



**NOCTI**  
State Customized  
Credential Blueprint



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# **Agricultural Productions Operations (PA)**

Code: 8395 / Version: 01  
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## General Assessment Information

### Blueprint Contents

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**Test Type:** The Agricultural Productions Operations PA Assessment was developed based on a Pennsylvania statewide competency task list and contains a multiple-choice and performance component. This assessment is meant to measure technical skills at the occupational level and includes items which gauge factual and theoretical knowledge.

**Revision Team:** The assessment content is based on input from Pennsylvania educators who teach in approved career and technical education programs.



01.0301 Agricultural  
Productions Operations,  
General



Career Cluster 1-  
Agriculture, Food and  
Natural Resources



49-3041.00- Farm Equipment  
Mechanics and Service  
Technicians

## Written Assessment

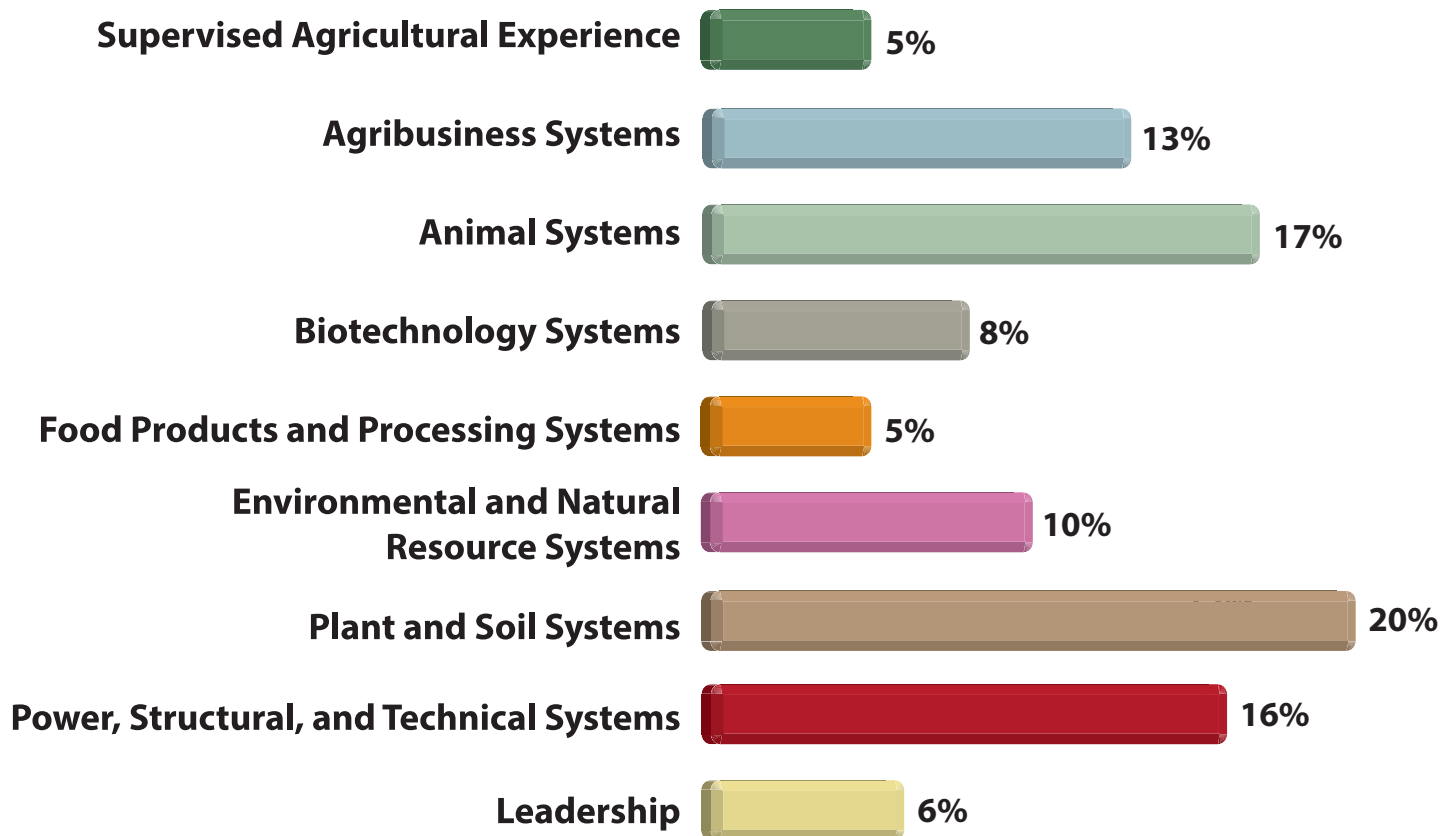
NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

