



## AGRITECHNOLOGY 3.0 STUDY GUIDE

Agritechnology, Florida's general agriculture program, certifies that individuals have a knowledge and skill set applicable to entry level positions in the agricultural industry.

The certification standards for the Agritechnology exam are based on the standards and benchmarks taught in the Florida's Agritechnology program at the secondary level. Each standard is weighted based on industry needs and feedback and are noted below. The number of questions per standard is determined by the industry weight. A complete listing of Florida's Agritechnology standards and corresponding benchmarks are available from the Florida Department of Education.

Standard	Description	Resource	Weight
13	Explore the scope of the agriscience industry	Agriscience Fundamentals & Applications, 5th Edition: Unit 4	3%
14	Provide for proper animal health and nutrition	Agriscience Fundamentals & Applications, 5th Edition: Unit 26 & Unit 27; FarmASyst PDF (NC State Extension): Pages 1, 5, 6, 11, 14 & 15	4%
15	Identify procedures in animal production and reproduction	Agriscience Fundamentals & Applications, 5th Edition: Unit 26, Unit 27, Unit 28, Unit 29, Unit 30 & Unit 33	8%
16	Develop procedures for exhibiting animals	Agriscience Fundamentals & Applications, 5th Edition: Unit 34; Oklahoma Cooperative Extension Service, Beef Showmanship, ANSI-3684-2; Oklahoma Cooperative Extension Service, Beef Showmanship, ANSI-3684-3; Oklahoma Cooperative Extension Service, Beef Showmanship, Page 118.2; & Oklahoma Cooperative Extension Service, Sheep Showmanship, Page 655.2	4%
17	Compare, select, and use plant production systems	Agriscience Fundamentals & Applications, 5th Edition: Unit 17, Unit 18, Unit 19, Unit 20 & Unit 21	5%
18	Investigate proper methods to fertilize plants and crops	Agriscience Fundamentals & Applications, 5th Edition: Unit 9 & Unit 19	4%
19	Operate, maintain, and service facilities, tools, and equipment	Agricultural Mechanics Fundamentals & Applications, 6th Edition: Unit 4, Unit 14, Unit 16, & Unit 31	5%
20	Apply principles of agribusiness finance	Agriscience Fundamentals & Applications, 5th Edition: Unit 35 & Unit 36	5%
21	Students evaluate the importance of the food and fiber system to understand the impact on global economy	Agriscience Fundamentals & Applications, 5th Edition: Unit 8, Unit 32 & Unit 34	4%
22	Students examine the scope of career opportunities in and the importance of agriculture to the economy	Agriscience Fundamentals & Applications, 5th Edition: Unit 1, Unit 4, Unit 34, Unit 35 & Unit 36	5%
26	Analyze the scope of the agriscience industry	Leadership: Personal Development and Career Success, 3rd Edition: Chapter 21, Chapter 22	4%
27	Recommend steps for proper animal health and nutrition	Agriscience Fundamentals & Applications, 5th Edition: Unit 26 & Unit 27	7%
28	Select, and use plant production systems	Agriscience Fundamentals & Applications, 5th Edition: Unit 21	5%
29	Fertilize plants and crops	Agriscience Fundamentals & Applications, 5th Edition: Unit 8, Unit 9, Unit 16, & Unit 21	7%
30	Irrigate plants and crops	Agriscience Fundamentals & Applications, 5th Edition: Unit 19 & Unit 38	6%
31	Control plant pests	Agriscience Fundamentals & Applications, 5th Edition: Unit 13 & Unit 21; Agricultural Mechanics, 6th Edition: Unit 5	7%
32	Maintain, and service facilities, tools, and equipment	Agricultural Mechanics, 6th Edition: Unit 3, Unit 4, Unit 6, Unit 15, & Unit 21	4%
33	Describe procedures for harvesting and marketing agricultural products	Agriscience Fundamentals & Applications, 5th Edition: Unit 32 & Unit 34	6%
34	Compare principles of agribusiness finance	Agriscience Fundamentals & Applications, 5th Edition: Unit 36	3%
35	Explain the components of the American business system	Agriscience Fundamentals & Applications, 5th Edition: Unit 36	2%
36	Investigate agricultural cooperatives structure and function	Agriscience Fundamentals & Applications, 5th Edition: Unit 36	2%

## AGRITECHNOLOGY 1

### STANDARD 13

### 3 QUESTIONS

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Students should be familiar with the career areas within the agricultural industry, including basic job descriptions.

*Sample Question: What jobs fall within the natural resources agricultural career area?*

Students should be familiar with preparation requirements for various agriscience careers, including educational requirements.

*Sample Question: The average U.S. farmer produces enough food to feed approximately how many people?*

Students should be familiar with basic statistics regarding agricultural employment in the American economy.

*Sample Question: What percent of the workforce is employed in Agriculture?*

### STANDARD 14

### 4 QUESTIONS

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Students should be able to explain requirements for proper animal nutrition, and select appropriate feed and supplement sources to meet nutritional requirements.

