



# California Subject Examinations for Teachers®

## TEST GUIDE

### AGRICULTURE SUBTEST III

### Subtest Description

This document contains the Agriculture subject matter requirements arranged according to the domains covered by Subtest III of CSET: Agriculture. In parentheses after each named domain is the domain code from the Agriculture subject matter requirements.

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## California Subject Examinations for Teachers (CSET®)

### **Agriculture** **Subtest III: Agricultural Business and Economics;** **Agricultural Systems Technology**

#### **Part I: Content Domains for Subject Matter Understanding and Skill in** **Agriculture**

##### **AGRICULTURAL BUSINESS AND ECONOMICS (SMR Domain 5)**

Candidates demonstrate a broad understanding of principles of agricultural business and economics. Candidates apply this knowledge to plan and implement programs. Candidates are able to demonstrate an understanding of a range of topics in agricultural business and economics, including agricultural economics, marketing, and trade; agricultural entrepreneurship and management functions; agricultural business management; and government policies that affect agricultural businesses.

##### **0001 Agricultural Economics (SMR 5.1)**

- a. Demonstrate an understanding of basic economic principles (e.g., supply, demand, elasticity, equilibrium) and their application to agricultural business.
- b. Demonstrate an understanding of how government policies (e.g., tax policies, subsidies, tariffs) affect national and international agricultural businesses.
- c. Demonstrate an understanding of how private and public organizations impact agricultural businesses.

##### **0002 Agricultural Marketing and Trade (SMR 5.2)**

- a. Demonstrate an understanding of basic principles and strategies for marketing agricultural products (e.g., identifying target markets and market outlets, developing marketing plans).
- b. Analyze factors affecting the purchase and sale of agricultural products and services (e.g., customer relations; merchandising; pricing, labeling, and displaying products).
- c. Demonstrate knowledge of factors (e.g., governmental, economic, political, cultural) that affect international trade in agricultural products.

##### **0003 Agricultural Entrepreneurship and Leadership (SMR 5.3)**

- a. Demonstrate an understanding of the role of entrepreneurship in agriculture and factors that are important for successful entrepreneurship.
- b. Demonstrate knowledge of steps for establishing a successful business and the components of a business plan.

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- c. Demonstrate knowledge of business management functions (e.g., planning, organizing, directing, controlling, staffing) and types of business organizations and structures (e.g., sole proprietorship, partnership, corporation, cooperative).
- d. Demonstrate knowledge of effective leadership styles, key concepts of group dynamics, team and individual decision making, and conflict resolution.
- e. Demonstrate knowledge of work-related and business-related ethics.
- f. Demonstrate knowledge of federal, state, and local agencies, laws, and regulations (e.g., environmental, liability, workplace safety, antidiscrimination, child labor, food safety and security) affecting agricultural businesses.

#### **0004 Agricultural Business Management, Record Keeping, and Accounting (SMR 5.4)**

- a. Demonstrate an understanding of principles and procedures used for budgeting, analysis of cash flow, record keeping, and accounting in agricultural businesses.
- b. Demonstrate an understanding of basic banking procedures and the types, sources, and costs of credit.
- c. Demonstrate an understanding of types and benefits of insurance and other forms of risk management (e.g., hedging, forward contracting, diversification).
- d. Demonstrate an understanding of basic principles and procedures of production management (e.g., scheduling, market forecasting, calculating production costs).
- e. Demonstrate knowledge of human resources management (e.g., identifying sources and availability of labor, setting wages, fostering teamwork, valuing diversity).
- f. Demonstrate knowledge of computer technology as a tool for decision making and office management in agricultural businesses.

(Draft Curriculum Standards for Agriculture [2004]: Standards 1.3, 4. California Agricultural Education Career Preparation Standards: Grades 11–12 [1995]: Agricultural Business Management Career Path Standards 1–9. Agriculture Teacher Preparation in California: Standards of Quality and Effectiveness [1999]: Standard 5.)

#### **AGRICULTURAL SYSTEMS TECHNOLOGY (SMR Domain 6)**

Candidates demonstrate a broad understanding of principles of agricultural systems technology. Candidates apply this knowledge to plan and implement programs. Candidates are able to demonstrate an understanding of a range of topics in agricultural systems technology, including safety principles and practices, shop fabrication, construction, maintenance and operation of power equipment, and land measurement and irrigation systems.

#### **0005 Safety Principles and Practices (SMR 6.1)**

- a. Demonstrate an understanding of principles and practices for the safe use, care, and maintenance of hand and power tools, machinery, and equipment used in agriculture.

