

LIVESTOCK PRODUCTION

#01061

Description

This course is designed to prepare students for careers in the field of animal science and production in species including, but not limited to, beef cattle, dairy cattle, swine, sheep, goats, and poultry. The student will demonstrate technical skills relating to the interrelated human, botanical, scientific, and technological dimensions of animal systems and be able to assess the importance of the United States impact on world commodity markets while applying the principles of livestock breeding and nutrition in predicting the impact of current advances in genetics. The student is expected to describe common veterinary procedures and skills, practice proper animal restraint techniques, demonstrate identification techniques, and demonstrate effective management strategies. The student will learn the anatomy and physiology related to nutrition, reproduction, health, and management of domesticated animals while understanding the nutritional requirements of ruminant and non-ruminant animals. The student is expected to discuss feeding practices and feed quality issues, explain animal genetics and reproduction, and research current and emerging technologies in animal reproduction. The student identifies animal pests and diseases and methods of disease control, treatment, and prevention. The student knows the factors impacting commodity prices and costs.

Grade 10-12

½ or 1 credit

Max Credit = 1

Standard 1	AGRICULTURE, FOOD, & NATURAL RESOURCES (AFNR) CLUSTER SKILLS			
Topic 1.5	<i>Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food, & Natural Resources career pathways.</i>			
Student Competencies				
	1.5.1	EVALUATE AND IMPLEMENT THE STEPS AND REQUIREMENTS TO PURSUE A CAREER OPPORTUNITY IN EACH OF THE AFNR CAREER PATHWAYS (E.G., GOALS, DEGREES, CERTIFICATIONS, RESUMES, COVER LETTER, PORTFOLIOS, INTERVIEWS, ETC.).		
			1.5.1.1	Identify and summarize the steps to pursue a career in an AFNR pathway (e.g., self-assessment, set goals, etc.).
			1.5.1.2	Examine the educational, training, and experiential requirements to pursue a career in an AFNR pathway (e.g., degrees, certifications, training, internships, etc.).
			1.5.1.3	Research and summarize specific tools (e.g., resumes, portfolios, cover letters, etc.) and processes (e.g., interviews, applications, etc.) needed to pursue a career in an AFNR pathway.
			1.5.1.4	Create a personal plan outlining goals and steps to obtain a career in an AFNR pathway.
			1.5.1.5	Analyze personal skillset and create a plan for obtaining the required education, training, and experiences to obtain a career in an AFNR pathway.
			1.5.1.6	Assess personal goals, experiences, education, and skillsets and organize them to produce the appropriate tools and develop the skills to effectively communicate about one’s qualifications for an AFNR career.
			1.5.1.7	Evaluate progress toward AFNR career goals and identify opportunities for improvement and necessary adjustments to one’s plan of action.
			1.5.1.8	Implement one’s personal plan of action for obtaining the required education, training, and experiences and evaluate progress to identify opportunities for improvement and necessary adjustments.
1.5.1.9	Evaluate, update, and improve a set of personal tools to reflect current skills, experiences, education, goals, etc. and complete the processes needed to pursue and obtain a career in an AFNR pathway.			
	1.5.2	EXAMINE AND CHOOSE CAREER OPPORTUNITIES THAT ARE MATCHED TO PERSONAL SKILLS, TALENTS, AND CAREER GOALS IN AN AFNR PATHWAY OF INTEREST.		
			1.5.2.1	Examine and categorize careers in each of the AFNR pathways.
			1.5.2.2	Research and describe careers in each of the AFNR pathways and choose potential careers connecting to personal interests and skills.
			1.5.2.3	Assess personal skills and align them with potential career opportunities in AFNR pathways.
1.5.2.4	Assemble and analyze examples of careers and related statistics on a local, state, national, and global level.			

	1.5.2.5	Interpret and evaluate the results of a personal career assessment and connect them to potential careers in AFNR pathways.
	1.5.2.6	Conduct interviews with career professionals within AFNR pathways and summarize the results.

