Milk Quality

Junior Division

FFA

Overview

Revised:10/25

The purpose of the 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 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.

Eligibility

The participant must be an active member of a chartered Delaware FFA Chapter and enrolled in grades 6, 7, 8. (Team structure). This is an abbreviated version of the high school CDE, offered during State Convention.

Event Procedure

A. Team make-up- Teams will consist of up to four members. Team ranking is determined by combining the scores of all team participants.

B. All participants must be in official FFA dress for this event.

C. Participants will be allowed 2 hours and 40 minutes for the event.

D. Participants are not to use strong deodorant, perfume, chewing gum or other detractors to the taste and smell senses.

E. Students must include their ID (Team number and individual number) on their scantron sheet. Care must be taken with these forms, any form that is unreadable by the scantron machine will not be scored.

F. Participants will not be allowed to possess any personal electronic devices (i.e. cell phones, smart watches, air pods, etc) other than those approved by event officials. Participants who possess personal electronic devices without prior approva

Event Format

Equipment

1.Equipment Materials to be provided by the student: two no. 2 pencils.

2. During the contest, cell phones are not permitted, but bottled water (plastic container), crackers, and an apple may be brought by the students. Materials Provided: All paper and other supplies will be provided. Participants may bring clipboards but no paper to the event. Participants are not to bring glass of any kind to the event.

3. Event staff will provide a folder for each participant with their scantron sheet. Writing on the folder is not permitted. All efforts should be made not to alter the scantron, wrinkle, or curl the scantron sheet. Stray marks should be removed.

4. Middle School will do sample rotations while high school is taking their test.

Individual Activities

1. Milk Flavor Identification and Evaluation -20 min

- Ten milk samples will be scored on flavor (taste and odor). All samples of milk are prepared from pasteurized milk intended for table use and will score 1 to 10. Please note scoring guide.
- Participants are to use whole numbers when scoring 'flavor' of milk. Check only the most serious milk flavor defect in a sample even if more than one flavor is detected. If no defect is noted, check "No Defect" and score as a ten (10).
- Suggested scores are given for 3 intensities of flavor. All numbers within the range may be used. Intermediate numbers may also be used. (6 points for Id & 6 for Defect Score-120 points)

Quality Basis Scoring Guide	
Score	Flavor Quality
10	Excellent (no defect)
8 to 9	Good
5 to 7	Fair
2 to 4	Poor
1	Unacceptable / un-salable

Example: Milk Flavor Scores*			
Defects	Slight	Definite	Pronounced
Acid	3	2	1
Bitter	5	3	1
Feed	9	8	5
Flat/Watery	9	8	7
Foreign	5	3	1
Garlic/Onion	5	3	1
Malty	5	3	1
Oxidized	6	4	1
Rancid	4	2	1
Salty	8	6	4
No Defect	10	10	10

2. Product Identification– 20 minutes;

- Dairy vs Non-Dairy The following products may be included among the samples: Dairy Products: nonfat (skim) milk (.05%), lowfat milk (1.0%), reduced fat milk (2%), milk (3.25%), half and half (10.5%), butter (80%), sour cream (18%), flavored milk (6.05%-3.25%) light whipped cream (30%), heavy cream (36%) Non-Dairy Products: Margarine, non-dairy creamer, non dairy sour cream, non-dairy milk, non-dairy flavored beverage and non-dairy whipped topping all of these are to be categorized as non-dairy fat (100 POINTS, 6 POINTS IDENTIFICATION, 4 POINTS FAT CONTENT 10 samples)

3. Cheese Identification - 20 minutes

- Ten cheese samples for identification will be selected from those listed. Shredded cheeses will be available for tasting. Note: More than one sample of a given cheese may be used. A score of four points is given for each variety correctly identified. Uncolored cheeses may be used. (100 points possible)
- In addition to identifying cheese samples, participants will classify characteristics of identified cheeses using the following matrix. Participants will have six characteristics to select based on the ten identified cheese samples. An example cheese characteristic problem can be found in the reference section of this handbook. (60 points possible).

4. Team Activity (Written Exam)—40 minutes

- The written exam will be comprised of 60 questions taken from the last three years of National CDEs. 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.

SCORING

- The event will be divided in the following sections and scored as follows: *The scantron sheets are included so that students will have a familiarity prior to the event.*

Tie Breaker

If ties occur, the following events will be used in order to deter mine award recipients:

- Team
  - 1. Team activity
  - 2. Sum of Milk and Cheese
- Individual
  - 1. Milk Flavors
  - 2. Milk Fat

Awards

Awards will be presented during a session at the Delaware FFA State Convention In a team event, the top 3 individuals in the state will be recognized on stage. The winning team will be awarded a plaque.

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 Sep tember of previous year to August of current year.

3. Using the California Mastitis Test published by the Univer sity of Missouri-Columbia Extension Division, Columbia, Missouri 65211. (Single copy free, write for price quote for multiple copies).

4. California Mastitis Test can be ordered from NASCO. Toll free 1-800-558-9595 or toll call, 1-414-563-2446. NASCO, 901 Janesville Avenue, Fort Atkinson, WI 53538.

