

Appendix A: AFNR Career Cluster Content Standards-**Dairy Cattle**

	CS.02.05.03.c. Exhibit self- confidence while in the workplace.	presentation	
CS.03.01. Performance Indicator: Communication: Demonstrate oral, writ- ten and verbal skills.			Language Arts: 4, 5 and 12
	CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.	written plan	
	CS.03.01.03.c. Make effective business presentations.	presentation	
	Performance Measurement Levels	Event Activity Addressing Measurement	Related Academic Standards
ABS.07.02. Performance Indicator: Develop a production and operational plan.			Language Arts: 4, 5, 6 and 12
	ABS.07.02.01.b. Evaluate the components of a production and operational plan and then revise an existing plan.	team activity	
	ABS.07.02.02.a. Identify common resources needed to operate a production facility.	team activity	
ABS.07.03. Performance Indicator: Utilize appropriate techniques to deter- mine the most likely strengths, weaknesses and inconsistencies in a business plan and relate these to risk management strategies.			Language Arts: 12
	ABS.07.03.01.b. Describe approaches to use in revising a business plan for improved consistency and realism.	team activity	
AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution.			Science: C3 Social Studies: 7h
	AS.01.01.02.a. Define major components of the animal industry.	exam	
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.	team activity	
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 physiological characteristics that affect health, growth and reproduction.	evaluation	
	AS.02.03.02.c. Develop efficient procedures to pro- duce consistently high-quality animals, well suited for their intended purposes.	team activity	
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.03.01.02.a. Identify common diseases, parasites and physiological disorders that affect animals.	exam, team activity	
	AS.03.01.03.b. Evaluate preventive measures for controlling and limiting the spread of diseases, parasites and disorders among animals.	team activity	
AS.03.02. Performance Indicator: Provide for the biosecurity of agricultural animals and production facilities.			Science: F5 and F6 Social Studies: 9d
	AS.03.02.01.a. Explain the importance of biosecurity to the animal industry.	exam	
	AS.03.02.01.b. Discuss procedures at the local, state and national levels to ensure biosecurity of the animal industry.	team activity	
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.04.01.01.b. Determine the relative nutritional value of feedstuffs by evaluating their general quality and condition.	exam	
	AS.04.01.01.c. Select appropriate feedstuffs for animals based on factors such as economics, digestive system and nutritional needs.	team activity	
	AS.04.01.02.a. Explain the importance of a balanced ration for animals.	exam	
	AS.04.01.02.b. Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements and performance.	team activity	
AS.04.02. Performance Indicator: Prescribe and administer animal feed additives and growth promotions in animal production.			Science: C5
	AS.04.02.01.b. Discuss how feed additives and growth promotions are administered and the precautions that should be taken.	exam, team activity	
AS.05.01. Performance Indicator: Evaluate the male and female reproductive systems in selecting animals.			Science: C1 and C3
	AS.05.01.01.a. Explain the male and female reproductive organs of the major animal species.	exam	
AS.05.02. Performance Indicator: Evaluate animals for breeding readiness and soundness.			Science: C6
	AS.05.02.02.c. Treat or cull animals with reproductive problems.	exam, team	

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.	team activity	
	AS.05.03.02.c. Select animal breeding methods based on reproductive and economic efficiency.	team activity	
	AS.05.03.03.a. Explain the use of quantitative breeding values (e.g., EPDs) in the selection of genetically superior breeding stock.	exam	
	AS.05.03.03.c. Select animals based on quantitative breeding values for specific characteristics.	team activity	
	AS.05.03.04.b. Explain the processes of major reproductive management practices, including estrous synchronization, superovulation, flushing and embryo transfer.	exam, team activity	
	AS.05.03.05.b. Explain the materials, methods and processes of artificial insemination.	exam, team	
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.b. Critique designs for an animal facility and prescribe alternative layouts and adjustments for the safe and efficient use of the facility.	team activity	
	AS.07.01.02.b. Explain how modern equipment and handling facilities enhance the safe and economic production of animals.	team activity	
AS.08.01. Performance Indicator: Reduce the effects of animal production on the environment.			Science: C4 and F4
	AS.08.01.01.a. Evaluate the effects of animal agriculture on the environment.	exam	
	AS.08.01.01.b. Outline methods of reducing the effects of animal agriculture on the environment.	team activity	
AS.08.02. Performance Indicator: Evaluate the effects of environmental conditions on animals.			Science: C6 and F4
	AS.08.02.01.a. Identify optimal environmental conditions for animals.	exam	
	AS.08.02.01.b. Describe the effects of environmental conditions on animal populations and performance.	team activity	
CS.01.05. Performance Indicator: Awareness: Desire purposeful understanding related to professional and personal activities.			Language Arts: 1 Social Studies: 1e, 4e, 10b and 10j
	CS.01.05.01.c. Articulate current issues that are important to the local, state, national and global communities.	presentation	

CS.02.02. Performance Indicator: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.		Language Arts: 12 Social Studies: 1e
CS.02.02.02.c. Present oneself appropriately in various settings.	presentation	
CS.02.05. Performance Indicator: Emotional Growth: Demonstrate healthy responses to one's feelings.		Social Studies: 4a

Appendix B: Related Academic Standards- **Dairy Cattle**

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 Agriculture, Food and Natural Resources (AFNR) Career Cluster.

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
 - F4. Environmental quality.
 - F5. Natural and human-induced hazards.
 - F6. Science and technology in local, national and global challenges. E2. Understanding about science and technology.

F. Content Standard: Science in Personal and Social Perspectives

F1. Personal and
community health.

F2. Population
growth.

English Language Arts

4. Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.

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 issues;