Standard 3	ANIMAL SYSTEMS	
Topic 3.1	<i>Analyze historic and current trends impacting the animal systems industry.</i>	
	Student Competencies	
	3.1.1	EVALUATE THE DEVELOPMENT AND IMPLICATIONS OF ANIMAL ORIGIN, DOMESTICATION, AND DISTRIBUTION ON PRODUCTION PRACTICES AND THE ENVIRONMENT.
	3.1.1.1	Identify and summarize the origin, significance, distribution, and domestication of different animal species.
	3.1.1.2	Research and summarize major components of animal systems (e.g., livestock, companion animal, etc.).
	3.1.1.3	Evaluate and describe characteristics of animals that developed in response to the animal's environment and led to their domestication.
	3.1.1.4	Describe the historical and scientific developments of different animal industries and summarize the products, services, and careers associated with each.
	3.1.1.5	Evaluate the implications of animal adaptations on production practices and the environment.
	3.1.1.6	Predict trends and implications of future developments within different animal industries on production practices and the environment.
	3.1.2	ASSESS AND SELECT ANIMAL PRODUCTION METHODS FOR USE IN ANIMAL SYSTEMS BASED UPON THEIR EFFECTIVENESS AND IMPACTS.
	3.1.2.1	Identify and categorize terms and methods related to animal production (e.g., sustainable, conventional, humanely raised, natural, organic, etc.).
	3.1.2.2	Research and examine marketing methods for animal products and services (e.g., conventional, niche markets, locally grown, etc.).
	3.1.2.3	Summarize the types, purposes, and characteristics of effective record keeping and documentation practices for animal systems enterprises (e.g., managing records for animal identification, feeding, breeding, treatment, income/expense, etc.).
	3.1.2.4	Identify and summarize wildlife management methods.
	3.1.2.5	Analyze the impact of animal production methods on end product qualities (e.g., price, sustainability, marketing, labeling, animal welfare, etc.).
	3.1.2.6	Calculate costs of marketing versus predicted increases in sales.
	3.1.2.7	Analyze and evaluate the accuracy and effectiveness of records used in an animal system business.

	3.1.2.8	Research and summarize local wildlife populations, challenges and ecological measures that are being utilized.
	3.1.2.9	Evaluate the effectiveness of different production methods and defend the use of selected methods using data and evidence.
	3.1.2.10	Devise and evaluate marketing plans for an animal agriculture product or service.
	3.1.2.11	Select and defend the use of a specific record management system based upon its effectiveness for a business related to animal systems.
	3.1.2.12	Devise and evaluate plans to manage wildlife populations to achieve optimal ecological health.
	3.1.3	ANALYZE AND APPLY LAWS AND SUSTAINABLE PRACTICES TO ANIMAL AGRICULTURE FROM A GLOBAL PERSPECTIVE.
	3.1.3.1	Distinguish between the types of laws pertaining to animal systems.
	3.1.3.2	Research and summarize sustainability in animal systems.
	3.1.3.3	Analyze the structure of laws governing animal industries, international trade, and animal production policies.
	3.1.3.4	Analyze the local and global impact of sustainable animal agriculture practices on human and environmental systems.
	3.1.3.5	Evaluate the impact of laws pertaining to animal agriculture (e.g., pros, cons, effect on individuals, effect on businesses, etc.) and assess the compliance of production practices with established regulations.
	3.1.3.6	Select, evaluate and defend the use of sustainable practices in animal agriculture.
Topic 3.2	<i>Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.</i>	
Student Competencies		
	3.2.1	DEMONSTRATE MANAGEMENT TECHNIQUES THAT ENSURE ANIMAL WELFARE.
	3.2.1.1	Explain the implications of animal welfare and animal rights for animal systems.
	3.2.1.2	Research and summarize the challenges involved in working with animals and resources available to overcome them (e.g., tools, technology, equipment, facilities, animal behavior signals, etc.).
	3.2.1.3	Distinguish between animal husbandry practices that promote animal welfare and those that do not.
	3.2.1.4	Design programs that assure the welfare of animals and prevent abuse or mistreatment.
	3.2.1.5	Analyze and document animal welfare procedures used to ensure safety and maintain low stress when moving and restraining animals.
	3.2.1.6	Analyze and document animal husbandry practices and their impact on animal welfare.
	3.2.1.7	Implement and evaluate quality-assurance programs and procedures for animal production.
	3.2.1.8	Devise, implement and evaluate safety procedures and plans for working with animals by species using information based on animal behavior and responses.
	3.2.1.9	Devise economical recommendations to increase the welfare of animals in animal systems.