5. 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.

6. Dairy Facts – International Dairy Foods Association, 1250 H Street, N.W. Suite 900, Washington, DC 20005. Phone – 202-732-4332– www.idfa.org

7. Agricultural Marketing Service – www.ams.USDA.gov

8. Judging and Scoring Milk and Cheese, Farmers bulletin # 2259, United States Department of Agriculture, Washington DC, 20250. Phone 202-447-7473.

9. Judging, Identifying and Scoring Dairy Products – Bulletin J250c, University of Illinois, 1401 S. Maryland Drive, Ur bana, IL 61801; Phone – 217-333-3871.

10. Dairy Foods: Producing the Best, Dr. Robert Marshall; Instructional Materials Laboratory, 1400 Rock Quarry Road, Q139, University of Missouri; Columbia, MO 65211

11. The Dairy Practices Council: Guidelines – www.dairypc.org 1. #21 – Raw Milk Quality Tests ($4) 2. #24 – Troubleshooting High Bacteria Counts of Raw Milk ($5) 3. #38 – Preventing Off-Flavors and Ran cid Flavors in Milk ($6)

12. Pasteurized Milk Ordinance – http://www.fda.gov/Food/ FoodSafety/Product-SpecificInformation/MilkSafety/ NationalConferenceonInterstateMilkShipmentsNCIMS ModelDocuments/default.htm

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?CFRPar

Cheese Characteristics Matrix

A description of major varieties of cheeses popular among American consumers.

Variety	Moisture (%)	Fat (%)	Pasta	Brine/Surface	Ripened by	Origin
Blue/Bleu	46	50	no	yes	mold	France
Brie	52.5	20	no	no	bacteria and mold	France
Cheddar Mild	39	50	no	no	bacteria	England
Cheddar Sharp	39	50	no	no	bacteria	England
Colby	40	50	no	no	bacteria	US
Cream	55	33	no	no	unripened	US
Feta	60	42	no	yes	bacteria	Greece
Gouda/Edam	45	48	no	yes	bacteria	Netherlands
Havarti	54	30	no	no	bacteria	Denmark
Gruyere	39	45	no	yes	bacteria	Switzerland
Monterey Jack	44	50	no	no	bacteria	US
Mozzarella	60	45	yes	yes	bacteria	Italy
Muenster	46	50	no	no	bacteria	France
Parmesan	32	32	no	yes	bacteria	Italy
Processed	40	50	no	no	bacteria	US
Provolone	45	45	yes	yes	bacteria	Italy
Queso Fresco	59	18	no	no	unripened	Mexico
Ricotta	73	4	no	no	unripened	Italy
Swiss	41	43	no	yes	bacteria	Switzerland

[1]Some cheeses have a range in moisture permitted, but these are the highest permitted amounts.

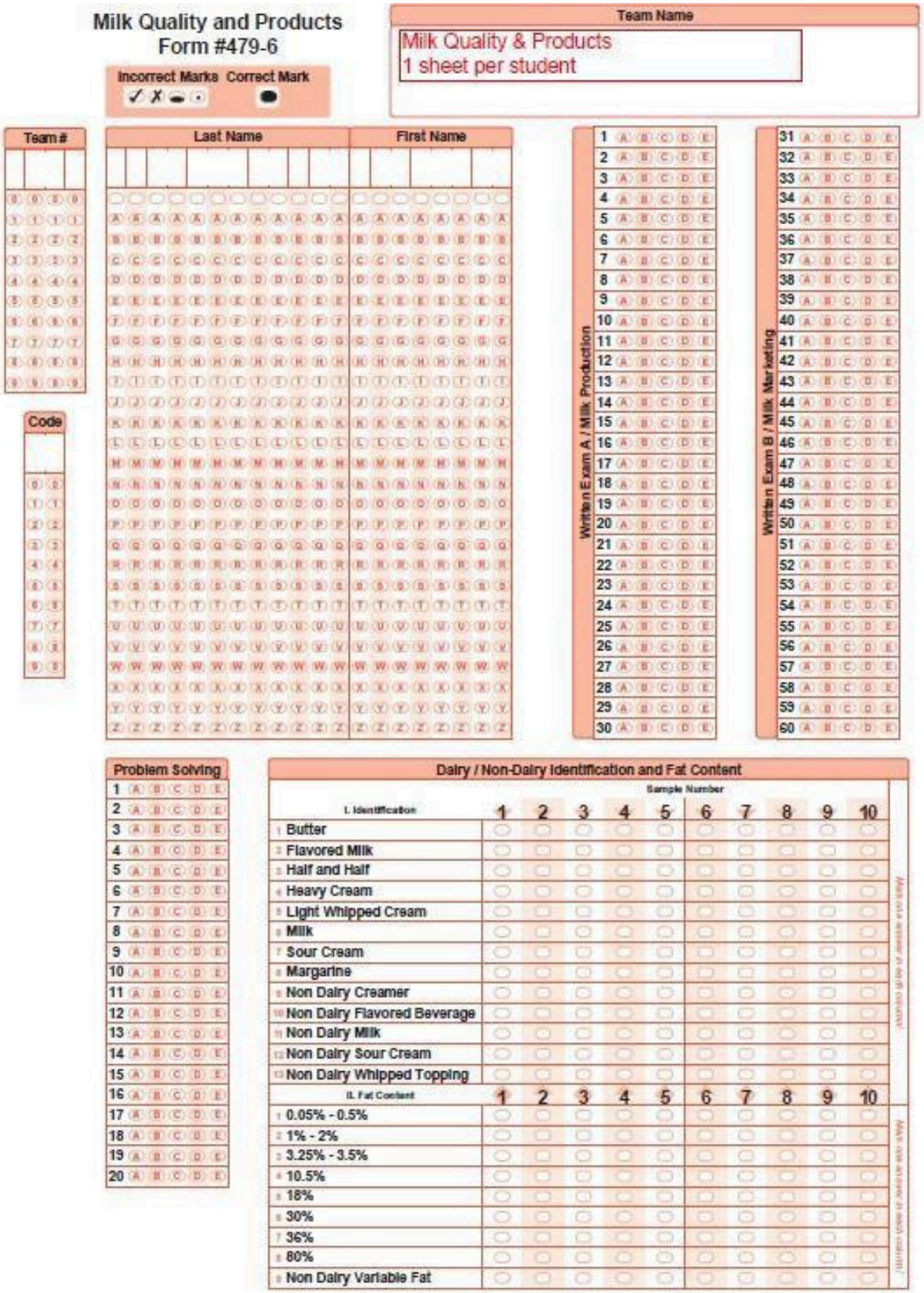
[2]Some cheese standards use percentage by weight of total solids (e.g., cheddar) while others use percentage by weight of the cheese (e.g., cream).