**Administration Time:** 3 hours

**Number of Questions:** 199

**Number of Sessions:** This assessment may be administered in one, two, or three sessions.

### Areas Covered



## Specific Standards and Competencies Included in this Assessment

### Supervised Agricultural Experience

- Using an SAE-based project, develop short, mid, and long-term project plans
- Maintain complete and accurate records to build financial literacy
- Analyze records to determine strengths and areas for improvement

### Agribusiness Systems

- Differentiate types of ownership and structures of agricultural businesses and describe economic impact of entrepreneurship
- Compare supply and demand principles in agricultural business
- Assess financial records associated with production and profit (e.g., cash flow, budget, net worth)
- Identify the purpose, components, and developmental processes of marketing plans
- Identify the economic impact of Pennsylvania agricultural commodities, products and services, both domestic and international

### Animal Systems

- Implement disease prevention methods and procedures for the safe handling and treatment of animals by interpreting a drug label
- Identify the societal uses of animals (e.g., food, work, companionship)
- Select animals for specific purposes and maximum performance based on anatomy and physiology
- Utilize a Punnett Square to determine the potential phenotypes and genotypes of animals
- Compare ruminant and monogastric digestive systems
- Identify the common parts of the reproductive systems of small and large animals
- Select and identify appropriate feedstuffs for animals based on factors such as economics, digestive system, and nutritional needs
- Analyze feed tags and feed labels
- Demonstrate good production practices to ensure quality and safe food products (e.g., quality assurance, GPP's)



QUALITY

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## Specific Standards and Competencies (continued)

### Biotechnology Systems

- Apply the steps of the scientific method
- Explain the structure of DNA and RNA and how genotype influences phenotype, and plant and animal cell structures
- Identify the purposes, benefits, and risks of biotechnology in animal and plant production
- Differentiate applications of biotechnology in agriculture (e.g., GMO's, artificial insemination, embryo transfer, genetic engineering)

### Food Products and Processing Systems

- Analyze and demonstrate food handling safety and explain the importance of microbiological tests
- Describe the process that an agricultural product takes from the producer to the consumer
- Compare and contrast common food constituents; proteins, carbohydrates, fats, vitamins, and minerals

### Environmental and Natural Resource Systems

- Differentiate between renewable and nonrenewable natural resources
- Differentiate between point source and nonpoint source pollution
- Describe the interdependence on organisms within an ecosystem
- Relate production practices to the prevention of water and air pollution
- Describe land use planning, growth management methods, conservation land use planning, and methods for environmental sustainability



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## Specific Standards and Competencies (continued)

### Plant and Soil Systems

- Select proper Personal Protective Equipment (PPE) based on a product label
- Distinguish the components of an Integrated Pest Management (IPM) program including the effects of chemicals and pesticides on the environment
- Identify plant structures, functions, and processes (e.g., photosynthesis, respiration, translocation, transpiration)
- Identify plant nutrient requirements
- Explain the environmental factors that affect the growth and development of a plant
- Distinguish between sexual and asexual plant reproduction
- Identify and describe physical characteristics of soil (e.g., sand, silt, and clay)
- Interpret soil test reports by selecting pH, texture, and macronutrients and interpret soil fertilizers (e.g., N, P, K)
- Calculate area (e.g., square feet, square yards, acreage)
- Identify common Pennsylvania field crops and vegetables
- Distinguish between legumes and grasses



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## Specific Standards and Competencies (continued)

### Power, Structural, and Technical Systems

- Identify the dangers in an agricultural mechanics shop and workplace including necessary PPE and the use of proper fire fighting equipment (e.g., fire extinguisher, fire blankets, etc.)
- Identify, select, adjust, maintain, and safely use common hand tools and power tools
- Demonstrate accurate use of measurement devices and techniques for calculating measurement
- Identify Electric Arc/Stick welding equipment
- List and identify the components and functions of major engine parts
- Review operating and service manuals and schedules, conduct procedures as needed
- Identify agricultural equipment and their operations; tractor, combine, baler, plow, and no-till drill
- Apply the meaning and measurement of electricity, including amperage, voltage, and wattage