	3.2.2	ANALYZE PROCEDURES TO ENSURE THAT ANIMAL PRODUCTS ARE SAFE FOR CONSUMPTION (E.G., USE IN FOOD SYSTEM, ETC.).
	3.2.2.1	Identify and categorize tools, technology and equipment used in animal husbandry and welfare to help provide an abundant and safe food supply.
	3.2.2.2	Research and summarize animal production practices that may pose health risks.
	3.2.2.3	Identify and describe animal tracking systems used in animal systems (e.g., livestock, companion animal, exotics, etc.).
	3.2.2.4	Utilize tools, technology, and equipment to perform animal husbandry and welfare tasks.
	3.2.2.5	Analyze consumer concerns with animal production practices relative to human health.
	3.2.2.6	Analyze and summarize the impact of animal trace-back capabilities on producers and consumers.
	3.2.2.7	Select, evaluate and defend the use of specific tools, technology, or equipment used to perform animal husbandry and welfare tasks.
	3.2.2.8	Research and evaluate programs to assure the safety of animal products for consumption.
	3.2.2.9	Evaluate the effectiveness of animal and/or premise identification programs for a given species.
Topic 3.3	<i>Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction, and/or economic production.</i>	
	Student Competencies	
	3.3.1	ANALYZE THE NUTRITIONAL NEEDS OF ANIMALS.
	3.3.1.1	Identify and summarize essential nutrients required for animal health and analyze each nutrient's role in growth and performance.
	3.3.1.2	Differentiate between nutritional needs of animal species.
	3.3.1.3	Differentiate between nutritional needs of animals in different growth stages and production systems (e.g., maintenance, gestation, natural, organic, etc.).
	3.3.1.4	Correlate a species' nutritional needs to feedstuffs that could meet those needs.
	3.3.1.5	Assess nutritional needs for an individual animal based on its growth stage and production system.
	3.3.1.6	Design and defend the use of a nutritional program by demonstrating the relationship between the nutrient requirements and the feedstuffs provided.
	3.3.2	ANALYZE FEED RATIONS AND ASSESS IF THEY MEET THE NUTRITIONAL NEEDS OF ANIMALS.
	3.3.2.1	Compare and contrast common types of feedstuffs and the roles they play in the diets of animals.
	3.3.2.2	Examine the importance of a balanced ration for animals based on the animal's growth stage (e.g., maintenance, newborn, gestation, lactation, etc.).
	3.3.2.3	Examine the purpose, impact and mode of action of feed additives and growth promotants in animal production.
	3.3.2.4	Determine the relative nutritional value of feedstuffs by evaluating their general quality and condition.
	3.3.2.5	Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements, and performance.