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- b. Demonstrate an understanding of principles and practices for safely securing and hauling loads.
- c. Demonstrate an understanding of principles and practices for the safe use, storage, and disposal of materials (e.g., solvents, fuels, paints) used in agriculture.

#### **0006 Shop Fabrication (SMR 6.2)**

- a. Demonstrate knowledge of basic drafting principles and techniques, measurement methods, and layout techniques used in shop fabrication.
- b. Demonstrate knowledge of types, properties, and uses of materials (e.g., metals, wood) used in shop fabrication.
- c. Demonstrate knowledge of techniques and equipment for performing basic metalworking procedures (e.g., oxyacetylene cutting and welding, electric welding, plasma cutting).

#### **0007 Construction (SMR 6.3)**

- a. Demonstrate knowledge of procedures for designing and planning agricultural structures (e.g., siting, estimating, drawing plans) and measurement methods and techniques used in agricultural construction.
- b. Demonstrate knowledge of carpentry and concrete/masonry skills, principles, tools, methods, and materials.
- c. Demonstrate knowledge of electrical and plumbing skills, principles, tools, methods, and materials.

#### **0008 Maintenance and Operation of Power Equipment (SMR 6.4)**

- a. Demonstrate knowledge of the types (e.g., tractors, combines, discs, balers), characteristics, components, operation, and uses of various types of power equipment and implements used in agriculture.
- b. Demonstrate knowledge of the types (e.g., diesel, two- and four-stroke cycle), characteristics, components, uses, operation, and maintenance of internal combustion engines used in agricultural power equipment.
- c. Demonstrate basic knowledge of characteristics, components, and uses of power transmission systems used in agricultural power equipment.
- d. Demonstrate basic knowledge of characteristics and components of electrical/electronic systems used in agricultural power equipment.
- e. Demonstrate knowledge of basic principles of hydraulic systems used in agricultural power equipment.

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**0009 Land Measurement and Irrigation Systems (SMR 6.5)**

- a. Demonstrate knowledge of basic principles, methods, tools, and equipment for surveying, mapping, land measurement, and land leveling.
- b. Demonstrate knowledge of types (e.g., sprinkler, drip, furrow), components (e.g., pumps, controllers, pipes), design, uses, installation, and maintenance of irrigation systems.

(Draft Curriculum Standards for Agriculture [2004]: Standard 6. California Agricultural Education Career Preparation Standards: Grades 11–12 [1995]: Agricultural Mechanics Career Path Standards 1–6, 8–9. Agriculture Teacher Preparation in California: Standards of Quality and Effectiveness [1999]: Standard 7.)

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### **SUBTEST III: AGRICULTURAL BUSINESS AND ECONOMICS; AGRICULTURAL SYSTEMS TECHNOLOGY**

#### **Part II: Subject Matter Skills and Abilities Applicable to the Content Domains in Agriculture**

Candidates apply knowledge of scientific principles and methods, experimental design, measurement, and data analysis to investigate and understand agriculture-related problems and issues. Candidates understand and apply safety rules and practices in the classroom, laboratory, field, and Supervised Agricultural Experience (SAE) settings.

Candidates understand the integral relationships among classroom activities, FFA programs, and SAEs in the context of the local community. Candidates apply organizational, leadership, and communication skills to work effectively with groups and individuals (e.g., advisory committees, industry representatives, community organizations, student organizations, school leaders, elected officials). They understand the goals and purposes of SAE programs and the characteristics of different types of SAEs. They understand strategies for coordinating student SAEs and for supervising, advising, and supporting students during their experiences. Candidates understand the characteristics, functions, and organizational structures of student leadership development organizations (e.g., FFA) and their roles and responsibilities as advisors to these organizations. Candidates are able to effectively represent the agricultural program in individual and group settings in the school, community, and industry. Candidates are able to understand and respond to issues related to diversity, equity, and ethics in the agriculture program.

Candidates understand historical events, current research, and recent developments in agriculture. They are familiar with social, economic, legal, and ethical issues in the field. They apply strategies (e.g., accessing Internet resources, joining professional organizations) for staying abreast of current issues and developments in agriculture. They are able to identify industry trends and job opportunities, employers' expectations, and the personal characteristics (e.g., appropriate work habits, social and communication skills) necessary for a successful career in agriculture. They apply their knowledge to assist students in academic and career planning and development and in applying for, obtaining, and maintaining employment in agriculture and related fields.

Candidates understand the interrelationships and connections among the various subdisciplines of agriculture and between agriculture and other disciplines commonly taught in public schools. Candidates can identify and integrate themes and concepts among these disciplines and subdisciplines.