### Leadership

- Create short and long term SMART goals (Specific, Measurable, Attainable, Realistic, Timely)
- Participate in an intracurricular agricultural student organization, such as FFA
- Demonstrate oral, written, and verbal skills necessary for employment
- Create a career objective and develop a plan of experiences and academics to meet the objective



## Sample Questions

**Where in the AET record keeping system, can the Keystone Degree records be analyzed?**

- A. profile
- B. journal
- C. finance
- D. reports

**One disadvantage of a sole proprietorship business is that it**

- A. has low start up costs
- B. is subject to fewer regulations
- C. is personally responsible for obligations
- D. does not have corporate income taxes

**What is the simplest way to prevent illness in animals and handlers?**

- A. make sure there is food always in front of the animal
- B. provide the animal with a form of enrichment
- C. exercise the animal periodically
- D. keep the animal's pen and all contents disinfected regularly

**A cell's genetic information is found in the**

- A. cell membrane
- B. nucleus or nucleoid
- C. cytoplasm
- D. ribosomes

**Which food constituent is required to be replenished daily?**

- A. water soluble vitamins
- B. complex carbohydrates
- C. vitamins and minerals
- D. amino acids

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## Sample Questions

**A product of decaying plants or animal matter is**

- A. nitrous oxide
- B. ozone
- C. chlorofluorocarbon
- D. methane

**A chemical that causes skin to itch would be classified as being**

- A. a carcinogen
- B. caustic
- C. corrosive
- D. an irritant

**The first step taken when coming upon the scene of a workplace accident is to**

- A. administer CPR to the victim
- B. evaluate the accident site for safety
- C. check the responsiveness of the victim
- D. treat the victim for shock

**What is the highest degree an FFA member can achieve?**

- A. American
- B. Keystone
- C. Greenhand
- D. Discovery

**The advantage of using a SWOT analysis is it finds the \_\_\_\_\_ of a business.**

- A. strength and weakness
- B. annual budget
- C. cash flow
- D. return on investments

## Performance Assessment

NOCTI performance assessments allow individuals to demonstrate their acquired skills by completing actual jobs using the tools, materials, machines, and equipment related to the technical area.

**Administration Time:** 2 hours and 5 minutes

**Number of Jobs:** 4

### Areas Covered:

#### **16% Identify and Classify Feedstuffs**

Participant will identify and classify feedstuffs.

#### **28% Administer an Injection**

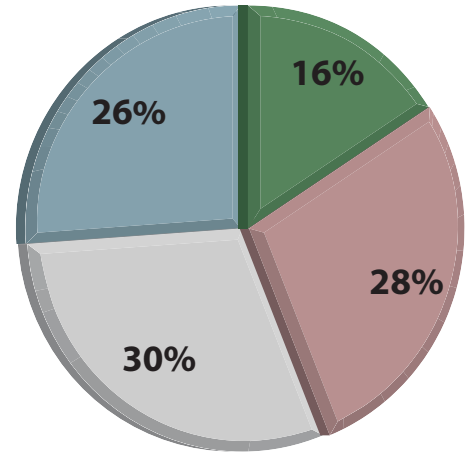
Participant will determine appropriate medication dosage, withdrawal time, medical conditions, species, active ingredient, and storage for medication. Participant will select appropriate needle size and syringe, prepare syringe, draw proper dosage, and simulate administering the injection intramuscularly using an orange, or other appropriate "subject" substitute. Participant will dispose of the needle and syringe.

#### **30% Vehicle Maintenance**

Participant will use a vehicle provided to check the oil, fuel gauge, tire inflation, and engine coolant and record on the vehicle maintenance worksheet.

#### **26% Take a Soil Sample and Complete Form**

Participant will complete a soil sample kit form including recording crop information names, codes, and yield goals based on a scenario. Participant will collect soil samples using correct procedure, and clean work area.



## Sample Job

**Identify and Classify Feedstuffs**

**Maximum Time:** 30 minutes

**Participant Activity:** Participant will be presented with 10 unlabeled samples of feedstuffs. Using the word bank of 20 feedstuffs, participant will record the correct name of each sample on provided worksheet, and indicate the classification of the feedstuffs (roughage, concentrate, or supplement).

