New Mexico Agriculture, Food & Natural Resources Course Framework

Food Products and Food Processing (0173)

Suggested Course Length: 180 Days

AFNR Pathway: Food Products & Processing Systems (FPP), Agriscience, Environmental Service Systems (ESS), Power, Structural & Technical Systems (PST)

Prerequisite: Agricultural Science (0132) Recommended

Instructional Design Philosophy

Food Products and Food Processing provides students with the scientific and technical knowledge needed to move agricultural products from production to consumer markets. Students investigate food safety, food processing, preservation methods, sanitation practices, quality assurance, consumer preferences, agricultural technology, and food industry careers.

The SAE serves as the backbone of instruction. Students should develop a Food Science, Food Processing, Food Product Development, Agriscience Research, Food Marketing, Culinary Agriculture, or Entrepreneurship SAE. Each unit contributes to a final food product development portfolio and food science capstone project.

Course-at-a-Glance

Quarter	Units	Days
Q1	Units 1-3	45
Q2	Units 4-6	45
Q3	Units 7-9	45
Q4	Units 10-12	45

Unit 1: History and Importance of Agriculture

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
History of Agriculture	CRP.01 Career Planning & Industry Awareness	Agriculture Timeline Project	MyCAERT, Ag in the Classroom	Exploratory Food Science SAE
Importance of Agriculture to Society	CRP.01 Industry Awareness	Food System Analysis	USDA Education Resources	Agricultural Literacy
Trends in Agriculture	CRP.05 Critical Thinking	Agricultural Trend Report	NMSU Extension	Food Industry Careers

Unit Assessment

- Agriculture Timeline Project
- Food Systems Analysis

Unit 2: Global Food Systems

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
World Agricultural Production	FPP.01 Food System Analysis	Global Food Production Report	FAO, USDA Resources	Research SAE
Consumers in World Agriculture	FPP.01 Consumer Food Systems	Consumer Trend Analysis	Market Reports	Entrepreneurship SAE
International Development and Agriculture	CRP.01 Global Agriculture Awareness	Global Agriculture Presentation	International Agriculture Resources	Career Exploration

Unit Assessment

- Global Food Systems Portfolio

Unit 3: Agricultural Research and Technology

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Agriscience and Technology	BS.01 Scientific Investigation	Research Journal	CASE Curriculum	Agriscience SAE
Agricultural Research	BS.01 Research Design	Research Proposal	Agriscience Fair Resources	Research SAE
Technology in Food Production	PST.05 Technology Applications	Technology Analysis	Food Manufacturing Resources	Food Processing SAE

Unit Assessment

- Agricultural Research Project

Unit 4: Precision Technologies and Modern Food Production

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Precision Technologies	PST.05.03.01.a Identify geospatial technologies used in AFNR systems. [2024 AFNR...e Document | PDF]	Precision Technology Report	Precision Agriculture Resources	Technology SAE
Role of Precision Agriculture	PST.05.03.02.b Analyze the economic impact of utilizing precision technologies in AFNR systems. [2024 AFNR...e Document | PDF]	Cost-Benefit Analysis	Industry Technology Partners	Agribusiness SAE
Food Production Technology	PST.05 Technology Integration	Facility Technology Review	Processing Plant Resources	Food Systems SAE

Unit Assessment

- Precision Agriculture & Food Technology Portfolio

Unit 5: Environmental Stewardship in Food Systems

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Sources of Environmental Pollution	ESS.02 Pollution Prevention	Pollution Assessment	EPA Resources	Environmental SAE
Waste Disposal Methods	ESS.02 Waste Management Systems	Waste Management Plan	Extension Publications	Food Processing SAE
Preventing Agricultural Pollution	ESS.02 Environmental Stewardship	BMP Development Project	NRCS Resources	Sustainability SAE

Unit Assessment

- Agricultural Pollution Prevention Plan

Unit 6: Food Science Foundations

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Exploring Food Science	FPP.02 Food Composition & Quality	Food Science Investigation	Institute of Food Technologists	Food Science SAE
Benefits of Food Science	FPP.01 Food Industry Applications	Industry Research Report	Food Science Curriculum	Career Exploration
Food Product Evaluation	FPP.02 Product Quality Assessment	Comparative Product Analysis	Industry Samples	Product Development SAE

