

CONTENT STANDARD 1.0: AGRICULTURE FUNDAMENTALS**Performance Standard 1.1: Plant Science**

- 1.1.1. Identify plant vegetative and reproductive structures.
- 1.1.2. Understand basic principles, processes and functions of plant growth and reproduction, including photosynthesis, respiration, transpiration, vegetative growth and reproductive growth, fertilization and fruit formation.
Understand how the environment influences plant growth and crop yields, and ways to modify the environment to improve plant quality and yield.
- 1.1.3. Understand and appreciate the importance of agronomic crop plants to global society.
- 1.1.4. Obtain, evaluate, and apply scholarly information to solve problems related to plant growth, crop production, and natural resource management.
- 1.1.5. Appreciate the breadth and depth of professional opportunities in plant science.

Performance Standard 1.2: Animal Science

- 1.2.1. Identify types and breeds of various livestock species.
Describe anatomy and physiology of livestock specifically relating to reproduction, digestion and absorption of nutrients, and endocrine function.
- 1.2.2. Explain grading and judging of livestock and develop a basic system for selecting superior animals.
- 1.2.3. Maintain animal health and sanitation, animal welfare, housing, disease prevention, and care.
- 1.2.4. Explain breeding and genetics of livestock.
- 1.2.5. Describe feeds and feeding of livestock and identify essential nutrients and the feed sources that provide them.
- 1.2.6. Understand the food and fiber contributions of animals, including milk, meat, eggs, wool.
- 1.2.7. Understand and participate in processing animal foods.
- 1.2.8. Describe handling and shipment of livestock.
- 1.2.9. Identify livestock markets and distribution.

CONTENT STANDARD 2.0: EXPLORE AGRICULTURE ECONOMIC PRINCIPLES**Performance Standard 2.1: Basic Economic Factors that Affect Agriculture Business Management Decisions**

- 2.1.1. Apply the law of supply and demand and evaluate its effect on price determination.
- 2.1.2. Distinguish main characteristics of competition.
- 2.1.3. Compare and contrast the economies of scale.
- 2.1.4. Analyze factors that influence price cycles.

Performance Standard 2.2: Basic Economic Principles as They Relate to Agriculture Businesses and Agriculture

- 2.2.1. Compare and contrast economic systems.
- 2.2.2. Compare and contrast complementary, competitive and substitute products.
- 2.2.3. Differentiate between diversification and specialization.

Performance Standard 2.3: Economic Decision-Making Tools to Increase Profitability

- 2.3.1. Distinguish between fixed and variable cost.
- 2.3.2. Summarize break-even costs.
- 2.3.3. Distinguish between marginal cost and marginal revenue.
- 2.3.4. Describe the four factors of production affecting agricultural production and agribusiness management decisions (land, labor, capital, and management).
- 2.3.5. Determine the profit maximizing level of production.
- 2.3.6. Describe the law of diminishing returns and how it relates to costs, production, and return on investments.

CONTENT STANDARD 3.0: EXPLORE BUSINESS PLANNING AND ENTREPRENEURSHIP**Performance Standard 3.1: Explore Entrepreneurship Opportunities**

- 3.1.1. Evaluate the characteristics of a successful entrepreneur.
- 3.1.2. Identify the costs and benefits of entrepreneurship.
- 3.1.3. Research venture start-up requirements and risks.
- 3.1.4. Describe the characteristics of a good manager.
Compare and contrast the different types of ownership structures, including sole proprietorship, partnership, limited liability company, and corporation.
- 3.1.5. Analyze the characteristics of cooperatives.

Performance Standard 3.2: Design a Business Plan

- 3.2.1. Compile resources useful to entrepreneurs during concept development.
Develop a plan including time investment, financial investment and capital investment needs.
- 3.2.2. Evaluate financial feasibility of a business plan.
- 3.2.3. Discuss the return on investment (ROI).

CONTENT STANDARD 4.0: EXPLORE AGRICULTURE BUSINESS FINANCIAL CONCEPTS AND RECORD KEEPING SYSTEMS**Performance Standard 4.1: Accounting Fundamentals for Fiscal Management**

- 4.1.1. Compare cash and accrual basis accounting systems.
- 4.1.2. Determine current versus non-current and intermediate liabilities and assets.
- 4.1.3. Determine the proper depreciation for inventory items.
- 4.1.4. Determine fixed and variable costs for an agricultural enterprise.
- 4.1.5. Identify and apply financial ratios, including solvency, liquidity, and profitability.

Performance Standard 4.2: Analyze Financial Statements

- 4.2.1. Differentiate between balance sheets, income statements, and cash flow statements.
- 4.2.2. Create a balance sheet for an agriculture enterprise.
- 4.2.3. Create an income statement for an agriculture enterprise.
- 4.2.4. Create a cash flow statement for an agriculture enterprise.
- 4.2.5. Generate a cost-benefit analysis for an agriculture enterprise.

Performance Standard 4.3: Agricultural Budgets

- 4.3.1. Explain the basic principles of budgeting.
- 4.3.2. Contrast the uses of enterprise, partial, and whole farm budgets.
- 4.3.3. Evaluate business performance in relation to budget projection.
- 4.3.4. Create and analyze a partial budget.

