8. Determine how dairy product prices are affected by federal price supports and marketing orders.

Objective 3 Determine effective swine management practices.

1. Compare and contrast various pork production systems.
2. Select swine appropriate for the location, available facilities, and production system.
3. Determine practices in the care and management of swine to improve production and overall herd health.
4. Describe the influence pork grade has on preparation procedures and retail price.
5. Compare and contrast methods of marketing hogs.
6. Determine how federal price supports and marketing orders affect pork product prices.

Objective 4 Analyze the sheep and goat industry.

1. Compare and contrast various sheep and goat production systems.
2. Select sheep and goats appropriate for the location, available facilities, and production system.
3. Determine practices in the care and management of sheep and goats to improve production and overall herd health.
4. Determine consumer demand and marketing opportunities for sheep and goat products.
5. Compare and contrast methods of marketing sheep and goat products.
6. Determine how federal price supports and marketing orders affect sheep and goat product prices.

Objective 5 Determine effective poultry production practices.

1. Compare and contrast various poultry production systems.
2. Determine practices in the care and management of poultry to improve production and overall flock health.
3. Determine the nutritional requirements of different types of poultry.
4. Determine the effect of environmental factors on poultry products.
5. Discuss consumer issues related to poultry production.
6. Compare and contrast methods of marketing poultry products.

Objective 6 Analyze the equine industry.

1. Compare and contrast characteristics of equine production systems.
2. Select equine animals based on pedigree.
3. Determine practices, equipment, supplies, and facilities for proper care of equines.
4. Demonstrate methods of handling horses safely.
5. Determine the nutritional requirements of horses.
6. Explain the methods of maintaining horse health and soundness.
7. Discuss equine marketing options and economic importance.

Optional: Standard performance evaluations on the final page of this document

Standard 4 - Alternative Animals in Agriculture (optional)

Candidates will analyze the role of alternative animals in agriculture.

Objective 1 Explore the alternative animal industry.

1. Identify specialty agricultural animals (e.g., rabbit, elk, bison, llama, alpaca, ostrich, emu, honeybee, fish, etc.).
2. List the advantages and disadvantages of raising specialty animals in agriculture.
3. Identify consumer products derived from specialty animals.

Objective 2 Investigate the management practices for alternative animals.

1. Discuss the importance of selection and genetics in alternative animals.
2. Compare and contrast nutritional needs of alternative animals.
3. Identify specific health and management needs of alternative animals.
4. Determine consumer demand and marketing opportunities for alternative animal products.

Standard 5 - Small Animal Care Industry

Candidates will analyze the small animal care industry.

Objective 1 Explore the small animal care industry.

1. Determine the scientific names and breeds for small animal species (e.g., dog, cat, reptile, rodent, bird, ornamental fish, etc.).
2. Investigate opportunities for employment and entrepreneurship in the small animal care industry.

Objective 2 Investigate the needs of small animals, including nutrition, housing, health management, and reproduction.

1. Determine the nutritional needs of common small animals.
2. Determine the housing and facility needs of common small animals.
3. Determine the health care needs of common small animals.
4. Compare and contrast the reproductive processes of common small animals.

Standard 6 - Safe and Efficient Livestock Production

Candidates will design needed facilities and equipment for the safe and efficient production of livestock.

Objective 1 Determine facilities and equipment needed to house and/or produce livestock.

1. Discuss how the natural behaviors of livestock are used in planning livestock facilities.
2. Identify facilities and equipment used in modern animal production.
3. Explain how appropriate facilities and equipment enhance the safe and efficient production of animals.

Objective 2 Plan a facility that meets standards for the legal, safe, ethical, and efficient production of livestock.

1. List the general standards for an animal facility.
2. Determine applicable industry and zoning standards for an animal facility.
3. Prepare a general description of an animal facility for a specific production enterprise, including a sketch of the facility layout.
4. Develop a biosecurity plan for an animal production facility.

Objective 3 Develop a waste management plan for an animal production enterprise.

1. Determine/estimate wastes produced by an animal production enterprise.
2. Investigate appropriate practices for the disposal of animal wastes.
3. Design a facility for the disposal of animal wastes.

Optional: Standard performance evaluations on the final page of this document.

Standard 7 - Veterinary Medicine

Candidates will investigate the role of veterinary medicine in the animal industry.

Objective 1 Explore the veterinary medicine industry.

1. Discuss the meaning and importance of veterinary medicine.
2. Describe the delivery of animal health care services, including the major activities in a veterinary medical facility.
3. Name and describe major occupations in veterinary medicine.

Objective 2 Identify common practices in the field of veterinary medicine.

1. Describe protocol in animal restraint.
2. Assess the vital signs of common agricultural animals.
3. Determine normal and abnormal internal sounds of animals.
4. Use laboratory testing to identify health conditions.
5. Determine methods used in the administration of medicines.
6. Use species-appropriate animal identification practices.

Standard 8 - Biotechnology in the Animal Industry

Candidates will recognize potential applications of biotechnology in the animal industry.

Objective 1 Distinguish potential applications of biotechnology in the animal industry.

1. Define biotechnology and explore the historical impact it has had on animal agriculture.
2. Investigate applications of biotechnology in animal agriculture.

Objective 2 Explore ethical, legal, social, and cultural issues associated with animal biotechnology.

1. Identify and evaluate risks associated with biotechnology in animal agriculture.
2. Define bioethics and explain its implications in animal agriculture.

Performance Skills Evaluation

Exam name: Animal Science 2

Candidate Name: _____

Performance assessments may be completed and evaluated any time before the certification is issued. The following performance skills can be used in connection with the associated standards and exam. The evaluator will function as the subject matter expert to determine if the candidate meets the skills requirements with a Yes/No for passing.

Standard 1 – Candidate Organization in Agricultural Education • Develop short and long-range leadership and personal development goals. • Attend a candidate organization meeting	Pass:
Standard 2 – Agricultural Experience in Agricultural Education • Develop short and long-range agricultural experience goals (optional) • Record all transactions and activities for an agricultural experience, using an approved record book (optional)	Pass:
Standard 3 – Principles to Improve Livestock Production Systems • Demonstrate methods of handling horses safely • Demonstrate the selection of superior horses • Identify breeds of poultry • Identify symptoms of poultry disease • Construct a DNA model • Identify the external anatomy of each species of livestock • Identify parts of the excretory system, nervous system, and reproductive system on each species of livestock • Evaluate and select livestock depending on intended use. • Demonstrate the proper care, feeding, and handling of common small animals	Pass:
Standard 6 – Safe and Efficient Production of Livestock • Plan and design an animal waste disposal system	Pass:

Evaluator Name: _____

Date: _____