	3.3.2.6	Compare and contrast methods that utilize feed additives and growth promotants with production practices that do not (e.g., organic versus conventional production methods).
	3.3.2.7	Select appropriate feedstuffs for animals based on a variety of factors (e.g., economics, digestive system, and nutritional needs, etc.).
	3.3.2.8	Select and utilize animal feeds based on nutritional requirements, using rations for maximum nutrition and optimal economic production.
	3.3.2.9	Make and defend decisions regarding whether to use feed additives and growth promotants after researching and considering scientific evidence, production system needs and goals, and input from industry professionals.
	3.3.3	UTILIZE INDUSTRY TOOLS TO MAKE ANIMAL NUTRITION DECISIONS.
	3.3.3.1	Identify and categorize tools and equipment used to meet animal nutrition needs and ensure an abundant and safe food supply.
	3.3.3.2	Examine and summarize the meaning of various components of feed labels and feeding directions.
	3.3.3.3	Examine the use of technology to provide animal nutrition.
	3.3.3.4	Utilize tools and equipment to perform animal nutrition tasks.
	3.3.3.5	Analyze and apply information from a feed label and feeding directions to feed animals.
	3.3.3.6	Analyze technologies used to provide animal nutrition and summarize their potential benefits and consequences.
	3.3.3.7	Select, evaluate, and defend the use of specific tools or equipment used to perform animal nutrition tasks.
	3.3.3.8	Evaluate and summarize the potential impacts, positive and negative, of compliance and/or noncompliance with a feed label and feeding directions.
	3.3.3.9	Research and recommend technology improvements to provide proper nutrition to animals.
Topic 3.4	<i>Apply principles of animal reproduction to achieve desired outcomes for performance, development, and/or economic production.</i>	
	Student Competencies	
	3.4.1	EVALUATE ANIMALS FOR BREEDING READINESS AND SOUNDNESS.
	3.4.1.1	Identify and categorize the male and female reproductive organs of the major animal species.
	3.4.1.2	Compare and contrast how age, size, life cycle, maturity level, and health status affect the reproductive efficiency of male and female animals.
	3.4.1.3	Summarize the importance of efficient and economic reproduction in animals.
	3.4.1.4	Analyze the functions of major organs in the male and female reproductive systems.
	3.4.1.5	Assess and describe factors that lead to reproductive maturity.
	3.4.1.6	Evaluate reproductive problems that occur in animals.
	3.4.1.7	Select breeding animals based on characteristics of the reproductive organs.
	3.4.1.8	Evaluate and select animals for reproductive readiness.
	3.4.1.9	Treat or cull animals with reproductive problems.

3.4.2	APPLY SCIENTIFIC PRINCIPLES TO SELECT AND CARE FOR BREEDING ANIMALS.	
	3.4.2.1	Summarize genetic inheritance in animals.
	3.4.2.2	Identify and summarize inheritance and terms related to inheritance in animal breeding (e.g., dominate, co-dominate, recessive, homozygous, heterozygous, etc.).
	3.4.2.3	Identify and summarize genetic defects that affect animal performance.
	3.4.2.4	Identify and summarize different needs of breeding animals based on their growth stages (e.g., newborn, parturition, gestation, gestation lengths, etc.).
	3.4.2.5	Compare and contrast the use of genetically superior animals in the production of animals and animal products.
	3.4.2.6	Demonstrate how to determine probability trait inheritance in animals.
	3.4.2.7	Analyze how DNA analysis can detect genetic defects in breeding stock.
	3.4.2.8	Analyze the care needs for breeding stock in each stage of growth.
	3.4.2.9	Select and evaluate a breeding system based on the principles of genetics.
	3.4.2.10	Select and evaluate breeding animals and determine the probability of a given trait in their offspring.
	3.4.2.11	Perform a DNA analysis and use the data to make and defend breeding decisions.
	3.4.2.12	Create a plan to differentiate care of a species of breeding animals throughout their growth stages.
3.4.3	APPLY SCIENTIFIC PRINCIPLES TO BREED ANIMALS.	
	3.4.3.1	Identify and categorize natural and artificial breeding methods (e.g., natural breeding, artificial insemination, estrous synchronization, flushing, cloning, etc.).
	3.4.3.2	Analyze the materials, methods and processes of artificial insemination.
	3.4.3.3	Identify and summarize the advantages and disadvantages of major reproductive management practices, including estrous synchronization, superovulation, flushing, and embryo transfer (e.g., cost, labor, equipment, etc.).
	3.4.3.4	Examine the use of quantitative breeding values (e.g., EPDs, Performance records, pedigrees) in the selection of genetically superior breeding stock.
	3.4.3.5	Calculate the potential economic benefits of natural versus artificial breeding methods.
	3.4.3.6	Demonstrate artificial insemination techniques.
	3.4.3.7	Analyze the processes of major reproductive management practices, including estrous synchronization, superovulation, flushing, and embryo transfer.
	3.4.3.8	Compare and contrast quantitative breeding value differences between genetically superior animals and animals of average genetic value.
	3.4.3.9	Select animal breeding methods based on reproductive and economic efficiency.
	3.4.3.10	Evaluate the implementation and effectiveness of artificial insemination techniques.
	3.4.3.11	Create and evaluate plans and procedures for estrous synchronization, superovulation, flushing, embryo transfer, and other reproductive management practices.
	3.4.3.12	Select and assess animal performance based on quantitative breeding values for specific characteristics.