Performance Standard 4.4: Tax Management Strategies

- 4.4.1. Describe the purpose and importance of tax planning.
- 4.4.2. Discuss how different business ownership types are taxed.
- 4.4.3. Discuss how different business ownership types are taxed.
- 4.4.4. Discuss different depreciation methods on tax liability.
- 4.4.5. Discuss appropriate sales tax on an agriculture enterprise.

CONTENT STANDARD 5.0: CREDIT, LAW, AND RISK MANAGEMENT IN AGRICULTURE BUSINESS**Performance Standard 5.1: Methods of Financial Risk Management**

- 5.1.1. Define risk management in agricultural enterprises.
- 5.1.2. Explain the time value of money (Present & Future value).
- 5.1.3. Differentiate between operating and long-term loans.
- 5.1.4. Discuss factors that affect the cost of credit.
- 5.1.5. Calculate interest expense for amortized and equal principle loans.
- 5.1.6. Investigate the use of collateral in securing credit.
- 5.1.7. Compare and contrast available insurances that help reduce risk (life, property, crop, health, and liability).
- 5.1.8. Discuss available government programs to reduce financial risk.
- 5.1.9. Determine how insurance can reduce financial risk.
- 5.1.10. Compare and contrast leasing and purchasing real property.
- 5.1.11. Compare and contrast leasing and purchasing equipment.

Performance Standard 5.2: Marketing in Risk Management

- 5.2.1. Discuss how cash markets can influence risk management decisions.
- 5.2.2. Research the role of futures in marketing decisions.
- 5.2.3. Understand how futures market helps manage risk.
- 5.2.4. Discuss how forward contracting can reduce risk.
- 5.2.5. Analyze the effects of hedging and speculating of the futures market.

CONTENT STANDARD 6.0: LAWS RELATED TO AGRICULTURE AND LAND OWNERS**Performance Standard 6.1: Agricultural Contract Law**

- 6.1.1. List and define the two types of contracts.
- 6.1.2. List the four elements necessary for a contract.
- 6.1.3. Select types of contracts which fall under the statute of fraud.
- 6.1.4. Identify the situations in which farmers risk nonpayment for their farm commodities.
- 6.1.5. Define forward contract.
- 6.1.6. Discuss the risk that farmers face when forward contracting if the buyer declares bankruptcy.

Performance Standard 6.2: Property Ownership, Transfer And Leasing

- 6.2.1. Discuss cash farm leases, including the definition, two advantages and two disadvantages for the landlord, and two advantages and two disadvantages for the tenant.
- 6.2.2. Discuss crop share farm leases, including the definition, two advantages and two disadvantages for the landlord, and two advantages and two disadvantages for the tenant.
- 6.2.3. Define estate planning.
- 6.2.4. Define real property and personal property.
- 6.2.5. List the reasons for having a will.
- 6.2.6. Discuss four components of a will
- 6.2.7. Define real property.
- 6.2.8. Define estate.
- 6.2.9. List and define the two types of real property estates.
- 6.2.10. List the methods of acquiring real property ownership.
- 6.2.11. Define deed.
- 6.2.12. List and define the two major types of deeds.
- 6.2.13. List the characteristics of a deed.
- 6.2.14. Describe an abstract of title.
- 6.2.15. Describe title insurance.
- 6.2.16. List two methods of describing real property.
- 6.2.17. List the reasons for appraising land and buildings.
- 6.2.18. List the factors necessary to determine real property values.
- 6.2.19. Describe various rights of ownership (Right-of-ways, zoning, mineral, water, conservation easements).

Performance Standard 6.3: Common Agricultural Laws

- 6.3.1. Match terms related to agricultural law to their correct definitions.
- 6.3.2. List four sources of law.
- 6.3.3. Describe in detail a farmer's liability by negligence.
- 6.3.4. List and describe the three types of farm visitors, their responsibilities and the landowner's responsibilities concerning injury liability.
- 6.3.5. Discuss the Doctrine of Attractive Nuisance.
- 6.3.6. List and define the three types of employees and outline employer liabilities for the acts of each.
- 6.3.7. List employer responsibilities to employees.
- 6.3.8. Discuss fencing laws in Idaho.
- 6.3.9. Describe open range.
- 6.3.10. Discuss how to handle stray animals.
- 6.3.11. Describe how to handle and apply chemicals.
- 6.3.12. Discuss the concerns of pollution from agricultural business.
- 6.3.13. Discuss brand laws in Idaho.
- 6.3.14. Discuss animal diseases in Idaho.

CONTENT STANDARD 7.0: AGRICULTURE MARKETING AND SALES PLANS**Performance Standard 7.1: Investigate the Marketing Process**

- 7.1.1 Investigate value-added concepts of marketing.
- 7.1.2. Understand the concepts of utility to agricultural commodities.
- 7.1.3. Discuss current industry trends in agriculture marketing.
- 7.1.4. Differentiate between marketing and sales.

