# Agricultural and Environmental Systems Career Field

## Food Marketing and Research

**Subject Code: 011015**

**Outcome & Competency Descriptions**

**Course Description:**

Learners will focus on the stages of the research process from research planning to gathering, analysis, and interpretation of data as it relates to food marketing management. Learners will apply knowledge of food additives, nutrition, mixes and solutions to enhance existing food products and to create new processed foods. Learners will identify and describe the impact that technological advances have on food production and availability. Cultural trends and preferences affecting product development will be examined.

**Strand 1.**  **Business Operations/21st Century Skills**

Learners apply principles of economics, business management, marketing and employability in an entrepreneur, manager and employee role to the leadership, planning, developing and analyzing of business enterprises related to the career field.

**Outcome: 1.2. Leadership and Communications**

Process, maintain, evaluate and disseminate information in a business. Develop leadership and team building to promote collaboration.

**Competencies**

1.2.1. Extract relevant, valid information from materials and cite sources of information.

1.2.2. Deliver formal and informal presentations.

1.2.3. Identify and use verbal, nonverbal and active listening skills to communicate effectively.

1.2.4. Use negotiation and conflict-resolution skills to reach solutions.

1.2.5. Communicate information (e.g., directions, ideas, vision, workplace expectations) for an intended audience and purpose.

1.2.6. Use proper grammar and expression in all aspects of communication.

1.2.7. Use problem-solving and consensus-building techniques to draw conclusions and determine next steps.

1.2.8. Identify the strengths, weaknesses and characteristics of leadership styles that influence internal and external workplace relationships.

1.2.9. Identify advantages and disadvantages involving digital and/or electronic communications (e.g., common content for large audience, control of tone, speed, cost, lack of non-verbal cues, potential for forwarding information, longevity).

1.2.10. Use interpersonal skills to provide group leadership, promote collaboration and work in a team.

1.2.11. Write professional correspondence, documents, job applications and resumés.

1.2.12. Use technical writing skills to complete forms and create reports.

1.2.13. Identify stakeholders and solicit their opinions.

1.2.14. Use motivational strategies to accomplish goals.

**Outcome: 1.3. Business Ethics and Law**

Analyze how professional, ethical and legal behavior contributes to continuous improvement in organizational performance and regulatory compliance.

**Competencies**

1.3.1. Analyze how regulatory compliance (e.g., United States Department of Agriculture [USDA], Food and Drug Administration [FDA], United States Department of Interior [USDI], Ohio Livestock Care Standards, water quality standards, local water regulations, building codes) affects business operations and organizational performance.

1.3.2. Follow protocols and practices necessary to maintain a clean, safe and healthy work environment.

1.3.4. Identify how federal and state consumer protection laws affect products and services.

**Outcome: 1.4. Knowledge Management and Information Technology**

Demonstrate current and emerging strategies and technologies used to collect, analyze, record and share information in business operations.

**Competencies**

1.4.1. Use office equipment to communicate (e.g., phone, radio equipment, fax machine, scanner, public address systems).

1.4.2. Select and use software applications to locate, record, analyze and present information (e.g., word processing, e-mail, spreadsheet, databases, presentation, Internet search engines).

1.4.8. Use electronic media to communicate and follow network etiquette guidelines.

**Outcome: 1.5. Global Environment**

Evaluate how beliefs, values, attitudes and behaviors influence organizational strategies and goals.

**Competencies**

1.5.1. Describe how cultural understanding, cultural intelligence skills and continual awareness are interdependent.

1.5.4. Recognize barriers in cross-cultural relationships and implement behavioral adjustments.

1.5.5. Recognize the ways in which bias and discrimination may influence productivity and profitability.

**Outcome: 1.6. Business Literacy**

Develop foundational skills and knowledge in entrepreneurship, financial literacy and business operations.

**Competencies**

1.6.6. Identify the target market served by the organization, the niche that the organization fills and an outlook of the industry.

1.6.7. Identify the effect of supply and demand on products and services.

**Outcome: 1.10. Sales and Marketing**

Manage pricing, place, promotion, packaging, positioning and public relations to improve quality customer service.

**Competencies**

1.10.1. Identify how the roles of sales, advertising and public relations contribute to a company’s brand.

1.10.2. Determine the customer's needs and identify solutions.

1.10.3. Communicate features, benefits and warranties of a product or service to the customer.

1.10.4. Identify the company policies and procedures for initiating product and service improvements.

1.10.5. Monitor customer expectations and determine product/service satisfaction by using measurement tools.

1.10.6. Discuss the importance of correct pricing to support a product’s or service’s positioning in the

marketing mix.

1.10.7. Describe the importance and diversity of distribution channels (i.e., direct, indirect) to sell a product.

1.10.8. Use promotional techniques to maximize sales revenues (e.g., advertising, sales promotions, publicity, public relations).