[3]Curd is stretched in hot water to align the protein molecules and provide stretch to the curd

Cheese Characterization Example Problem

The six items in the "characteristics" column are based on the information found in the Cheese Characterization Matrix in this handbook. Cheese samples are from the cheese identification activity. Participants will select all characteristics that apply to each sample. Answers will be recorded on the event-specific scan form. Characteristics in the problem can change each year.

	SAMPLE NUMBERS				
CHARACTERISTICS	1 (Cheddar)	2 (Cream)	3 (Swiss)	4 (Mozzarella)	5 (Bleu)
A. Maximum moisture = 39%	X				
B. Minimum fat in the solids = 33%		X			
C. Receives "pasta filata treatment"				X	
D. Salted in brine				X	
E. Ripened by molds					X
F. Originated in England	X				



Milk Quality and Products
Form #479-6

Incorrect Marks ✓ ✗ ▬ ⊙ Correct Mark ●

Team Name: Milk Quality & Products
1 sheet per student

Team #

Code

Last Name

First Name

Written Exam A / Milk Production: 1–30

Written Exam B / Milk Marketing: 31–60

Problem Solving: 1–20

Dairy / Non-Dairy Identification and Fat Content

Sample Number: 1 2 3 4 5 6 7 8 9 10

I. Identification
1 Butter
2 Flavored Milk
3 Half and Half
4 Heavy Cream
5 Light Whipped Cream
6 Milk
7 Sour Cream
8 Margarine
9 Non Dairy Creamer
10 Non Dairy Flavored Beverage
11 Non Dairy Milk
12 Non Dairy Sour Cream
13 Non Dairy Whipped Topping

II. Fat Content
1 0.05% - 0.5%
2 1% - 2%
3 3.25% - 3.5%
4 10.5%
5 18%
6 30%
7 36%
8 80%
9 Non Dairy Variable Fat

Identification and Characteristics of Cheeses

Sample Number

I. Identification	1	2	3	4	5	6	7	8	9	10
1 Blue/Bleu										
2 Brie										
3 Cheddar Mild										
4 Cheddar Sharp										
5 Cream/Neufchatel										
6 Edam/Gouda										
7 Monterey Jack										
8 Mozzarella										
9 Processed American										
10 Provolone										
11 Swiss										
12 Colby										
13 Feta										
14 Havarti										
15 Gruyere										
16 Muenster										
17 Parmesan										
18 Queso Fresco										
19 Ricotta										
20 Romano										
II. Characteristics	1	2	3	4	5	6	7	8	9	10
A										
B										
C										
D										
E										
F										

Mark one answer in each column

CMT

Sample Number

Score	1	2	3	4	5
0					
2					
4					
6					
8					

Mark one answer in each column

Natural / Imitation

This section is not used for the national event. See "Dairy/Non-Dairy" on front.

Milk Flavor

Sample Number

I. Defect	1	2	3	4	5	6	7	8	9	10
1 Acid										
2 Bitter										
3 Feed										
4 Flat-watery										
5 Foreign										
6 Garlic or onion										
7 Malty										
8 No defect										
9 Oxidized										
10 Rancid										
11 Salty										
II. Score	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Mark one answer in each column