Performance Standard 7.2: Perform a Market and Sales Analysis

- 7.2.1 Research the competition's strength, weakness, opportunities and threats (SWOT) analysis.
- 7.2.2. Determine a product/client's status in current market.
- 7.2.3. Describe what motivates a customer to buy.
- 7.2.4. Discuss the value of accurate product information.
- 7.2.5. Identify sources of product information.

Performance Standard 7.3: Develop a Business Proposition

- 7.3.1. Develop a mission statement for an agricultural enterprise or product.
- 7.3.2. Determine planning assumptions based on market analysis.
- 7.3.3. Differentiate between short and long term goals.
Create SMART (specific, measurable, attainable, realistic, timely) goals for an agricultural enterprise or product.
- 7.3.4. Research potential target markets for an agricultural enterprise or product.
- 7.3.5. Develop a mission statement for an agricultural enterprise or product.
- 7.3.6. Create SMART (specific, measurable, attainable, realistic, timely) goals for an agricultural enterprise or product.

Performance Standard 7.4: Investigate Marketing Strategies and Action Plans

- 7.4.1. Define positioning in regards to marketing a product to a potential client.
- 7.4.2. Describe the importance of the four "P"s (product, price, place, promotion) in marketing.
- 7.4.3. Create a positioning statement for an agriculture product/client.
Differentiate between seasonal pricing, direct pricing, introductory pricing, and bulk pricing.
- 7.4.4. Compare and contrast different distribution channels.
- 7.4.5. List effective promotional tools for a product/client.
- 7.4.6. Calculate the financial return of a marketing plan.
- 7.4.7. Calculate the financial return of a marketing plan.

Performance Standard 7.5: Create Marketing Plan Evaluations

- 7.5.1. Determine the importance of evaluating a marketing plan.

CONTENT STANDARD 8.0: AGRICULTURAL SALES**Performance Standard 8.1: Traits of Quality Salespeople**

- 8.1.1. Describe customer oriented selling.
- 8.1.2. Identify personality traits of a good salesperson.
- 8.1.3. Differentiate between employer and customer expectations of salespeople.

Performance Standard 8.2: Customer Relations in Agricultural Sales

- 8.2.1 Discuss the importance of customer relations.
- 8.2.2. Demonstrate good customer relations.
- 8.2.3. Compare follow up strategies that ensure customer satisfaction after a sale.
- 8.2.4. Demonstrate appropriate methods for handling customer complaints.

CONTENT STANDARD 9.0: CAREER OPPORTUNITIES IN THE AGRICULTURAL BUSINESS FIELD**Performance Standard 9.1: Employment Fields in Agricultural Business**

- 9.1.1. List and describe the types of employment opportunities in agriculture business systems.
List and describe the types of employment opportunities in agriculture marketing and sales.
- 9.1.2. Explore education and training for agriculture careers in sales, marketing, and business management.
- 9.1.3. Create an employment resume.
- 9.1.4.

CONTENT STANDARD 10.0: LEADERSHIP TRAINING THROUGH AGRICULTURAL EDUCATION**Performance Standard 10.1: Effective Leadership and Leadership Training Participation**

- 10.1.1. Expand leadership experience by participating in a chapter activity.
- 10.1.2. Participate in a career development event at a local or higher level.
- 10.1.3. Exhibit leadership skills by demonstrating proper parliamentary procedure.
- 10.1.4. Participate in a speech or presentation activity.

Performance Standard 10.2: School and Community Awareness

- 10.2.1. Participate in a school improvement or community development project.

CONTENT STANDARD 11.0: SUPERVISED AGRICULTURAL EXPERIENCE (SAE)**Performance Standard 11.1: Maintain a Supervised Agricultural Experience**

- 11.1.1. Accurately maintain SAE record books.
- 11.1.2. Investigate the proficiency award areas related to SAE program area.
- 11.1.3. Research organizations that support your SAE.
- 11.1.4. Actively pursue necessary steps to receive higher degrees in FFA.

CONTENT STANDARD 1.0: IDAHO ANIMAL AGRICULTURE INDUSTRY**Performance Standard 1.1: Animal Agriculture Industries**

- 1.1.1 Explain animal production in Idaho.
- 1.1.2 Compare and contrast animal production nationally and internationally.

Performance Standard 1.2: Beef Industry

- 1.2.1 Compare and contrast animal production nationally and internationally.
- 1.2.2 Determine the facility and equipment needs in beef production.
- 1.2.3 Compare and contrast types of beef production systems.
- 1.2.4 Compare and contrast grazing systems.
- 1.2.5 Explain land management practices and the importance of working relationships with land management agencies (Forest Service, BLM, etc.)

Performance Standard 1.3: Dairy Industry

- 1.3.1 Describe elements of dairy production.
- 1.3.2 Determine the facility and equipment needs in dairy production.
- 1.3.3 Compare and contrast types of dairy production systems.
- 1.3.4 Compare and contrast milking systems.

Performance Standard 1.4: Other Food Animal Systems

- 1.4.1 Describe the elements of sheep and goat production.
- 1.4.2 Describe the elements of swine production.
- 1.4.3 Describe the elements of poultry production.
- 1.4.4 Describe the elements of aquaculture production.