Topic 3.5	<i>Evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health.</i>	
	Student Competencies	
	3.5.1	DESIGN ANIMAL HOUSING, EQUIPMENT, AND HANDLING FACILITIES FOR THE MAJOR SYSTEMS OF ANIMAL PRODUCTION.
	3.5.1.1	Differentiate between the types of facilities needed to house and produce animal species safely and efficiently.
	3.5.1.2	Identify and summarize equipment, technology, and handling facility procedures used in modern animal production (e.g., climate control devices, sensors, automation, etc.).
	3.5.1.3	Critique designs for an animal facility and prescribe alternative layouts and adjustments for the safe, sustainable, and efficient use of the facility.
	3.5.1.4	Analyze the use of modern equipment, technology, and handling facility procedures and determine if they enhance the safe, economic and sustainable production of animals.
	3.5.1.5	Design an animal facility focusing on animal requirements, economic efficiency, sustainability, safety, and ease of handling.
	3.5.1.6	Select, use, and evaluate equipment, technology, and handling procedures to enhance sustainability and production efficiency.
	3.5.2	COMPLY WITH GOVERNMENT REGULATIONS AND SAFETY STANDARDS FOR FACILITIES USED IN ANIMAL PRODUCTION.
	3.5.2.1	Identify and summarize the general standards that must be met in facilities for animal production (e.g., environmental, zoning, construction, etc.).
	3.5.2.2	Distinguish between the types of laws and regulations pertaining to animal systems.
	3.5.2.3	Analyze animal facilities to determine if standards have been met.
	3.5.2.4	Analyze the structure of laws pertaining to animal systems.
	3.5.2.5	Evaluate facility designs and make recommendations to ensure that it meets standards for the legal, safe, ethical, economical, and efficient production of animals.
	3.5.2.6	Evaluate the impact of laws pertaining to animal systems.
Topic 3.6	<i>Classify, evaluate, and select animals based on anatomical and physiological characteristics.</i>	
	Student Competencies	
	3.6.1	CLASSIFY ANIMALS ACCORDING TO TAXONOMIC CLASSIFICATION SYSTEMS AND USE (E.G. AGRICULTURAL, COMPANION, ETC.).
	3.6.1.1	Explain the importance of the binomial nomenclature system for classifying animals.
	3.6.1.2	Compare and contrast major uses of different animal species (e.g., agricultural, companion, etc.).
	3.6.1.3	Identify and summarize common classification terms utilized in animal systems (e.g., external and internal body parts, maturity, mature male, immature female, animal products, breeds, etc.).
	3.6.1.4	Explain how animals are classified using a taxonomic classification system.