Unit Assessment

- Food Science Portfolio

Unit 7: Food Preservation

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Exploring Food Preservation	FPP.03 Food Preservation Systems	Preservation Comparison Lab	USDA Complete Guide to Home Food Preservation	Food Processing SAE
Preservation Methods	FPP.03 Processing Technologies	Preservation Experiment	Extension Food Science Resources	Entrepreneurship SAE
Product Shelf Life	FPP.03 Food Quality Management	Shelf-Life Investigation	Food Industry Materials	Food Product Development

Unit Assessment

- Food Preservation Laboratory Portfolio

Unit 8: Food Safety and Sanitation

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Food Safety Principles	FPP.04 Food Safety Systems	Food Safety Audit	ServSafe Resources	Food Service SAE
Sanitation Procedures	FPP.04 Food Processing Sanitation	Sanitation Plan	Industry SOP Documents	Food Enterprise SAE
Regulatory Compliance	FPP.04 Food Safety Compliance	HACCP Case Study	FDA and USDA Resources	Food Industry Careers

Unit Assessment

- Food Safety Certification Activity
- HACCP Project

Unit 9: Food Quality Assurance

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Quality Selection	FPP.02 Food Quality Evaluation	Product Grading Activity	USDA Grading Standards	Food Product SAE
Quality Control Systems	FPP.04 Quality Assurance Systems	Quality Control Checklist	Industry Resources	Processing SAE
Consumer Expectations	FPP.01 Consumer Trends	Consumer Survey Project	Market Research Reports	Entrepreneurship SAE

Unit Assessment

- Food Quality Evaluation Project

Unit 10: The Business of Food Science

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Food Industry Business Structure	ABS.01 Business Operations	Food Business Analysis	SBA Resources	Entrepreneurship SAE
Food Product Marketing	ABS.01 Marketing Principles	Product Marketing Plan	Food Marketing Resources	Food Products CDE
Consumer Trends	ABS.01 Market Analysis	Trend Analysis Project	Industry Reports	Agribusiness SAE

Unit Assessment

- Food Business Investigation

Unit 11: Food Product Development

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
New Product Development	FPP.05 Product Development	Prototype Product	Food Innovation Resources	Entrepreneurship SAE
Packaging and Labeling	FPP.05 Product Marketing Systems	Product Label Design	FDA Labeling Guides	Product Development SAE
Product Evaluation	FPP.05 Consumer Acceptance Testing	Product Testing Report	Industry Templates	Agriscience Fair

Unit Assessment

- Food Product Development Portfolio

Unit 12: Food Science and Processing Capstone

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Food Product Development	FPP.05 Product Development Systems	Complete Product Portfolio	Industry Mentors	Entrepreneurship SAE
Food Safety Implementation	FPP.04 Food Safety Management Systems	Safety Documentation	Food Safety Resources	Food Processing SAE
Business Planning	ABS.01 Business Planning & Development	Business Plan	SBA Business Builder	Food Enterprise SAE
Marketing and Consumer Analysis	ABS.01 Marketing and Consumer Relations	Marketing Portfolio	Industry Marketing Resources	Food Products CDE

Capstone Assessment

Students develop and present a complete **Food Science and Product Development Portfolio** including:

1. Food Industry Analysis
2. Research Investigation
3. Food Product Prototype
4. Preservation Method Analysis
5. Food Safety Plan
6. Quality Assurance Documentation

7. Packaging and Label Design
8. Marketing Plan
9. Business Plan
10. SAE Documentation and Reflection

SAE Backbone Model

Quarter	SAE Milestone
Q1	Establish food science, processing, or product development SAE
Q2	Conduct research and develop food safety competencies
Q3	Develop preservation, quality assurance, and product testing skills
Q4	Launch product concept and complete food business portfolio

End Goal

Every student completes a documented Food Science, Food Processing, Product Development, Agriscience Research, or Entrepreneurship SAE while developing competencies in:

- Food Science
- Food Safety & Sanitation
- Food Preservation
- Quality Assurance
- Product Development

- Consumer Trends
- Food Marketing
- Environmental Stewardship
- Food Industry Business Management

This course serves as New Mexico's primary Food Products and Food Processing pathway course and aligns naturally with Food Science CDEs, Agriscience Fair projects, Entrepreneurship SAEs, and food industry career pathways.