Performance Standard 1.5: Equine Industry

- 1.5.1 Describe the elements of the equine industry.

Performance Standard 1.6: Career Opportunities

- 1.6.1 Research career opportunities in livestock production, please and service animals and animal science.

CONTENT STANDARD 2.0: NUTRITIONAL REQUIREMENTS FOR LIVESTOCK**Performance Standard 2.1: Digestive Systems of Domestic Animals**

- 2.1.1 Compare and contrast ruminant and mono-gastric digestive systems.
- 2.1.2 Describe the characteristics and function of a ruminant system.
- 2.1.3 Describe the characteristics and function of cecum.
Describe the functions of the stomach and the purpose of enzymes present in the
- 2.1.4 stomach.
- 2.1.5 Describe the functions of each of the three segments of the small intestine.
- 2.1.6 Describe the functions of the large intestine.

Performance Standard 2.2: : Livestock Feedstuffs

- 2.2.1 Explain the functions of feed and how they supply nutrients to livestock.
- 2.2.2 Identify, compare and contrast the types of feedstuffs (roughages, concentrates, and supplements/additives).

- 2.2.3 Distinguish between good quality and poor quality feedstuffs, and examine how processing methods improve digestibility.
- 2.2.4 Examine storage and feeding practices of feedstuffs.

Performance Standard 2.3: Balanced Livestock Feed Rations

- 2.3.1 Identify the steps in balancing rations.
- 2.3.2 Discuss the importance of feed analysis.
- 2.3.3 Discuss how nutritional information is used in developing rations.
- 2.3.4 Develop balanced rations using the Pearson Square method.

CONTENT STANDARD 3.0: LIVESTOCK REPRODUCTIVE SYSTEMS

Performance Standard 3.1: Reproductive Systems of Domestic Animals

- 3.1.1 Identify and describe the functions of the male and female reproductive structures.
- 3.1.2 Explain the phases of reproductive maturity in the life of an animal.
- 3.1.3 Identify and interpret the signs of estrus in relation to the reproductive cycle.

Performance Standard 3.2: Natural Animal Reproduction

- 3.2.1 Discuss the importance and explain the basics of animal reproduction.
- 3.2.2 Construct a diagram of estrogen and progesterone profiles during the estrous cycle.
- 3.2.3 Discuss the events that occur leading up to, during, and after parturition and describe the problems that may be encountered during parturition.

Performance Standard 3.3: Animal Reproduction Technology

- 3.3.1 Describe the process of artificial insemination in common agricultural animals, including the collection, evaluation, and handling of semen.
Discuss the advantages and disadvantages of artificial insemination and natural breeding.
- 3.3.2
- 3.3.3 Research the process of estrous synchronization, semen sexing, embryo transfer, cloning, and genetic engineering.

Performance Standard 3.4: Animal Reproduction Management

- 3.4.1 Identify common reproductive diseases that affect animals and determine appropriate prevention and treatment methods.
- 3.4.2 Discuss reproduction management practices and determine how they affect reproductive performance.

Performance Standard 3.5: Lactation

- 3.5.1 Discuss reproduction management practices and determine how they affect reproductive performance.
- 3.5.2 Describe the components of milk and colostrum and their role in newborn livestock.
- 3.5.3 Examine how factors such as genetics, disease, feed, environment, and body condition affect milk production.

CONTENT STANDARD 4.0: PRINCIPLES OF EVALUATION FOR ANIMAL SELECTION

Performance Standard 4.1: Genetics

- 4.1.1 Understand genetics and the impact of Mendel's development of the basic principles of heredity.
- 4.1.2 Identify and describe heritable traits.

- 4.1.3 Explain the principles of dominance and incomplete dominance.

Performance Standard 4.2: Heritability of Traits

- 4.2.1 Analyze heritability estimates as a selection factor in breeding programs.
4.2.2 Explain the relationship between genotype, environment, and phenotype.
4.2.3 Discuss the advantages of crossbreeding and hybrid vigor in livestock production.

Performance Standard 4.3: Types and Conformation of Domestic Animals

- 4.3.1 Classify body condition scoring system among the different species.
4.3.2 Interpret performance data when evaluating livestock.
4.3.3 Classify animals and their characteristics based on phenotype.
4.3.4 Identify current industry standards for animal selection according to species.
4.3.5 Evaluate livestock using Expected Progeny Differences (EPD).

CONTENT STANDARD 5.0: ANIMAL WELFARE, HANDLING, AND QUALITY ASSURANCE

Performance Standard 5.1: Animal Welfare Philosophies

- 5.1.1 Compare and contrast animal welfare versus the concept of animal rights.
5.1.2 Research and report the basis for general concerns regarding animal welfare.

Performance Standard 5.2: Animal Behavior

- 5.2.1 Define, compare, and contrast the patterns of animal behavior.
5.2.2 Describe various methods of animal behavior modification.

Performance Standard 5.3: Cultural and Controversial Issues Related to Animal Use and Keep

- 5.3.1 Compare and contrast current controversial issues in animal usage.
Distinguish between fact and propaganda when analyzing animal usage issues and their impact on the environment.
5.3.2
5.3.3 Compare and contrast cultural differences and their impact on animal use.
5.3.4 Examine legislation regarding current animal usage and welfare.

