

**Agriculture, Food & Natural Resources Career Cluster
Agriculture Meat and Dairy Product Processing
Course: 02.43200**

Course Description

This course is designed for the Food Products and Processing Pathway. The course introduces the areas of Meats (Beef, Pork, Lamb) Identification, Evaluation, Yield and Quality Grading, and Safety; Poultry (Production and Processing) Evaluation, and Management; Dairy (Production and Processing) Evaluation and Management. The course introduces scientific agricultural production and research; presents problem solving lessons and introductory skills and knowledge in agricultural science, technologies and microbiology. Classroom and laboratory activities are supplemented through supervised agricultural experiences and leadership programs and activities. This course is in the Food Products and Processing Pathway and is intended for students in grades 9-12.

Course Standard 1

AFNR-AMDPP-1

The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

Standard: Demonstrate employability skills required by business and industry.

The following elements should be integrated throughout the content of this course.

1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.

Person-to-Person Etiquette	Telephone and Email Etiquette	Cell Phone and Internet Etiquette	Communicating At Work	Listening
Interacting with Your Boss	Telephone Conversations	Using Blogs	Improving Communication Skills	Reasons, Benefits, and Barriers
Interacting with Subordinates	Barriers to Phone conversations	Using Social Media	Effective Oral Communication	Listening Strategies
Interacting with Co-workers	Making and Returning Calls		Effective Written Communication	Ways We Filter What We Hear
Interacting with Suppliers	Making Cold Calls		Effective Nonverbal Skills	Developing a Listening Attitude
	Handling Conference Calls		Effective Word Use	Show You Are Listening
	Handling Unsolicited Calls		Giving and Receiving Feedback	Asking Questions
				Obtaining Feedback
				Getting Others to Listen

Nonverbal Communication	Written Communication	Speaking	Applications and Effective Résumés
Communicating Nonverbally	Writing Documents	Using Language Carefully	Completing a Job Application
Reading Body Language and mixed Messages	Constructive Criticism in Writing	One-on-One Conversations	Writing a Cover Letter
Matching Verbal and Nonverbal communication		Small Group Communication	Things to Include in a Résumé

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Improving Nonverbal Indicators		Large Group Communication	Selling Yourself in a Résumé
Nonverbal Feedback		Making Speeches	Terms to Use in a Résumé
Showing Confidence Nonverbally		Involving the Audience	Describing Your Job Strengths
Showing Assertiveness		Answering Questions	Organizing Your Résumé
		Visual and Media Aids	Writing an Electronic Résumé
		Errors in Presentation	Dressing Up Your Résumé

1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

Teamwork and Problem Solving	Meeting Etiquette
Thinking Creatively	Preparation and Participation in Meetings
Taking Risks	Conducting Two-Person or Large Group Meetings
Building Team Communication	Inviting and Introducing Speakers
	Facilitating Discussions and Closing
	Preparing Visual Aids
	Virtual Meetings

1.3 Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.

Problem Solving	Customer Service	The Application Process	Interviewing Skills	Finding the Right Job
Transferable Job Skills	Gaining Trust and Interacting with Customers	Providing Information, Accuracy and Double Checking	Preparing for an Interview	Locating Jobs and Networking
Becoming a Problem Solver	Learning and Giving Customers What They Want	Online Application Process	Questions to Ask in an Interview	Job Shopping Online
Identifying a Problem	Keeping Customers Coming Back	Following Up After Submitting an Application	Things to Include in a Career Portfolio	Job Search Websites
Becoming a Critical Thinker	Seeing the Customer's Point	Effective Résumés:	Traits Employers are Seeking	Participation in Job Fairs
Managing	Selling Yourself and the Company	Matching Your Talents to a Job	Considerations Before Taking a Job	Searching the Classified Ads
	Handling Customer Complaints	When a Résumé Should be Used		Using Employment Agencies
	Strategies for Customer Service			Landing an Internship
				Staying Motivated to Search