1.10.9. Describe how product mix (e.g., product line, product items) maximizes sales revenues, market share and profit margin.

1.10.10. Demonstrate sales techniques.

**Strand 3.**  **Biotechnology**

Learners engage in the scientific process, learn fundamental processes using modern tools and laboratory techniques, adhere to safety protocols, and bring a biotechnology product to the market.

**Outcome: 3.1. Research and Experiments**

Use scientific methodology to conduct problem-based studies, develop products, and interpret results.

**Competencies**

3.1.1. Design a research plan, including the significance of the problem, purpose, hypotheses, objectives, appropriate controls, independent variables, dependent variables, methods of study and a list of materials.

3.1.2. Examine sources for credibility.

3.1.3. Apply sampling methods that appropriately represent the population and implement procedures for systematic data collection.

3.1.4. Explain the importance and design of trialing, and the information gained from it.

3.1.5. Document results of the experiment in a laboratory notebook, including a statement of purpose, experimental design, observations, results, conclusions and next steps.

3.1.6. Create, interpret and use tabular and graphical displays and describe the data.

3.1.7. Compute measures of central tendency to interpret results and draw conclusions.

3.1.8. Define the concepts of confidence intervals and significant figures.

3.1.9. Use t-test and p-value to determine statistical significance of results.

3.1.10. Describe the relationships among variables using correlations and draw conclusions.

3.1.11. Draw conclusions based on observations and data analyses, recognizing that experimental results must be open to the scrutiny of others.

3.1.12. Prepare and present findings using scientific reports.

3.1.13. Evaluate experimental failure and use integrity to communicate findings.

**Strand 7.**  **Food Science**

Learners apply principles of biology, chemistry and physics to the research, development, production, processing and distribution of food products meeting food safety and quality assurance standards in a secure system.

**Outcome 7.1. The Science of Food**

Differentiate the structures, functions and sources of ingredients and the roles they play in food product development for human nutrition.

7.1.11. Identify and describe regulations regarding food additives.

**Outcome: 7.2. Quality Assurance**

Inspect the food production process, locate potential sources of food quality and safety deviations in facilities.

**Competencies**

7.2.2. Describe the quality attributes (e.g. color, flavor, texture) that a food product possesses.

7.2.5. Test food quality through chemical, microbiological, sensory and physical methods.

7.2.6. Evaluate, inspect and select raw food products for manufacturing, based on raw ingredient specifications.

7.2.7. Develop a quality check list, based on finished food product attributes, specifications and regulations.

7.2.8 Identify elements commonly included on the principal display and information panels on a food product.

7.2.10. Describe the relationship between timeliness of processing or production to product quality.

7.2.11. Identify the importance of data collection and management and its relationship to a quality assurance program.

7.2.12. Record and manage data relevant to a quality assurance program.

**Outcome: 7.4. Food Production and Processing**

Process a safe shelf stable food product for distribution and consumption.

**Competencies**

7.4.1. Describe the processes used in food preservation, control the variables, and apply biological processing methods.

7.4.3. Describe the functions and types of packaging operations, equipment and materials and use them to manufacture food products (e.g., metal, glass, paper, plastic, film, laminates, edible coatings, biodegradable).

7.4.4. Process food through mixing, grinding, pumping and washing and describe the physical change in the food product.

7.4.5. Identify and apply food grading systems and standards of identity.

7.4.6. Compare and contrast storage and distribution methods for shelf-stable and non-shelf-stable products.

7.4.7. Differentiate among beneficial microorganisms (e.g., bacteria, mold, yeast) and their uses in food production.

7.4.10. Determine the environmental impacts and manage the waste of processing a food product.

**Outcome: 7.5. Food Product Development**

Apply principles of nutrition and human behavior to create a new food prototype.

**Competencies**

7.5.1. Conduct a sensory evaluation of food products.

7.5.2. Identify consumer preferences, trends and opportunities affecting food product development.

7.5.3. Manipulate ingredients to meet a desired product goal.

7.5.4. Identify nutrient values, serving sizes and nutrient variability for a food product.

7.5.5. Calculate the amounts of restricted ingredients in food products.

7.5.6. Develop a food product package and label according to industry standards.

7.5.7. Estimate the shelf life and potential changes in attributes over time.

7.5.8. Create a new product rollout plan (e.g., concept, bench trial, market assessment, industrial trial, consumer acceptance).

**Outcome: 7.6. Food Safety and Sanitation**

Describe a food safety and sanitation plan, addressing processing facility needs and contamination points.

**Competencies**

7.6.1. Identify and control food product allergens.

7.6.5. Identify and describe foodborne hazards.

7.6.9. Identify the key activities (e.g., recall exercise, regulatory notification) of a recall program.

7.6.10. Identify the government agencies involved in the regulation and governance of food production.

7.6.13. Manage the biosecurity of raw materials and finished products during transportation.