Performance Standard 5.4: Quality Assurance Standards

- 5.4.1 Research quality assurance standards for Idaho's livestock industry.
5.4.2 Explain how these standards would apply to the livestock industry.

CONTENT STANDARD 6.0: EVALUATING ANIMAL HEALTH AND ADMINISTERING CARE

Performance Standards 6.1.: Animal Disease Transmission and Immunity

- 6.1.1 Describe the modes of transmission of infectious diseases.
6.1.2 Examine the primary and secondary defenses the body uses to resist disease.
6.1.3 Identify how passive and active immunity can be enhanced by management.

Performance Standards 6.2: Animal Medications

- 6.2.1 Examine the use of vaccines in disease control.
6.2.2 Examine the types and forms of pharmaceuticals.
6.2.3 Compare appropriate storage methods for medications and recognize how improper

storage conditions may affect drugs.

Performance Standards 6.3: Medication and Care

- 6.3.1 Illustrate methods used to administer vaccines and pharmaceuticals.
- 6.3.2 Identify the instruments used to administer vaccines and pharmaceuticals.
- 6.3.3 Describe the types of injections, and determine the appropriate injection sites and dosages.
- 6.3.4 Examine the components of a label found on animal medication and interpret a veterinarian's prescription.

Performance Standards 6.4: Parasites

- 6.4.1 Identify common internal and external parasites that affect livestock and describe the diseases that they may spread or cause.
- 6.4.2 Understand the life cycle of common parasites and how it affects animals.
- 6.4.3 Recognize the importance of controlling parasites in disease management.

Performance Standards 6.5: Disease Control and Management

- 6.5.1 Explain how cleanliness affects disease control, and compare antiseptics and disinfectants.
- 6.5.2 Evaluate vaccination and prevention methods, and describe the types of vaccines available.

Performance Standards 6.6: Animal Health

- 6.6.1 Interpret animal behavior as related to health.
- 6.6.2 Discuss beneficial record-keeping programs.
- 6.6.3 Describe ways of identifying and tracking individual animals.

CONTENT STANDARD 7.0: EXPLORE HARVESTING AND PROCESSING OF ANIMAL PRODUCTS

Performance Standard 7.1: Meat Animal Harvesting and Processing

- 7.1.1 Outline the major steps involved in the harvesting of animals.
- 7.1.2 Identify the wholesale and retail cuts of beef, pork, and lamb.
- 7.1.3 Identify the edible and inedible by-products of meat animals.
- 7.1.4 Identify meat processing methods.

Performance Standard 7.2: Meat Product Quality

- 7.2.1 Identify the wholesale and retail cuts of beef, pork and lamb.
- 7.2.2 Compare and contrast grading systems of beef, pork and lamb.
- 7.2.3 Calculate and explain dressing percentages.

Performance Standard 7.3: Dairy Product Processing

- 7.3.1 Identify dairy quality control standards and requirements.
- 7.3.2 Identify dairy processing methods.
- 7.3.3 List and explain the utility of economically important dairy products.

CONTENT STANDARD 8.0: EXAMINE AGRICULTURAL BUSINESS AND RISK MANAGEMENT**Performance Standard 8.1: Marketing Process**

- 8.1.1 Investigate value-added concepts of marketing.
- 8.1.2 Understand the concepts of utility to agricultural commodities.
- 8.1.3 Discuss current industry trends in agriculture marketing.

Performance Standard 8.2: Market and Sales Analysis

- 8.2.1 Research strength, weakness, opportunities and threats (SWOT) analysis.
- 8.2.2 Determine a product/client's status in current market.
- 8.2.3 Discuss the value of accurate product information.
- 8.2.4 Determine planning assumptions based on market analysis.
- 8.2.5 Research potential target markets for an agricultural enterprise or product.

Performance Standard 8.3: Marketing Plan Evaluations

- 8.3.1 Determine the importance of evaluation a marketing plan.
- 8.3.2 Calculate the financial return of a marketing plan.

Performance Standard 8.4: Financial Risk Management

- 8.4.1 Define risk management in agricultural enterprises.
- 8.4.2 Differentiate between operating and capital loans.
- 8.4.3 Understand the factors that affect the cost of credit and amortize a loan.
- 8.4.4 Discuss available government programs to reduce financial risk.
- 8.4.5 Determine how insurance can reduce financial risk.
- 8.4.6 Compare and contrast leasing and purchasing equipment and real property.

Performance Standard 8.5: Marketing in Risk Management

- 8.5.1 Discuss how cash markets can influence risk management decisions.
- 8.5.2 Research the role of futures in marketing decisions.
- 8.5.3 Compare and contrast hedging as a price risk management strategy.
- 8.5.4 Examine the role and impact of speculation in price risk management.

CONTENT STANDARD 9.0: CAREER OPPORTUNITIES IN ANIMAL SCIENCE**Performance Standard 9.1: Careers in Animal Science**

- 9.1.1 Research potential careers in animal science.
- 9.1.2 Demonstrate employability skills for a career in the animal science industry.
- 9.1.3 Research additional industry certifications available.

