

## **Advanced Agriscience (Ag III) Curriculum**

### **Course #420103**

Advanced Agriscience is a one-credit course that provides students with an intermediate understanding of the Agriculture, Food and Natural Resources cluster, which contains five pathways—Power, Structure, and Technical Systems; Environmental and Natural Resources Systems; Animal Systems; Plant Systems; and Agribusiness Systems. Students are involved in classroom and laboratory activities in each of the five pathway areas. The emphasis for Advanced Agriscience is animal systems. The curriculum will provide opportunities for Career Readiness Indicators utilizing resources from the Youth Beef Quality Assurance, Youth Pork Quality Assurance, and NCCER.

Content standards for this course are not intended to serve as the entire curriculum. Teachers are encouraged to expand the curriculum beyond the limits of these content standards to accommodate specific community interests and utilize local resources.

Advanced Agriscience is part of a four course sequence that comprises the General Agriscience Program. This course should be offered in series along with Fundamentals of Agriscience, Intermediate Agriscience, and Applied Agricultural Mechanics to 9<sup>th</sup> through 12<sup>th</sup> grade students. It is strongly encouraged that Fundamentals of Agriscience be required as a pre-requisite for this course.

Career and technical student organizations are integral, co-curricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Students will...

#### **Agribusiness Systems**

1. Describe the law of supply and demand as related to the agricultural industry.
  - Evaluating effects of monetary, fiscal, and international policies on the agricultural industry
2. Describe various techniques for measuring the performance of an agribusiness.
3. Identify sources for obtaining agribusiness loans.
  - Describing procedures for obtaining an agribusiness loan
4. Explain the impact of government policies and regulations on agribusiness management decisions.
  - Examining benefits of participating in government programs that supplement agricultural production

5. Demonstrate parliamentary procedure in agribusiness meetings utilizing the FFA Parliamentary Procedure Career Development Event Contest Booklet

- Examples: types of motions, voting methods, steps in presenting a main motion, duties of the chairperson

### **Foods and Food Processing**

6. Describe FFA opportunities available to students with an interest in food science (SAE/Proficiency/CDE).

- Determining and explaining the quality and identification of food utilizing the Meats Judging CDE Booklet
- Discussing the importance of food preservation

### **Animal Science**

7. Describe safety procedures for handling livestock.

8. Explain benefits of livestock production to society.

- Trace the history of major large animal breeds.
  - i. Examples: beef, swine, equine, goat, sheep, specialty animal breeds
- Identifying the large breeds of livestock by common names
- Identifying economically important specialty animals and animal products
  - i. Examples: animals—alligators, cashmere goats, quail, ratites, pheasants  
animal products—specialty meats, cheeses

9. Describe safety procedures for handling livestock.

- Evaluating facilities used to manage livestock
  - i. Examples: corral, catch pen, head chute
  - ii. Laying out and designing appropriate handling facilities
- Demonstrating how to properly construct various types of fencing
  - i. Examples: barbed wire, wooden, electric slick fencing, poultry netting, and hog netting/fencing
- Evaluating the importance of constructing and maintaining farm ponds and farm pond ecosystems

10. Identify major body parts of cattle, swine, sheep, equine, and poultry.

- Describing the impact of selective breeding and cloning on livestock breeds
- Evaluating selected groups of animals according to confirmation, frame size, muscling, grade, and breed characteristics by utilizing the FFA Livestock Evaluation CDE Booklet

### **Animal Biotechnology**

11. Describe the importance of animal biotechnology to humans, including medical, environmental, and product advancements.

- Describing ways scientific research, consumer preferences, and advances in biotechnology influence animal development and production
  - i. Examples: medical advancements—synthesis of medicines environmental advancements—animal disease resistance, pest control product advancements—increased yield, disease-resistant animals
- Identifying differences in disease resistance and susceptibility in commercial animal groups

12. Describe heterogeneity as an important strategy in maintaining health and productivity in animal populations.

- Identifying desirable characteristics for an animal population
- Comparing and contrasting the structure and function of male and female reproductive systems in livestock.