1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

Workplace Ethics	Personal Characteristics	Employer Expectations	Business Etiquette	Communicating at Work
Demonstrating Good Work Ethic	Demonstrating a Good Attitude	Behaviors Employers Expect	Language and Behavior	Handling Anger
Behaving Appropriately	Gaining and Showing Respect	Objectionable Behaviors	Keeping Information Confidential	Dealing with Difficult Coworkers
Maintaining Honesty	Demonstrating Responsibility	Establishing Credibility	Avoiding Gossip	Dealing with a Difficult Boss
Playing Fair	Showing Dependability	Demonstrating Your Skills	Appropriate Work Email	Dealing with Difficult Customers

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Using Ethical Language	Being Courteous	Building Work Relationships	Cell Phone Etiquette	Dealing with Conflict
Showing Responsibility	Gaining Coworkers' Trust		Appropriate Work Texting	
Reducing Harassment	Persevering		Understanding Copyright	
Respecting Diversity	Handling Criticism		Social Networking	
Making Truthfulness a Habit	Showing Professionalism			
Leaving a Job Ethically				

1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team work skills.

Expected Work Traits	Teamwork	Time Management
Demonstrating Responsibility	Teamwork Skills	Managing Time
Dealing with Information Overload	Reasons Companies Use Teams	Putting First Things First
Transferable Job Skills	Decisions Teams Make	Juggling Many Priorities
Managing Change	Team Responsibilities	Overcoming Procrastination
Adopting a New Technology	Problems That Affect Teams	Organizing Workspace and Tasks
	Expressing Yourself on a Team	Staying Organized
	Giving and Receiving Constructive Criticism	Finding More Time
		Managing Projects
		Prioritizing Personal and Work Life

1.6 Present a professional image through appearance, behavior and language.

On-the-Job Etiquette	Person-to-Person Etiquette	Communication Etiquette	Presenting Yourself
Using Professional Manners	Meeting Business Acquaintances	Creating a Good Impression	Looking Professional
Introducing People	Meeting People for the First Time	Keeping Phone Calls Professional	Dressing for Success
Appropriate Dress	Showing Politeness	Proper Use of Work Email	Showing a Professional Attitude
Business Meal Functions		Proper Use of Cell Phone	Using Good Posture
Behavior at Work Parties		Proper Use in Texting	Presenting Yourself to Associates
Behavior at Conventions			Accepting Criticism
International Etiquette			Demonstrating Leadership
Cross-Cultural Etiquette			
Working in a Cubicle			

Support of CTAE Foundation Course Standards and Georgia Standards of Excellence L9-10RST 1-10 and L9-10WHST 1-10:

Georgia Standards of Excellence ELA/Literacy standards have been written specifically for technical subjects and have been adopted as part of the official standards for all CTAE courses.

Course Standard 2

AFNR-AMDPP-2

Orient and apply the comprehensive program of agricultural education, learns to work safely in the agriculture lab and work sites, demonstrates selected competencies in leadership through the FFA and agricultural industry organizations, and develops plans for a Supervised Agricultural Experience Program (SAEP).

- 2.1 Explain the role of the Agricultural Education program and the FFA in personal development.
- 2.2 Demonstrate knowledge learned through a SAEP.
- 2.3 Develop leadership and personal development skills through participation in the FFA.
- 2.4 Explore career opportunities with meat & dairy products through the FFA and Agricultural Education Program.
- 2.5 Explore the professional agricultural organizations associated with the course content.

Course Standard 3

AFNR-AMDPP-3

Identify and describe meat retail cuts of beef, pork, and lamb.

- 3.1 Identify different muscles and muscle groups within a retail cut.
- 3.2 Recognize bone structure as it applies to carcass structure.
- 3.3 Differentiate between the types of fat-external (subcutaneous), marbling (intramuscular), and seam (intermuscular).
- 3.4 Discuss quality of lean color, lean texture, marbling, and fat color.
- 3.5 Illustrate whole carcasses to identify wholesale and retail cuts.
- 3.6 Determine and explain appropriate cookery for meat cuts.
- 3.7 Research retail cuts that are considered value-added products and the importance of value-added products to the retail meat industry.