	3.6.1.5	Appraise and evaluate the economic value of animals for various applications in the agriculture industry.
	3.6.1.6	Analyze the visual characteristics of an animal or animal product and select correct classification terminology when referring to companion and production animals.
	3.6.1.7	Assess taxonomic characteristics and classify animals according to the taxonomic classification system.
	3.6.1.8	Recommend different uses for an animal species based upon an analysis of local market needs.
	3.6.1.9	Apply knowledge of classification terms to communicate with others about animal systems in an effective and accurate manner.
	3.6.2	APPLY PRINCIPLES OF COMPARATIVE ANATOMY AND PHYSIOLOGY TO USES WITHIN VARIOUS ANIMAL SYSTEMS.
	3.6.2.1	Research and summarize characteristics of a typical animal cell and identify the organelles.
	3.6.2.2	Examine the basic functions of animal cells in animal growth and reproduction.
	3.6.2.3	Identify and summarize the properties, locations, functions, and types of animal cells, tissues, organs, and body systems.
	3.6.2.4	Analyze the functions of each animal cell structure.
	3.6.2.5	Analyze the processes of meiosis and mitosis in animal growth, development, health, and reproduction.
	3.6.2.6	Compare and contrast animal cells, tissues, organs, body systems types, and functions among animal species.
	3.6.2.7	Correlate the functions of animal cell structures to animal growth, development, health, and reproduction.
	3.6.2.8	Apply the processes of meiosis and mitosis to solve animal growth, development, health, and reproductive problems.
	3.6.2.9	Apply knowledge of anatomical and physiological characteristics of animals to make production and management decisions.
	3.6.3	SELECT AND TRAIN ANIMALS FOR SPECIFIC PURPOSES AND MAXIMUM PERFORMANCE BASED ON ANATOMY AND PHYSIOLOGY.
	3.6.3.1	Identify and summarize how an animal's health can be affected by anatomical and physiological disorders.
	3.6.3.2	Evaluate an animal against its optimal anatomical and physiological characteristics.
	3.6.3.3	Research and summarize the use of products and by-products derived from animals.
	3.6.3.4	Compare and contrast desirable anatomical and physiological characteristics of animals within and between species.
	3.6.3.5	Compare and contrast procedures to sustainably and efficiently develop an animal to reach its highest performance potential with respect to its anatomical and physiological characteristics.
	3.6.3.6	Evaluate and select products from animals based on industry standards.

	3.6.3.7	Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth, and reproduction.
	3.6.3.8	Choose, implement, and evaluate sustainable and efficient procedures (e.g., selection, housing, nutrition, and management) to produce consistently high-quality animals that are well suited for their intended purposes.
	3.6.3.9	Evaluate and select animals to produce superior animal products based on industry standards.
Topic 3.7	<i>Apply principles of effective animal health care.</i>	
	Student Competencies	
	3.7.1	DESIGN PROGRAMS TO PREVENT ANIMAL DISEASES, PARASITES, AND OTHER DISORDERS AND ENSURE ANIMAL WELFARE.
	3.7.1.1	Identify and summarize specific tools and technology used in animal health management.
	3.7.1.2	Explain methods of determining animal health and disorders.
	3.7.1.3	List and summarize the characteristics of wounds, common diseases, parasites, and physiological disorders that affect animals.
	3.7.1.4	Identify and summarize characteristics of causal agents and vectors of diseases and disorders in animals.
	3.7.1.5	Explain the clinical significance of common veterinary methods and treatment (e.g., aseptic techniques, antibiotic use, wound management, etc.).
	3.7.1.6	Describe and demonstrate the proper use and function of specific tools and technology related to animal health management.
	3.7.1.7	Perform simple health-check evaluations on animals and practice basic emergency response procedures related to animals.
	3.7.1.8	Identify and describe common illnesses and disorders of animals based on symptoms and problems caused by wounds, diseases, parasites, and physiological disorders.
	3.7.1.9	Research and analyze data to evaluate preventive measures for controlling and limiting the spread of diseases, parasites, and disorders among animals.
	3.7.1.10	Assess the safety and effectiveness of facilities and equipment used for surgical and nonsurgical veterinary treatments and procedures.
	3.7.1.11	Select and use tools and technology to meet specific animal health management goals.
	3.7.1.12	Determine when an animal health concern needs to be referred to an animal health professional.
	3.7.1.13	Treat common diseases, parasites and physiological disorders of animals according to directions prescribed by an animal health professional.
	3.7.1.14	Design and implement a health maintenance and a disease and disorder prevention plan for animals in their natural and/or confined environments.
	3.7.1.15	Identify and describe surgical and nonsurgical veterinary treatments and procedures to meet specific animal health care objectives.

