Appendix A: AFNR Career Cluster Content Standards-Livestock

	Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution.			Science: C3 Social Studies: 7h
	AS.01.01.01.c. Predict adaptations of animals to production practices and environments.	All activities	
AS.02.02. Performance Indicator: Apply principles of comparative anatomy and physiology to uses within various animal systems.			Science: C1, C5 and F2
	AS.02.02.01.c. Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals.	All activities	
AS.02.03. Performance Indicator: Select animals for specific purposes and maximum performance based on anatomy and physiology.			Science: C5
	AS.02.03.01.c. Evaluate and select animals to maximize performance based on anatomical and physio- logical characteristics that affect health, growth and reproduction.	All activities	
	AS.02.03.02.b. Assess an animal to determine if it has reached its optimal performance level based on anatomical and physiological characteristics.	All activities	
AS.03.01. Performance Indicator: Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders.			Science: C4, F1 and F5
	AS.03.01.01.a. Explain methods of determining animal health and disorders.	Exam	
AS.04.01. Performance Indicator: Formulate feed rations to provide for the nutritional needs of animals.			Math: 1C and 6B Science: A4 and C5
	AS.04.01.02.b. Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements and performance.	Team activity, exam, performance class, keep/cull	
AS.05.01. Performance Indicator: Evaluate the male and female reproductive systems in selecting animals.			Science: C1 and C3
	AS.05.01.01.c. Select breeding animals based on characteristics of the reproductive organs.	All activities	
AS.05.02. Performance Indicator: Evaluate animals for breeding readiness and soundness.			Science: C6
	AS.05.02.01.c. Evaluate and select animals for reproductive readiness.	All activities	
	AS.05.02.02.c. Treat or cull animals with reproductive problems.	Keep/cull, performance class, placing classes, reasons	

AS.05.03. Performance Indicator: Apply scientific principles in the selection and breeding of animals.			Math: 6C Science: A4, C2 and E2
	AS.05.03.01.c. Select a breeding system based on the principles of genetics.	Performance class, team activity, keep/cull, exam	
	AS.05.03.02.c. Select animal breeding methods based on reproductive and economic efficiency.	Exam, team activity	
	AS.05.03.03.c. Select animals based on quantitative breeding values for specific characteristics.	Team activity, keep/cull, performance class	
	AS.05.03.04.b. Explain the processes of major reproductive management practices, including estrous synchronization, superovulation, flushing and embryo transfer.	Exam	
	AS.05.03.05.b. Explain the materials, methods and processes of artificial insemination.	Exam	
AS.06.01. Performance Indicator: Demonstrate safe animal handling and management techniques.			Science: C6
	AS.06.01.02.a. Explain the implications of animal welfare and animal rights for animal agriculture.	Exam, team activity	
AS.06.02. Performance Indicator: Implement procedures to ensure that animal products are safe.			Science: F1 and F5
	AS.06.02.01.a. Identify animal production practices that could pose health risks or are considered to pose risks by some.	Exam, team activity	
	AS.06.02.02.a. Describe how animal identification systems can track an animal's location, nutrition requirements, production progress and changes in health.	Exam, team activity	
AS.07.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.			Science: C6 and F6
	AS.07.01.01.a. Identify facilities needed to house and produce each animal species safely and efficiently.	Exam, team activity	
AS.08.02. Performance Indicator: Evaluate the effects of environmental conditions on animals.			Science: C6 and F4
	AS.08.02.01.b. Describe the effects of environmental conditions on animal populations and performance.	Team activity, exam, performance class, keep/cull	

Appendix B: Related Academic Standards-Livestock

National academic standards for mathematics, science, English language arts and social studies related to this event are reported below. The statements are based on information in reports of the respective associations/organizations in the academic areas. Some adjustment of numbering was done to facilitate the process of alignment with the standards that have been developed in the pathways of the (AFNR).

The approach was to determine the presence of alignment between the content standards, expectations or thematic strands of the four academic areas and the performance indicators of the AFNR Standards. Supporting statements have been included to clarify content of the respective content standards, expectations or thematic strands. The statements were initially developed independently by the respective organizations and, therefore, are not parallel in wording and presentation. Occasionally minor editing was done to adjust the background or stem of a statement but not the statement itself.

Mathematics

1. Standard and Expectations: Number and Operations
1C. Compute fluently and make reasonable estimates.
6. Standard and Expectations: Problem Solving
6B. Solve problems that arise in mathematics in other contexts.
6C. Apply and adapt a variety of appropriate strategies to solve problems.

Science

A. Content Standard: Science as an Inquiry
A4. Formulate and revise scientific explanations and models using logic and evidence.
C. Content Standard: Life Science
C1. The cell
C2. Molecular basis of heredity
C3. Biological evolution
C4. Interdependence of organisms
C5. Matter, energy and organization in living systems
C6. Behavior of organisms
E. Content Standard: Science and Technology
E2. Understanding about science and technology
F. Content Standard: Science in Personal and Social Perspectives
F1. Personal and community health
F2. Population growth
F4. Environmental quality
F5. Natural and human-induced hazards
F6. Science and technology in local, national and global challenges

English Language Arts

12. Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Social Studies

7. Thematic Strand: Production, Distribution and Consumption
7h. apply economic concepts and reasoning when evaluating historical and contemporary social developments and issue