CONTENT STANDARD 10.0: LEADERSHIP TRAINING THROUGH AGRICULTURAL EDUCATION**Performance Standard 10.1: Effective Leadership and Participation in Leadership Training**

- 10.1.1 Expand leadership experience by participating in a chapter activity
- 10.1.2 Participate in a career development event at the local level or above
- 10.1.3 Exhibit leadership skills by demonstrating proper parliamentary procedure

10.1.4. Participate in a speech or presentation activity

Performance Standard 10.2: School and Community Awareness

10.2.1 Participate in a school improvement or community development project.

**CONTENT STANDARD 11.0: SUPERVISED AGRICULTURAL EXPERIENCE (SAE)
AND PREPARATION OF STUDENTS FOR A CAREER IN AGRICULTURE**

Performance Standard 11.1: Maintain a Supervised Agricultural Experience

11.1.1 Accurately maintain SAE record books.

11.1.2 Investigate the proficiency award areas related to SAE program area.

11.1.3 Actively pursue necessary steps to receive higher degrees in FFA.

CONTENT STANDARD 1.0: SAFETY IN THE ORNAMENTAL HORTICULTURE INDUSTRY

Performance Standard 1.1: Safe Work Practices

- 1.1.1 Identify and properly use personal protection equipment.
- 1.1.2 Read, understand and follow label directions and SDS (safety data sheet).
- 1.1.3 Properly identify common hand tools and power equipment.
- 1.1.4 Safely use common hand tools and power equipment.
- 1.1.5 Complete (EPA) worker protection handler verification card training.

CONTENT STANDARD 2.0: PLANT ANATOMY

Performance Standard 2.1: Plant Cells

- 2.1.1 Label the parts of a plant cell.
- 2.1.2 Differentiate between a plant and animal cell.
- 2.1.3 Explain the function of plant cell organelles.

Performance Standard 2.2: Root Anatomy

- 2.2.1 Investigate the functions of roots in plants.
- 2.2.2 Identify the parts of a root.
- 2.2.3 Differentiate the two major types of root systems.
- 2.2.4 Investigate specialized structures in roots.
- 2.2.5 Investigate the functions of roots in plants.

Performance Standard 2.3: Stem Anatomy

- 2.3.1 List the functions of a stem.
- 2.3.2 Recognize the external structures of a stem.
- 2.3.3 Analyze the internal structures of a stem cell.
- 2.3.4 Investigate specialized structures in stems.

Performance Standard 2.4.: Leaf Anatomy

- 2.4.1 Name the main parts of a leaf.
- 2.4.2 Compare common vein patterns found in leaves.
- 2.4.3 List three functions of a leaf, including photosynthetic energy conversion.
- 2.4.4 Differentiate major leaf arrangements.
- 2.4.5 Investigate specialized cell structures in a leaf.

Performance Standard 2.5: Flower Anatomy

- 2.5.1 Label and describe the parts of a flower.
- 2.5.2 Summarize the purpose of a flower.
- 2.5.3 Distinguish between different types of flowers.
- 2.5.4 Describe the difference between monocot and dicot flowers.
- 2.5.5 Diagram the process of plant pollination and fertilization.

Performance Standard 2.6: Fruit Anatomy

- 2.6.1 Label and describe the parts of a fruit.
- 2.6.2 Identify and distinguish between basic types of fruits.

Performance Standard 2.7: Seed Anatomy

- 2.7.1 Identify and list the major parts of a seed.
- 2.7.2 List the function of each major part of a seed.

CONTENT STANDARD 3.0: PLANT PHYSIOLOGY

Performance Standard 3.1: Energy Conversion In Plants

- 3.1.1 Interpret the process of photosynthesis.
- 3.1.2 Interpret the process of respiration.
- 3.1.3 Compare the process of respiration to photosynthesis.

Performance Standard 3.2: Transport Within a Plant System

- 3.2.1 Compare the active and passive transport of minerals into and through the root systems to plant nutrition.
- 3.2.2 Compare the structure and function of xylem and phloem cells and tissues.
- 3.2.3 Describe the process of translocation.

Performance Standard 3.3: Environmental Requirements for Plant Growth

- 3.3.1 Examine the effects of light quality on plant growth (i.e., spectrum, light measurement).
- 3.3.2 Examine the effects of water quality on plant growth (i.e., pH, hardness).
- 3.3.3 Examine the effects of temperature on plant growth.

Performance Standard 3.4: Plant Growth Regulators

- 3.4.1 Compare the functions of plant hormones.
- 3.4.2 Examine commercial uses for plant growth regulators.

Performance Standard 3.5: Plant Tropisms

- 3.5.1 Investigate plant tropisms (e.g., photo, thigma or gravi-).

CONTENT STANDARD 4.0: PLANT IDENTIFICATION SKILLS

Performance Standard 4.1: Categorize Plants

- 4.1.1 Discuss the classification and naming of plants.
- 4.1.2 Distinguish the major groups of plants.
- 4.1.3 Correctly categorize common plants by life cycle (i.e., annuals, perennials, etc.).
- 4.1.4 Correctly categorize plants by growth habits (i.e., mounding, trailing, etc.).
- 4.1.5 Utilize resources to establish plant suitability for a selected site (i.e., Hardiness Zone Maps, Heat Zone Maps).
- 4.1.6 Identify common plants by botanical and common names.

