Oregon Agriculture, Food and Natural Resources (AFNR)

AFNR - Food Products and Processing Systems

Develop and implement procedures to ensure safety, sanitation and quality in food product and processing facilities. FPP.01.

1 **Analyze and manage operational and safety procedures in food products and processing facilities.** FPP.01.01.

1a Research and summarize the purposes and objectives of safety programs in food products and processing facilities (e.g., Sanitation Standard Operating Procedures (SSOP); Good Manufacturing Practices (GMP); worker safety, etc.). FPP.01.01.01.A.

1b Analyze and document attributes and procedures of current safety programs in food products and processing facilities. FPP.01.01.01.B.

1c Construct plans that ensure implementation of safety programs for food products and processing facilities. FPP.01.01.01.C.

2a Research and categorize types of equipment used in food products and processing systems. FPP.01.01.02.A.

2b Assess specifications and maintenance needs for equipment and facilities used in food products and processing systems (e.g., specifications for machines, sanitation procedures, repair protocol, etc.) FPP.01.01.02.B.

2c Devise and implement strategies to maintain equipment and facilities for food products and processing systems. FPP.01.01.02.C.

2 **Apply food safety and sanitation procedures in the handling and processing of food products to ensure food quality.** FPP.01.02.

1a Examine and identify contamination hazards associated with food products and processing (e.g., physical, chemical and biological). FPP.01.02.01.A.

1b Outline procedures to eliminate possible contamination hazards associated with food products and processing. FPP.01.02.01.B.

1c Identify sources of contamination in food products and/or processing facilities and develop ways to eliminate contamination. FPP.01.02.01.C.

2a Research and summarize procedures of safe handling protocols (e.g., Hazard Analysis and Critical Control Points Plan (HACCP); Critical Control Point procedures (CCP); Good Agricultural Practices Plan (GAP), etc.). FPP.01.02.02.A.

2b Construct plans that ensure implementation of safe handling procedures on food products. FPP.01.02.02.B.

2c Examine, interpret and report outcomes from safe handling procedures and results from quality assurance tests. FPP.01.02.02.C.

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3a Research and summarize the purposes and objectives of quality assurance tests on food products (e.g., produce safety regulation, safe food transport, food contaminants, etc.). FPP.01.02.03.A.

3b Design and construct experiments for quality assurance tests on food products. FPP.01.02.03.B.

3c Interpret and evaluate results of quality assurance tests on food products and examine steps to implement corrective procedures. FPP.01.02.03.C.

4a Describe the effects food-borne pathogens have on food products and humans. FPP.01.02.04.A.

4b Explain, document and execute the procedures of microbiological tests used to detect food-borne pathogens. FPP.01.02.04.B.

4c Conduct and interpret microbiological tests for food-borne pathogens. FPP.01.02.04.C.

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3 Apply food safety procedures when storing food products to ensure food quality. FPP.01.03.

1a Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.). FPP.01.03.01.A.

1b Analyze characteristics of food products and determine appropriate storage procedures. FPP.01.03.01.B.

1c Prepare plans that ensure implementation of proper food storage procedures. FPP.01.03.01.C.

2a Research and describe different electronic and paper-based documentation methods used to meet food safety and quality goals in food products and processing systems. FPP.01.03.02.A.

2b Demonstrate and explain methods of documentation procedures within food products and processing systems. FPP.01.03.02.B.

2c Implement and evaluate the effectiveness of a documentation procedure used within a food products and processing facility and recommend improvements. FPP.01.03.02.C.

Apply principles of nutrition, biology, microbiology, chemistry and human behavior to the development of food products. FPP.02.

1 Apply principles of nutrition and biology to develop food products that provide a safe, wholesome and nutritious food supply for local and global food systems. FPP.02.01.

1a Research and summarize properties of common food constituents (e.g., proteins, carbohydrates, fats, vitamins, minerals). FPP.02.01.01.A.

1b Compare and contrast the relative value of food constituents relative to food product qualities (e.g., taste, appearance, etc.). FPP.02.01.01.B.

1c Analyze the properties of food products to identify food constituents and evaluate nutritional value. FPP.02.01.01.C.

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a Research and report methods of nutritional planning to meet essential needs for the human diet (e.g., MyPlate). FPP.02.01.02.A.

2b Compare and contrast the nutritional needs of different human diets. FPP.02.01.02.B.

2c Construct methods to design a healthy daily food guide for a variety of nutritional needs. FPP.02.01.02.C.

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2 Apply principles of microbiology and chemistry to develop food products to provide a safe, wholesome and nutritious food supply for local and global food systems. FPP.02.02.