Course Standard 4

AFNR-AMDPP-4

Collect and display knowledge of class evaluation, keep/cull and meat formulation, quality and yield grading; allowing for critical thinking, logical comparing, independent decision-making, problem-solving rationale, effective communication, and leading decisively.

- 4.1 Compare and contrast meat classes for evaluation: beef carcasses, pork carcasses, wholesale/ subprimal cuts, and processed meats.
- 4.2 Select cuts based on value-based pricing of beef.
- 4.3 Research industry standards-based scenarios/situations and outline areas of keep/cull.
- 4.4 Identify and explain meat storage, handling, cookery, nutrition, food safety, animal welfare, and animal identification systems.
- 4.5 Research and analyze meat formulation problems and follow specifications.
- 4.6 Prepare and develop questions on classes related to the required evaluation skills.
- 4.7 Discuss and explain quality grading using analysis of carcass skeletal maturity score, lean maturity score, final maturity, and USDA Standards Marbling Score.
- 4.8 Practice yield grading by identifying and solving for carcass weight, USDA standards, preliminary yield grade, Ribeye area, % kidney, pelvic and heart fat, and final yield grade.

Course Standard 5

AFNR-AMDPP-5

Research and apply the objectives of commercial poultry production and management.

- 5.1 Differentiate between broiler, turkey, and egg production.
- 5.2 Explore careers in the poultry industry.
- 5.3 Analyze the areas of management: hatchery, broiler, turkey, egg-strain, and hen.
- 5.4 Discuss health and waste management.
- 5.5 Assess the importance of environmental control management in poultry production.
- 5.6 Summarize the areas of marketing poultry products.

Course Standard 6

AFNR-AMDPP-6

Draw conclusions by explaining the anatomy and physiology of the fowl.

- 6.1 Develop an understanding of the anatomy and physiology of the fowl.
- 6.2 Discuss poultry embryology, embryonic development, and mortality.
- 6.3 Research poultry genetics and the structure and flow of genetics in the poultry industry.
- 6.4 Outline poultry nutrition; covering classes of nutrients and feedstuffs, feed additives, and formulating diets.

Course Standard 7

AFNR-AMDPP-7

Categorize the different areas of poultry processing and product marketing.

- 7.1 Outline the steps in processing poultry products.
- 7.2 Discuss the consumer-driven market in marketing poultry products.
- 7.3 Summarize additional poultry enterprises and products.

Course Standard 8

AFNR-AMDPP-8

Investigate and describe the major components of poultry evaluation.

- 8.1 Evaluate and compare/contrast live birds; egg-type hens and broilers while demonstrating proper handling techniques.
- 8.2 Identify poultry carcass parts and further-processed poultry meat products.
- 8.3 Evaluate and compare/contrast ready-to-cook poultry carcasses and/or parts and further-processed meat products.
- 8.4 Develop skills for grading shell eggs; interior and exterior referencing the official egg air cell gauge, U.S. standards of quality shell eggs, grades, and common weight classes for shell eggs.

Course Standard 9

AFNR-AMDPP-9

Retrieve information and apply basic skills in Dairy Farm Management.

- 9.1 Trace the importance of genetics and reproduction in the success of a dairy farm.
- 9.2 Identify and discuss appropriate feeds and nutrition requirements of dairy cattle.
- 9.3 Identify housing, facilities, and equipment needs for each area of the dairy industry.
- 9.4 Develop a herd health plan for dairy farm covering aspects of health and disease.
- 9.5 Distinguish the important factors of milking management.
- 9.6 Outline the management of the dairy herd.
- 9.7 Analyze and explain DHI records and dairy herd record evaluation data sheets.
- 9.8 Assess linear descriptive traits and compare and contrast multiple animals.
- 9.9 Practice dairy cattle evaluation, selecting, and judging.