*Sample Question: What is a major source of carbohydrates for livestock?*

Students should know common sanitation and waste disposal methods used in livestock production.

*Sample Question: What practices are used to prevent mastitis in dairy cattle?*

### STANDARD 15

### 8 QUESTIONS

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Students should know the following concepts related to animal production and reproduction:

- Livestock anatomy, including major organs and body systems
- Commercially important breeds of animals
- Products obtained from various livestock breeds
- Methods of livestock reproduction and associated terminology
- Techniques for approved care of newborn animals
- Methods of animal identification
- Methods of animal restraint

*Sample Questions: What is the function of the circulatory system in the body?*

*A Holstein is a breed of what type of animal? What tool is used to restrain beef cattle from moving while receiving an injection?*

**STANDARD 16****4 QUESTIONS**

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Students should know the proper tools and procedures used in showing livestock.

*Sample Question: What is the use of a livestock cane when showing swine?*

Students should be familiar with proper methods for transporting livestock and why they are important.

*Sample Question: What factors can help to reduce stress on cattle when being transported?*

Students should be able to identify appropriate evaluation criteria for animals.

*Sample Question: In beef, what is a yield grade used to estimate?*

**STANDARD 17****5 QUESTIONS**

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Students should be able to explain plant propagation methods, including sexual and asexual reproduction.

*Sample Question: What is the function of flowers in sexual plant reproduction?*

Students should be able to explain the processes involved in preparing for, planting, maintaining, and harvesting row crops.

*Sample Questions: What conventional method can be used to control insect damage to field crops? What equipment is generally used to loosen and prepare soil for planting?*

Students should be able to categorize commercially important plants according to biology, including life cycle.

*Sample Question: What term describes a plant that persists for many growing seasons?*

Students should be able to identify methods of pruning plants to achieve desired growth and health.

*Sample Question: How should orange trees be pruned?*

**STANDARD 18****4 QUESTIONS**

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Students should be able to interpret information on a fertilizer label.

*Sample Question: What do the three numbers on a fertilizer label represent?*

Students should be able to compare sources and forms of nutrients.

*Sample Question: What materials can be used to make organic fertilizer?*

Students should be able to select the appropriate method of applying fertilizer depending on the setting, plant variety, and age of plants.

*Sample Question: What is a common method of fertilizer application for home vegetable gardens?*

**STANDARD 19****5 QUESTIONS**

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Students should be able to identify, use and maintain hand tools and power equipment. This includes use of appropriate safety equipment.

*Sample Question: What type of saw can be used to cut irregular shapes?*

Students should be able to identify make appropriate decisions for maintaining and servicing small gas engines.

*Sample Question: What does the marking SAE 10W-30 on a bottle of engine oil indicate?*

**STANDARD 20****5 QUESTIONS**

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Students should be able to identify major sources of credit for agribusiness, including lending institutions and types of loans available.

*Sample Question: For what purpose might a farmer take out a short-term loan?*

Students should be familiar with information necessary to complete a loan application.

Students should know the function of agribusiness financial records and associated terminology.

Students should be able to explain basic economic principles (laws) as they apply to agribusiness.

*Sample Question: What is the Law of (Increasing) Opportunity Cost?*

**STANDARD 21****4 QUESTIONS**

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Students should be familiar with the agriculture industry's impact on the US gross national product and the total global economy.

- This includes statistics related to consumer spending on food, where the food dollar goes (how it is spent), jobs in agricultural industry, etc.

*Sample Question: For every dollar spent on food, what percentage of that dollar goes towards transportation costs?*

Students should be able to identify and describe the function of US government agencies involved in agriculture.

*Sample Question: What government agency oversees meat quality grading?*

**STANDARD 22****5 QUESTIONS**

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Students should be familiar with basic statistics regarding agricultural employment and food production.

Students should be able to identify agribusiness career opportunities available.

*Sample Question: What would be the job description of someone who works in agribusiness marketing?*

Students should be able describe basic organizational structures important in the agricultural economy.

*Sample Question: What is the difference between a cooperative and a partnership?*

Students should be familiar with ways in which managers make decisions for their agribusinesses.

- This includes setting goals, making financial decisions, etc.

*Sample Question: What two types of plans do managers make when setting goals and objectives for their agribusiness?*

## AGRITECHNOLOGY 2

### STANDARD 26

### 4 QUESTIONS

Students should be familiar with the function and benefits of professional and trade organizations.

*Sample Question: Professional and trade organizations often provide what types publications?*

Students should be familiar with all parts of the job application process.

- This includes steps in the job application process, parts of a job application, resources available for completing a job application, common mistakes in the application process, etc.

*Sample Question: Which is the MOST common cause for a job application to be eliminated from consideration?*

### STANDARD 27

### 7 QUESTIONS

Students should be familiar with the nutritional requirements of animals.