1a Examine and describe the basic chemical makeup of different types of food. FPP.02.02.01.A.

1b Explain how the chemical and physical properties of foods influence nutritional value and eating quality. FPP.02.02.01.B.

1c Design and conduct experiments to determine the chemical a FPP.02.02.01.C.

2a Identify common food additives and identify their properties (e.g., preservatives, antioxidants, buffers, stabilizers, colors, flavors, etc.). FPP.02.02.02.A.

2b Describe the purpose of common food additives and how they influence the chemistry of food. FPP.02.02.02.B.

2c Devise and apply strategies to determine what additives are utilized and why they are included in a variety of food products. FPP.02.02.02.C.

3a Research and summarize the application of biochemistry in the development of new food products (e.g., value added food products, genetically engineered food products, etc.). FPP.02.02.03.A.

3b Analyze how food products and processing facilities use biochemistry concepts to develop new food products. FPP.02.02.03.B.

3c Develop and implement plans to engineer new food items using biochemistry concepts. FPP.02.02.03.C.

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3 Apply principles of human behavior to develop food products to provide a safe, wholesome and nutritious food supply for local and global food systems. FPP.02.03.

1a Examine and explain the importance of food labeling to the consumer. FPP.02.03.01.A.

1b Examine, interpret and explain the meaning of required components on a food label. FPP.02.03.01.B.

1c Determine a strategy to prepare and label foods according to the established standards of regulatory agencies. FPP.02.03.01.C.

2a Research and summarize relevant factors in planning and developing a new food product (e.g., regulation, creativity, economics, etc.). FPP.02.03.02.A.

2b Determine consumer preference and market potential for a new food product using a variety of methods (e.g., double-blind testing, etc.). FPP.02.03.02.B.

c Design new food products that meet a variety of goals (e.g., consumer preferences, market, nutritional needs, regulatory requirements, etc.). FPP.02.03.02.C.

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Select and process food products for storage, distribution and consumption. FPP.03.

1 **Implement selection, evaluation and inspection techniques to ensure safe and quality food products.** FPP.03.01.

1a Summarize characteristics of quality and yield grades of food products. FPP.03.01.01.A.

1b Analyze factors that affect quality and yield grades of food products. FPP.03.01.01.B.

1c Outline procedures to assign quality and yield grades to food products according to industry standards. FPP.03.01.01.C.

2a Summarize procedures to select raw food products based on yield grades and quality grades. FPP.03.01.02.A.

2b Assemble procedures to perform quality-control inspections of raw food products for processing. FPP.03.01.02.B.

2c Develop, apply and evaluate care and handling procedures to maintain original food quality and yield. FPP.03.01.02.C.

3a Identify and describe protocols for inspection and harvesting techniques for animal food products (e.g., pre-mortem and post-mortem inspections, Food Safety Inspection Service guidelines (FSIS), etc.). FPP.03.01.03.A.

3b Examine and evaluate inspection and harvesting of animals using regulatory agency approved or industry-approved techniques. FPP.03.01.03.B.

3c Examine and respond to consumer concerns about the inspection and harvesting techniques of animals using accurate information based on regulatory agency approved or industry-approved techniques. FPP.03.01.03.C.

4a Identify and describe foods derived from different classifications of food products (e.g., meat, egg, poultry, fish, dairy, fruits, vegetables, grains, legumes, oilseeds, etc.). FPP.03.01.04.A.

4b Examine and summarize desirable qualities of food products derived from different classifications of food products. FPP.03.01.04.B.

4c Evaluate and grade food products from different classifications of food products. FPP.03.01.04.C.

2 **Design and apply techniques of food processing, preservation, packaging and presentation for distribution and consumption of food products.** FPP.03.02.

1a Identify and explain English and metric measurements used in the food products and processing industry. FPP.03.02.01.A.

1b Compare weights and measurements of products and perform conversions between units of measure. FPP.03.02.01.B.

1c Design plans to formulate and package food products using a variety of weights and measures. FPP.03.02.01.C.

2a Differentiate between methods and materials used for processing food for different markets (e.g., fresh food products, ready to eat food products, etc.). FPP.03.02.02.A.

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2b Outline appropriate methods and prepare foods for sale and distribution for different markets. FPP.03.02.02.B.

2c Evaluate food quality factors on foods prepared for different markets (e.g., shelf life, shrinkage, appearance, weight, etc.). FPP.03.02.02.C.

3a Identify methods of food preservation and give examples of foods preserved by each method. FPP.03.02.03.A.