CONTENT STANDARD 5.0: GROWING MEDIA

Performance Standard 5.1: Soil Texture and Structure

- 5.1.1 List the components of soil.
- 5.1.2 Describe the concept of soil texture and its importance.
- 5.1.3 Classify the texture of a soil sample.
- 5.1.4 Identify various soil structures, their formation, and importance in agriculture production.

Performance Standard 5.2: Soilless Growing Media

- 5.2.1 Identify the components and source of soilless growing media.
- 5.2.2 Describe the functions of growing media.
Determine desirable properties of growing media (i.e., drainage, organic matter, micro-organisms).
- 5.2.3
- 5.2.4 Evaluate the advantages and disadvantages of soilless media.

Performance Standard 5.3: Chemical Characteristics of Growing Media

- 5.3.1 Test and determine pH level of various growing media.
- 5.3.2 Interpret pH test results of a growing media sample.
- 5.3.3 Test and determine the electrical conductivity (EC) of various growing media.
- 5.3.4 Interpret EC test results of a growing media sample.
- 5.3.5 Interpret soil test results and make recommendation accordingly.
- 5.3.6 Analyze the relationship between soil media and nutrient availability.

Performance Standard 5.4: Water-Holding Capacity (WHC)

- 5.4.1 Describe water-holding capacity of soils and its relationship to the water cycle.
- 5.4.2 Explain what determines a soil's water-holding capacity.

CONTENT STANDARD 6.0: PLANT NUTRITION

Performance Standards 6.1: Fertilizer Formulation

- 6.1.1 Differentiate between macronutrients and micronutrients.
- 6.1.2 Measure pH and describe how it is modified.
- 6.1.3 Identify the components of a fertilizer and their role in the biochemical cycle.
- 6.1.4 Interpret a fertilizer label.
- 6.1.5 Categorize methods of application (i.e., granular, time released, injector, foliar).
- 6.1.6 Evaluate application methods to ornamental crops.
- 6.1.7 Develop a fertilizer management plan for an ornamental crop.

Performance Standards 6.2: Plant Nutrients

- 6.2.1 Correlate plant symptoms to the appropriate nutritional deficiency.
- 6.2.2 Correlate plant symptoms to the appropriate plant toxicity.

CONTENT STANDARD 7.0: INTEGRATED PEST MANAGEMENT (IPM)

Performance Standard 7.1: Integrated Pest Management

- 7.1.1 Define Integrated Pest Management (IPM).
- 7.1.2 Summarize the benefits of IPM.

Performance Standard 7.2: Common Pests and Diseases

- 7.2.1 Identify types of plant pests and diseases.
- 7.2.2 Identify weed, insect, rodent, and fungi pests.
- 7.2.3 Differentiate between infectious and noninfectious diseases.
- 7.2.4 Identify abiotic plant injuries.

Performance Standard 7.3: Safe Handling, Use, and Storage of Pesticides

- 7.3.1 Identify and utilize appropriate safety measures when applying pesticides.
- 7.3.2 Interpret pesticide labels.
- 7.3.3 Explain procedures for storing and disposing of pesticides.
- 7.3.4 Evaluate environmental and consumer concerns regarding pest management and biodiversity.
- 7.3.5 Demonstrate how to mix pesticides according to label directions.
- 7.3.6 Calibrate common application equipment and calculate application rate.
- 7.3.7 Explore requirements for obtaining pesticide applicator licenses.

CONTENT STANDARD 8.0: PLANT PROPAGATION

Performance Standard 8.1: Sexual Propagation of Ornamental Plants

- 8.1.1 Compare the difference between sexual and asexual propagation.
- 8.1.2 Diagram the process of seed germination.
- 8.1.3 Identify the conditions needed for seed germination.
- 8.1.4 Compare the methods of seed preparation.
- 8.1.5 Demonstrate techniques for sowing seeds.
- 8.1.6 Determine germination percent.

Performance Standard 8.2: Asexual Propagation of Ornamental Plants

- 8.2.1 Summarize optimum conditions for asexual propagation.
- 8.2.2 Demonstrate techniques used to propagate plants by cutting.
- 8.2.3 Demonstrate techniques used to propagate plants by division.
- 8.2.4 Demonstrate techniques used to propagate plants by separation.
- 8.2.5 Demonstrate techniques used to propagate plants by layering.

CONTENT STANDARD 9.0: ORNAMENTAL HORTICULTURE CROPS

Performance Standard 9.1: Crop Production

- 9.1.1 Plan a growing schedule to maximize the production of a growing facility.
- 9.1.2 Utilize best management practices when spacing crops.
- 9.1.3 Select appropriate containers and medium for a crop.