- This includes:
  - methods of animal feeding
  - formulating feed rations
  - the function of all major classes of nutrients in their diets
  - consequences of nutrient deficiency

*Sample Question: What are the functions of carbohydrates in the diet of a ruminant?*

Students should be familiar with common animal pests, diseases and disorders.

- This includes:
  - methods for their prevention and treatment
  - correct uses of pesticides, medications, and other additives
  - tools for administering medications and other additives

*Sample Question: What factors should be considered before administering medication to a meat or dairy animal?*

Students should know how to select and apply growth stimulators and implants.

*Sample Question: What device is used to place a pill in an animal's throat?*

### STANDARD 28

### 5 QUESTIONS

Students should be able to describe the following:

- methods of preparing and protecting seedbeds
- equipment used for preparing and planting seedbeds

*Sample Questions: What type of planting is a broadcast seeder used for?*

**STANDARD 29****7 QUESTIONS**

Students should be able to explain important soil characteristics (structure, organic matter, pH, water-holding capacity, etc.), and their effect on plant growth and development. This includes methods of improving soil characteristics.

*Sample Question: What amendments can be added to soil to change the soil's acidity or alkalinity?*

Students should be familiar with basic soil fertility concepts. This includes:

- listing elements essential for proper plant growth
- explaining how soil can be amended to improve fertility
- identifying common nutrient-deficiency symptoms in plants

*Sample Question: What macronutrients are essential for proper plant growth and development?*

Students should be able to identify environmental causes of soil loss and degradation, and explain methods for preventing soil loss.

*Sample Question: What soil preparation practices can be used to prevent erosion?*

**STANDARD 30****6 QUESTIONS**

Students should be familiar with basic principles of irrigating plants and crops. This includes:

- irrigation terminology
- plant conditions indicating irrigation needs

*Sample Question: When are the irrigation needs of pasture grasses the greatest?*

Students should be able to compare and contrast methods of irrigation. This includes:

- benefits/drawbacks of different irrigation methods
- the equipment used for different irrigation methods

*Sample Question: Which method of irrigation should be utilized when water conservation is the most important factor to consider?*

**STANDARD 31****7 QUESTIONS**

Students should be familiar with plant pests and the damage they cause, including insect pests and weeds. Students should be familiar with the life cycles of insects, pests, and diseases.

*Sample Question: What are the stages of complete metamorphosis?*

Students should be able to describe biological, chemical and cultural methods of controlling plant pests.

*Sample Question: What type of pest control is being performed when ladybugs are released to control aphids on a crop?*

Students should be able to explain the proper use and storage of pesticides. This includes reading and interpreting a pesticide label.

*Sample Question: What is the best method of storing pesticides?*

**STANDARD 32****4 QUESTIONS**

Students should be able to identify, use and maintain hand tools and power equipment. This includes use of appropriate safety equipment.

*Sample Questions: What is the proper procedure for replacing the blade on a table saw? What type of safety equipment should be worn when welding with an oxy-acetylene torch?*

**STANDARD 33****6 QUESTIONS**

Students should be able to explain the steps in harvesting various crops using appropriate terminology.

Students should be able to identify potential harvest problems.

*Sample Question: What effect can fungi have on recently harvested crops?*

Students should be familiar with methods for processing, grading and storing agricultural products.

*Sample Question: What type of environment should tomatoes be stored in prior to sale?*

Students should be able to identify the market outlets for agricultural products. This includes how economic factors influence price and availability of goods sold.

*Sample Question: Which economic factors influence how market prices for a particular crop are set?*

**STANDARD 34****3 QUESTIONS**

Students should be familiar with the purpose and use of the following agribusiness financial records:

- balance sheets
- budgets
- cash-flow statements
- income statements
- inventory reports
- profit and loss statements

*Sample Question: What is the term for a financial document that records the amount of product kept on hand, how many were sold, each item's cost, total sale, and profit?*

Students should be able to explain the purposes and structures of contracts, leases, deeds, and insurance policies for an agribusiness.

*Sample Question: How are the payments for an amortized loan structured?*

Students should know the advantages and disadvantages of agribusiness entrepreneurship.

*Sample Question: What is a major disadvantage of owning your own agribusiness?*

**STANDARD 35****2 QUESTIONS**

Students should be able to describe the five basic ways American business is organized. This includes:

- compare and contrast each method of doing business
- list advantages and disadvantages for each method of doing business

*Sample Question: What does the distribution function of business involve?*

**STANDARD 36****2 QUESTIONS**

Students should be able to explain the definition of a cooperative and identify examples of cooperatives.

*Sample Question: Which type of cooperative receives products from its members and then resells those products for the best possible price?*

Students should be able to distinguish between the main types of cooperatives and their functions.

*Sample Question: What are the main types of cooperatives?*

Students should be able to list benefits of cooperatives.

*Sample Question: What is an advantage of selling products such as milk through a cooperative?*