3b Analyze and document food preservation processes and methods on a variety of food products. FPP.03.02.03.B.

3c Devise and apply strategies to preserve different foods using various methods and techniques. FPP.03.02.03.C.

4a Summarize types of materials and methods used in food packaging and presentation. FPP.03.02.04.A.

4b Analyze the degree of desirable food qualities of foods stored in various packaging. FPP.03.02.04.B.

4c Construct and implement methods of selecting packaging materials to store a variety of food products. FPP.03.02.04.C.

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3 Create food distribution plans and procedures to ensure safe delivery of food products. FPP.03.03.

1a Assess and describe the environmental impact of distributing food locally and globally. FPP.03.03.01.A.

1b Research and document ways to reduce environmental impact from food distribution activities. FPP.03.03.01.B.

1c Devise and defend a strategy to determine ways for food distribution to reduce environmental impacts. FPP.03.03.01.C.

2a Examine the various paths food products take to get from food processing centers to consumers. FPP.03.03.02.A.

2b Interpret safety procedures used in food distribution to ensure a safe product is being delivered to consumers. FPP.03.03.02.B.

2c Make recommendations to improve safety procedures used in food distribution scenarios to ensure a safe product is being delivered to consumers. FPP.03.03.02.C.

3a Research and summarize different types of market demands for food products (e.g., local food, organic, non-GMO, etc.). FPP.03.03.03.A.

3b Assess and explain how market demand for food products influences the distribution of food products. FPP.03.03.03.B.

3c Propose distribution plans for food products that meet specific market demands. FPP.03.03.03.C.

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developments of food product and processing. FPP.04.

1a Research and summarize examples of policy and legislation that affect food products and processing systems in the United States and around the world (e.g., labeling, GMOs, biosecurity, food system policy, dietary guidelines, etc.). FPP.04.01.01.A.

1b Analyze the similarities and differences amongst policies and legislation that affect the food products and processing system in the U.S. or around the world. FPP.04.01.01.B.

1c Articulate and defend a personal point of view on policies and legislation that affect the food products and processing system in the U.S. or around the world. FPP.04.01.01.C.

2a Examine the impact of consumer trends on food products and processing practices (e.g., health and nutrition, organic, information about food products, local food movements, farm-to-fork supply chains, food system transparency, etc.). FPP.04.01.02.A.

2b Construct and implement methods to obtain data on food consumer trends in a specific market. FPP.04.01.02.B.

2c Devise and implement a strategy to create food products that meet a specific consumer trend in a specific market. FPP.04.01.02.C.

3a Compare and contrast cultural differences regarding food products and processing practices. FPP.04.01.03.A.

3b Analyze food production and distribution outcomes based on cultural customs. FPP.04.01.03.B.

3c Propose and implement culturally sensitive food processing and distribution practices. FPP.04.01.03.C.

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2 **Evaluate the significance and implications of changes and trends in the food products and processing industry in the local and global food systems.** FPP.04.02.

1a Describe and explain the components of the food products and processing industry (e.g., processing, distribution, byproducts, etc.). FPP.04.02.01.A.

1b Analyze and document significant changes and trends in the food products and processing industry. FPP.04.02.01.B.

1c Predict and defend upcoming changes and trends in the food products and processing industry. FPP.04.02.01.C.

2a Identify and explain environmental and safety concerns about the food supply FPP.04.02.02.A.

2b Research and summarize current issues related to the safety and environmental concerns about foods and food processing (e.g., GMOs, irradiation, microorganisms, contamination, etc.). FPP.04.02.02.B.

2c Examine and respond to consumer concerns about the environment and safety of the food supply using accurate information regarding food products and processing systems and practices. FPP.04.02.02.C.

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3 Identify and explain the purpose of industry organizations, groups and regulatory agencies that influence the local and global food systems. FPP.04.03.

1a Examine and summarize the purposes of organizations that influence or regulate the food products and processing industry. FPP.04.03.01.A.

1b Evaluate the changes in the food products and processing industry brought about by industry organizations or regulatory agencies. FPP.04.03.01.B.

1c Construct and implement methods to obtain data about organizations, groups and regulatory agencies that affect the food products and processing industry. FPP.04.03.01.C.

2a Examine and describe the importance and usage of regulatory oversight of food safety and security in food products and processing (e.g., internationally, nationally, state and local). FPP.04.03.02.A.

2b Assess and summarize the application of industry standards in the food products and processing industry. FPP.04.03.02.B.

2c Construct and implement plans that ensure adherence to industry standards for food products and processing facilities. FPP.04.03.02.C.