

# MILK QUALITY AND PRODUCTS

## 3-4 Member Team

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### IMPORTANT NOTE

*Please thoroughly read the General CDE Rules Section at the beginning of this handbook for complete rules and procedures that are relevant to State FFA Career Development Events.*

## I. PURPOSE

The purpose of the Oklahoma FFA Milk Quality and Products Career Development Event is to promote practical learning activities in milk quality and dairy products, as well as assisting students in developing team decision-making skills. The focus of the National FFA Milk Quality and Products Career Development Event is raw milk quality, federal milk marketing orders and attributes of selected milk products. The four general areas that contribute to milk quality and consumer demand are: milk production; milk quality and safety; milk processing or manufacturing; and raw milk marketing.

## II. OBJECTIVES

### A. Utilize knowledge of milk quality

1. Producing quality milk
  - a. Regulations
  - b. Grades and classes of milk
  - c. Factors necessary to produce quality milk
2. Cleaning and sanitizing
  - a. General types of cleaners and sanitizers
  - b. Water hardness
  - c. Milkstone
  - d. Equipment, teats and udders
3. Cooling milk
4. Identifying diseases transmitted to consumers via milk
5. Recognizing causes of off flavors in milk

### B. Utilize knowledge of milk pricing

1. Marketing and marketing concepts
  - a. Pricing trends
  - b. Economics
  - c. Supply and demand
2. Federal milk marketing orders, economics and distribution
  - a. Transportation costs
  - b. Cooperatives
  - c. Pricing

### C. Utilize knowledge of the composition and quality characteristics of raw and pasteurized milk and milk products

1. Nonfat solids portion
2. Milk fat
3. Adulterants, including water
4. Bacterial standards and usual methods of estimating their numbers

- D. Understand the causes and control of mastitis, its influences on milk quality and cheese yield and the use of mastitis detection methods in controlling the disease
  - 1. Causes
  - 2. Prevention
  - 3. Detection (California Mastitis Test and Direct Microscopic Somatic Cell Count)
  - 4. Treatment
  - 5. Regulatory programs
- E. Identify cheese varieties and characterize properties
- F. Identify flavor defects and evaluate milk quality

### III. EVENT FORMAT

#### Flow of Event

- 1. Milk Flavor Identification and Evaluation - 20 minutes
- 2. Fat Content Identification - 20 minutes
- 3. Cheese Identification - 20 minutes
- 4. Written Exam - 40 minutes
- 5. Problem Solving - 40 minutes

#### A. Milk Flavor Identification and Evaluation (20 minutes) - 120 points

- 1. Ten milk samples will be scored on flavor (taste and odor) using the computerized scorecard (12 points per sample). All samples of milk are prepared from pasteurized milk intended for table use and will score 1 to 10 (See Scoring Guide). Milk samples will be tempered to 60°F. *Only those cups provided* at the event may be used.
- 2. Participants are to use whole numbers when scoring “Flavor” of milk and to check only the most serious defect in a sample even if more than one flavor is detected. If no defect is noted, participants should check, “No defect” and score as a ten (See Scoring Guide).
- 3. Palette cleansers (e.g. apples or soda crackers) will be allowed for refreshing.
- 4. **Scoring Guide** – *Refer to the current scorecard being used at the national level.* Scores may range from 1 to 10. On a quality basis:

Excellent (no defect)	Good	Fair	Poor	Unacceptable/Unsalable
10	8-9	5-7	2-4	1

#### B. Milk Fat Content of Fresh Milk Products (20 minutes) - 15 points

- 1. Five samples of fresh fluid milk products will be identified according to their content of milk fat (3 points per sample).
- 2. The following products may be included among the samples: nonfat (skim) milk, reduced fat milk (2%), milk (3.3%), half and half (10.5%), coffee cream (18%) and whipping cream (30%).

**C. Cheese Identification (20 Minutes) - 30 points**

1. Ten cheese samples for identification will be selected from those listed below (3 points per sample). Cubes of the cheeses will be available for tasting. Note: More than one sample of a given cheese may be used. A score of 3 points is given for each variety correctly identified. Uncolored cheeses may be used.

**Scoring Guide – Refer to the current cheese characteristics matrix being used at the national level.**

**D. Problem Solving (40 Minutes) - 50 Points**

The problem solving test will consist of 10 critical-thinking, multiple choice questions (5 points per question). Topics may include, but are not limited to:

1. Decisions about the quality and acceptability of milk.
2. Calculations of the value of milk and components of milk.
3. Decisions about components of milk and milk products (including processing procedures).
4. Decisions about the use of chemicals in cleaning and sanitizing operations.

**E. Written Test (40 Minutes) - 120 points**

The written test will be comprised of a total of 60 multiple choice items (2 points per question). The test will be given in two parts with one part consisting of thirty (30) questions on quality milk production and a second part of thirty (30) questions on milk marketing.

**IV. SCORING**

The event will be worth 1,500 total points based on positive-type scoring.

Milk Flavor Identification and Evaluation	120
Fat Identification	15
Cheese Identification	30
Problem Solving	50
Written Test	120

**Total Points**

<b>Individual</b>	<b>335</b>
<b>Team</b>	<b>1005</b>

**V. TIEBREAKERS**

**A.** If ties occur, the following events will be used in order to determine award recipients:

Individual

1. Exam
2. Problem solving
3. Sum of milk flavors, fat ID, CMT and cheese ID

Team

1. Team Exam Total

2. Team Problem solving total

## VI. REFERENCES

This list of references is not intended to be all-inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.

1. National FFA Core Catalog; National Career Development Event Questions and Answers—<http://shop.ffa.org/cde-qas-c1413.aspx>
2. Hoard's Dairyman, PO Box 801, Fort Atkinson, Wisconsin 53538. Phone (414) 563-5551. Issues used are from September of previous year to August of current year.
3. The Cheese Reporter (Publication Number: ISSN 0009-2142), published weekly by Cheese Reporter Publishing Co., Inc. 4210 Washington Ave., Madison, WI 53704. Phone (608) 246-8430, Fax (608) 246-8431.
4. *Dairy Facts* – International Dairy Foods Association, 1250 H Street, N.W. Suite 900, Washington, DC 20005. Phone – 202-732-4332– [www.idfa.org](http://www.idfa.org)
5. Agricultural Marketing Service – [www.ams.USDA.gov](http://www.ams.USDA.gov)
6. *Judging and Scoring Milk and Cheese, Farmers bulletin # 2259*, United States Department of Agriculture, Washington DC, 20250. Phone 202-447-7473.
7. *Judging, Identifying and Scoring Dairy Products – Bulletin J250c*, University of Illinois, 1401 S. Maryland Drive, Urbana, IL 61801; Phone – 217-333-3871.
8. *Dairy Foods: Producing the Best*, Dr. Robert Marshall; Instructional Materials Laboratory, 1400 Rock Quarry Road, Q139, University of Missouri; Columbia, MO 65211
9. The Dairy Practices Council: Guidelines – [www.dairypc.org](http://www.dairypc.org)
10. #21 – Raw Milk Quality Tests (\$4)
11. #24 – Troubleshooting High Bacteria Counts of Raw Milk (\$5)
12. #38 – Preventing Off-Flavors and Rancid Flavors in Milk (\$6)
13. Code of Federal Regulations Title 21, Part 133 – Cheeses and Related Cheese Products –  
<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPart=133>

## VII. SUPPLEMENTAL MATERIALS AND FORMS

- Milk Quality CDE Scansheet #479-5
- Milk Quality Mixing Guide
- Milk Quality Sample Test
- Milk Quality Sample Test 2