### **Animal Rights Verses Animal Welfare**

13. Differentiate animal rights from animal welfare.

- Describing responsible ownership of animals
- Listing ways the use of animals in research has benefited humans and animals
- Interpreting laws governing the use of animals for research

### **Disease and Parasite Control**

14. Evaluate methods of disease prevention in livestock.

- Evaluating parasite control, vaccination, sanitation
- Categorizing symptoms of animal diseases for diagnostic purposes

- Comparing drugs used to treat animal diseases
- Critiquing environmental factors affecting livestock operations

### **Veterinary Science**

15. Identify methods of disease prevention in animals.

Examples: worming, vaccination

- Analyzing symptoms of animal diseases for diagnostic purposes
  - i. Selecting drugs to treat animals
  - ii. Describing environmental factors affecting animals

### **Poultry Science**

16. Demonstrate the safe handling of chemicals and drugs used in poultry production.

- Identifying safety procedures for transporting poultry
- Identifying procedures for disposal of poultry litter, including spreading wet, dry, and dehydrated litter
- Identifying procedures for disposal of dead birds, including composting and freezing.

17. Identify various breeds of poultry, including chickens, ducks, geese, quail, and turkeys.

- Describing the structure and function of poultry skeletal, digestive, reproductive, excretory, respiratory, circulatory, and nervous systems

18. Describe factors to be considered in the design of energy-saving housing for poultry, including ventilation and lighting.

- Explaining accepted feeding practices for various kinds of poultry.
- Explaining the operation of modern poultry businesses.

## **POWER, STRUCTURAL, AND TECHNICAL SYSTEMS**

### **Construction**

19. Describe career opportunities associated with construction finishing.

- Identifying important historical moments in construction
- Describing the apprenticeship program

- Exploring career opportunities in the construction trade

20. Identify various types of building materials.

- Contrasting hardwoods and softwoods, grades and markings of wood
- Calculating the quantities of lumber, including linear feet and board feet
- Comparing and contrasting the uses of different fasteners and adhesives and their uses

21. Recognize the uses of basic woodworking tools and materials.

- Demonstrating the use of hand and power tools in a safe and appropriate manner
- Identifying the hand tools commonly used by carpenters and their uses

22. Compare advantages of concrete flooring systems and wood flooring systems by designing a floor framing system for a structure.

- Interpreting specifications and drawings to determine floor system requirements
- Identifying the different types of framing systems
- Conceptualizing floor system components
- Describing the construction methods for floor systems, and identify floor system materials
- Estimating the amount of material needed for a floor assembly

23. Design a wall framing system for a structure.

- Identifying the components of a wall system
- Describing the procedure for laying out a wood frame wall, including plates, corner posts, door and window openings, partition Ts, bracing, and fire-stops
- Demonstrating the correct procedure to assemble, erect, and brace exterior walls for a frame building
- Contrasting wall framing techniques used in masonry construction
- Describing the correct procedure to estimate the materials required to frame walls
- Identifying alternative wall systems

24. Design a ceiling framing system for a structure.

- Identifying the components of ceiling framing
- Identifying common types of roofs used in residential construction
- Defining the terms associated with roof framing
- Demonstrating the methods used to lay out a common rafter
- Describing how to erect a gable roof
  - i. Demonstrating how to frame a basic gable end wall
- Recognizing the use of trusses in basic roof framing
- Demonstrating the basics of roof sheathing installation
- Describe how to perform a material takeoff for a roof

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**NCCER MODULE CORRELATION GUIDE**

**Power Structural and Technical Systems: Corresponding NCCER Modules**

<b>Construction Content Standard Number</b>	<b>Correlated NCCER Module</b>
19.	Orientation to the Trade (5) Module ID # 27101-13
20.	Building Materials, Fasteners, and Adhesives (7.5) Module ID # 27102-13
21.	Hand and Power Tools (7.5) Module ID # 27103-13
22.	Floor Systems (27.5) Module ID 27105-13
23.	Wall Systems (20) Module ID 27111-13
24.	Ceiling Joist and Roof Framing (40) Module ID 27112-13