Course Standard 10

AFNR-AMDPP-10

Follow procedures using principles of safety on the dairy and in dairy product processing.

- 10.1 Summarize the importance of animal welfare in regards to food safety and farm productivity.
- 10.2 Discuss areas of attention for biosecurity on the farm, transport, and additional points in the processing of dairy products.
- 10.3 Research and explain current issues facing the dairy industry.
- 10.4 Describe and illustrate environmental management issues on the dairy farm.
- 10.5 Identify safety concerns on the farm and in dairy product processing.
- 10.6 Describe price, supply, and demand trends for milk and dairy products and the marketing of milk.

Course Standard 11

AFNR-AMDPP-11

Categorize and contrast milking systems and milking processing equipment.

- 11.1 Label machine parts in the milking system and processing equipment.
- 11.2 Discuss types of milking systems (e.g., flat barns, herringbone parlors, carousel parlors).
- 11.3 Outline and describe the pasteurization process including on-farm and commercial milking systems, and identify potential contamination points and possible diseases transmitted to consumers via milk.
- 11.4 Describe homogenization and explain its importance in the milking process.
- 11.5 Identify and create a chart outlining the refrigeration requirements and essential equipment in the milking process.

Course Standard 12

AFNR-AMDPP-12

Research and understand the causes and control of mastitis, its influences on milk quality, cheese yield, and the use of mastitis detection methods in controlling the disease.

- 12.1 Distinguish and explain cases and causes of mastitis.
- 12.2 Explore prevention methods for mastitis.
- 12.3 Research and discuss detection methods used on farm and commercial milking systems (e.g., California Mastitis Test and Direct Microscopic Somatic Cell Count).
- 12.4 Distinguish and identify best treatment methods for mastitis.
- 12.5 List regulatory programs for the identification and control of mastitis.

Course Standard 13

AFNR-AMDPP-13

Identify cheese varieties and characterize textures, colors, and additional properties.

- 13.1 Analyze moisture content of various cheeses and develop a graph to display data.
- 13.2 Summarize fat content of various cheeses and interpret data based on results.
- 13.3 Discuss cheese ripening procedures and develop an appropriate hypothesis.
- 13.4 Define and practice "pasta filata treatment."
- 13.5 Research and trace specific cheese origins.
- 13.6 Identify and evaluate the salting procedures for various cheeses.
- 13.7 Demonstrate the process for making different cheeses, ice creams, and yogurts.

Course Standard 14

AFNR-AMDPP-14

Draw conclusions from data based on flavor defections of milk.

- 14.1 Compare milk flavors vs. feed components fed to animals.
- 14.2 Compare and contrast milk flavors and their relative digestibility (e.g., cow milk vs. goat milk).
- 14.3 Explain common flavor defects found in Georgia milk (e.g., onions).
- 14.4 Compare and contrast flavors of dairy milk vs. non-dairy milk (e.g., Silk, Almond Milk).

Course Standard 15

AFNR-AMDPP-15

Cite evidence from information covering Good Manufacturing Practices (GMP's), Critical Control Points (CCP's), Hazard Analysis and Critical Control Point (HACCP), Food, Drug, and Cosmetic Act (FD&C Act), Food Safety Modernization Act (FSMA), and Global Food Safety Initiative (GFSI).

- 15.1 Identify regulatory areas for food safety in the meat, poultry, and dairy industries.
- 15.2 Determine microbes and foodborne illnesses that are addressed in the meat, poultry, and dairy industries.
- 15.3 Discuss and specify ways to use good herd management plans, critical control points, and hazard analysis based on current regulations.
- 15.4 Discuss main points of the Federal Food, Drug, and Cosmetic Act, Food Safety and Modernization Act, and the Global Food Safety Initiative.