	3.7.2	ANALYZE BIOSECURITY MEASURES UTILIZED TO PROTECT THE WELFARE OF ANIMALS ON A LOCAL, STATE, NATIONAL, AND GLOBAL LEVEL.	
	3.7.2.1	Summarize the importance of biosecurity to the animal industry at multiple levels (e.g., local, state, national, global).	
	3.7.2.2	Identify and describe zoonotic diseases including their historical significance and potential future implications.	
	3.7.2.3	Analyze procedures at the local, state, and national levels to ensure biosecurity of the animal industry.	
	3.7.2.4	Analyze the health risk of different zoonotic diseases to humans and identify prevention methods.	
	3.7.2.5	Design and evaluate a biosecurity plan for an animal production operation.	
	3.7.2.6	Research and evaluate the effectiveness of zoonotic disease prevention methods and procedures to identify those that are best suited to ensure public safety and animal welfare.	
Topic 3.8	<i>Analyze environmental factors associated with animal production.</i>		
Student Competencies			
	3.8.1	DESIGN AND IMPLEMENT METHODS TO REDUCE THE EFFECTS OF ANIMAL PRODUCTION ON THE ENVIRONMENT.	
	3.8.1.1	Identify and summarize the effects of animal agriculture on the environment (e.g., waste disposal, carbon footprint, air quality, environmental efficiencies, etc.).	
	3.8.1.2	Assess the effectiveness of methods of reducing the effects of animal agriculture on the environment.	
	3.8.1.3	Devise a plan that includes measures to reduce the impact of animal agriculture on the environment.	
	3.8.2	EVALUATE THE EFFECTS OF ENVIRONMENTAL CONDITIONS ON ANIMALS AND CREATE PLANS TO ENSURE FAVORABLE ENVIRONMENTS FOR ANIMALS.	
	3.8.2.1	Research and summarize environmental conditions that impact animals (e.g., weather, sources of water, food resources, etc.).	
	3.8.2.2	Identify and summarize methods for ensuring optimal environmental conditions for animals.	
	3.8.2.3	Critique the reliability and validity of evidence presented to support claims regarding the effects of environmental conditions on animal populations and performance (e.g., population changes, emerging species, extinction, etc.).	
	3.8.2.4	Implement and evaluate the effectiveness of methods to ensure optimal environmental conditions for animals.	
	3.8.2.5	Apply valid and reliable research evidence to predict the potential effects of different environmental conditions for an animal population.	
	3.8.2.6	Devise and improve plans to establish favorable environmental conditions for animal growth and performance based on a variety of factors (e.g., economic feasibility, environmental sustainability, impact on animals, etc.).	

Career Ready Practices (CRP)

FFA & SUPERVISED AGRICULTURAL EXPERIENCE

CRP 1	Act as a responsible and contributing citizen and employee.
CRP 2	Apply appropriate academic and technical skills.
CRP 3	Attend to personal health and financial well-being.
CRP 4	Communicate clearly, effectively, and with reason.
CRP 5	Consider the environmental, social, and economic impacts of decisions.
CRP 6	Demonstrate creativity and innovation.
CRP 7	Employ valid and reliable research strategies.
CRP 8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP 9	Model integrity, ethical leadership, and effective management.
CRP 10	Plan education and career path aligned to personal goals.
CRP 11	Use technology to enhance productivity.
CRP 12	Work productively in teams while using cultural/global competence.