Performance Standard 9.2: Growth Maintenance Procedures

- 9.2.1 Compare and contrast hard and soft pinches.
- 9.2.2 Pinch plants using best management practices.
- 9.2.3 Examine proper pruning techniques.
- 9.2.4 Demonstrate proper watering techniques.
- 9.2.5 Develop a plant lighting schedule for a crop.
- 9.2.6 Develop a fertilizer schedule for a crop.

Performance Standard 9.3: Transplanting

- 9.3.1 Identify the proper stage of plant growth for transplanting.
- 9.3.2 Select appropriate plants for transplanting.
- 9.3.3 Demonstrate transplanting procedures to industry standards.

Performance Standard 9.4: Production Standards

- 9.4.1 Compare hardening processes
- 9.4.2 Prepare plants for sale using best management practices.
- 9.4.3 Examine current industry crop standards (i.e. ANSI, ASNS, NALP).

CONTENT STANDARD 10.0: BUSINESS CONCEPTS

Performance Standard 10.1: Basics of Marketing

- 10.1.1 Compare and contrast advertising methods.
- 10.1.2 Define the purpose for developing a marketing plan.
- 10.1.3 Create a business display to a target market.

Performance Standard 10.2: Principles of Sales

- 10.2.1 Compare and contrast the relationship between marketing and selling.
- 10.2.2 Calculate markup.
- 10.2.3 Complete a sales ticket.
- 10.2.4 Complete a pre-sale and post-sale plant inventory.
- 10.2.5 Determine cost of sales.
- 10.2.6 Complete estimates and bids (cost analysis).
- 10.2.7 Identify the characteristics of an effective salesperson, and define related terms.
- 10.2.8 Analyze the customer buying process.
- 10.2.9 Identify the steps involved in the selling process.
- 10.2.10 Identify the benefits of different types of sales, including website and e-commerce.
- 10.2.11 Assess the basic components and content of a business website.

CONTENT STANDARD 11.0: PLANT TECHNOLOGIES

Performance Standard 11.1: Selective Plant Breeding

- 11.1.1 Describe the selective plant breeding process.
- 11.1.2 Explain how to estimate the heritability of certain traits.
- 11.1.3 Predict the genotypes and phenotypes from monohybrid and dihybrid crosses using a Punnett Square.
- 11.1.4 Describe sex determination, linkage, crossover, and mutation.
- 11.1.5 Describe how biotechnology tools are used to monitor and direct plant breeding.

Performance Standard 11.2: Genetic Engineering of Plants

- 11.2.1 Explain the advantages and disadvantages for genetic manipulation of plants.
- 11.2.2 Identify transgenic plants on the market.

Performance Standard 11.3: Micropropagation Techniques

- 11.3.1 Define micropropagation and its importance.
- 11.3.2 Explain applications of micropropagation.
- 11.3.3 Identify tools and materials for micropropagation procedures.
- 11.3.4 Describe procedures used in micropropagation.

Performance Standard 11.4: Hydroponic Techniques

- 11.4.1 Define hydroponics and its importance to society.
- 11.4.2 Explain applications of hydroponics.
- 11.4.3 Describe procedures used in hydroponic plant production.

CONTENT STANDARD 12.0: ORNAMENTAL DESIGN STANDARDS

Performance Standards 12.1: Principles and Elements of Design

- 12.1.1 Compare and contrast balance using symmetry, asymmetry, and massing.
- 12.1.2 Explain how the principles of dominance and focal point are used in design.
- 12.1.3 Determine appropriate proportion and scale in a design.
- 12.1.4 Illustrate how to establish rhythm in a design.
- 12.1.5 Discuss relationship of color to emotions/symbolism.
- 12.1.6 Use color, texture, and form to create a desired atmosphere.

Performance Standard 12.2: Implementation of Principles and Elements of Design

- 12.2.1 Create a project using principles and elements of design.
- 12.2.2 Justify design choices of finished project.

CONTENT STANDARD 13.0: CAREER OPPORTUNITIES IN ORNAMENTAL HORTICULTURE

Performance Standard 13.1: Careers in Ornamental Horticulture

- 13.1.1 Research potential careers in ornamental horticulture and plant science.
- 13.1.2 Demonstrate employability skills for a career in the ornamental horticulture industry.
- 13.1.3 Research additional industry certifications available.

CONTENT STANDARD 14.0: LEADERSHIP TRAINING THROUGH AGRICULTURAL EDUCATION

Performance Standard 14.1: Effective Leadership and Leadership Training

- 14.1.1 Expand leadership experience by participating in a chapter activity.
- 14.1.2 Participate in a career development event at the local level or above.
- 14.1.3 Exhibit leadership skills by demonstrating proper parliamentary procedure.
- 14.1.4 Participate in a speech or presentation activity.

Performance Standard 14.2: School and Community Awareness

- 14.2.1 Participate in a school improvement or community development project.

CONTENT STANDARD 15.0: SUPERVISED AGRICULTURAL EXPERIENCE (SAE) AND AGRICULTURAL CAREER PREPARATION

Performance Standard 15.1: Maintain a Supervised Agricultural Experience

- 15.1.1 Accurately maintain SAE record books.
- 15.1.2 Investigate the proficiency award areas related to SAE program area.
- 15.1.3 Actively pursue necessary steps to receive higher degrees in FFA.