



PA FFA Milk Quality and Products Career Development Event



Chairperson Information

CDE Chairperson	Nicole Hall
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Best Contact Number	(717) 650-7110
Contest Date/Times	Tuesday 2 pm and Wednesday 8 am
Contest Location	Food Science Building

Basic CDE Guidelines

Event Type: <u>Individual/Team</u>	# of Team Members: 4 ONLY
<u>Individual Materials List</u> <ul style="list-style-type: none"> Tuesday-Pencil & Non-programmable calculator Wednesday-Pencil, Clipboard, Bottle water/apple/apple juice 	<u>Group Materials List</u> <ul style="list-style-type: none"> Not applicable
<u>Attire</u> Tuesday: Official Dress Wednesday: Teams - Official Dress, Individuals - School appropriate attire, must have jeans or long pants, clean/closed toe shoes and no jewelry or perfume on	<u>CDE At-A-Glance (List of major components)</u> <ul style="list-style-type: none"> Written Test-60 questions (40 Minutes) Problem Solving Test (20 Minutes) Team Event (30 Minutes to prep, 10 Minutes to present) Milk Off flavors (20 Minutes) Fat Content (20 Minutes) Cheese ID/Cheese Matrix (20 Minutes) CMT (Mastitis Test) (20 Minutes) Bacterial Culture Test (Simultaneously occurs during CMT Test)

Pre-State CDE Expectations

Team Event-To perform well in the Team Event portion of the Dairy Foods Career Development Event team members should be familiar with provisions of the Grade "A" Pasteurized Milk Ordinance that contains rules describing the acceptability of raw milk for pasteurization. These regulations are available at www.fda.gov.

Individuals should know how to read and fill out a scantron sheet. Students should have the defects scores, cheese matrix and the CMT chart scores memorized

CDE Changes from Previous Years?

- 2026 — The contest will include bacterial culturing during the CMT practicum. The committee will utilize the forthcoming information put out by National FFA for training and contest purposes. Check

the National FFA website for updates.

CDE Rules

CDE Component	Points	Component Description
Written Test	120	60 Multiple choice questions (30 Production/30 Market questions)
Problem Solving Test	100	<p>10 critical-thinking, multiple choice questions. Topics may include, but are not limited to:</p> <ol style="list-style-type: none"> 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
Team Event	100	<p>Teams members will work together to determine producer milk acceptability based on a test sample given.</p> <p>Examples of acceptability tests include:</p> <ol style="list-style-type: none"> A. Recent producer history B. Percent TA (acidity) C. DMC (Direct Microscopic Somatic Cell Count) D. SPC (Standard Plate Count) E. PI count (Preliminary Incubation Count) F. Antibiotic screening test G. Sample freezing point <p>Teams will present their solution and improvement recommendations to a panel of judges.</p> <p>Teams will have 30 minutes to prepare and 10 minutes to present to a panel of judges. The panel of judges may ask questions at the end of the presentation.</p>
Practicums	460	<p><u>Cheese Identification</u> (20 Minutes) - 100 points</p> <ol style="list-style-type: none"> 1. Ten cheese samples for identification will be selected from the list National Milk Quality CDE Cheese list. 2. Cubes of the cheeses will be available for tasting. Note: More than one sample of a given cheese may be used. 3. In addition to identifying cheese samples, participants will classify characteristics of identified cheeses using the following matrix. Participants will have seven characteristics to select

		<p>based on the five identified cheese samples. An example cheese characteristic problem can be found in the National Milk Quality CDE handbook.</p> <p><u>Product Identification</u> (20 minutes) - 100 points</p> <ol style="list-style-type: none"> 1. Ten samples of milk/nonmilk products will be identified according to their content of milk fat. 2. 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. nonfat (skim) milk, reduced fat milk (2%), milk (3.3%), half and half (10.5%), coffee cream (18%) and whipping cream (30%). <p><u>California Mastitis Test</u> (20 minutes) - 40 points</p> <ol style="list-style-type: none"> 1. The California Mastitis Test will be scored using even numbers from 0 to 8 inclusive. (See National FFA Milk Quality CDE handbook for the Scoring Guide for the California Mastitis Test.) 2. Five samples of milk will be evaluated for abnormality, using the California Mastitis Test method. <p><u>Milk Flavor Identification and Evaluation</u> (20 minutes) - 120 points</p> <ol style="list-style-type: none"> 1. Ten milk samples will be scored on flavor (taste and odor) using the computerized scorecard. 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
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		<p>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).</p> <p>3. Palette cleansers (e.g. apples or soda crackers) will be allowed for refreshing.</p> <p>Bacterial Culture Test (Simultaneously occurs during CMT Test) – 100 points</p> <ol style="list-style-type: none"> 1. Five samples will be evaluated using pictures from the Minnesota Easy Culture System or stock images of culture tri-plates. The following bacteria may be included among the samples: Staph, Strep, Gram -, Gram +, No Growth, Contaminated Sample 2. More information is forthcoming from National FFA. Utilize their published resources for training purposes.
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Causes for Disqualification: Talking during the contest (especially during Wednesday) Found cheating, and/or not following the dress code. Points will be deducted if students are not in official dress on Tuesday/Wednesday.

Tie-breaker: If ties occur, the following events will be used in order to determine award recipients:

Team

1. Team activity
2. Milk identification total score of all team members.
3. Cheese identification score for all team scores.

Individual

1. Milk identification
2. Cheese identification
3. Product identification
4. Problem solving

Resources

National FFA Milk Quality & Products CDE Handbook (see screenshot below from handbook about **Bacteria Culturing and CMT Practicum**)

Grade “A” Pasteurized Milk Ordinance that contains rules describing the acceptability of raw milk for pasteurization. These regulations are available at www.fda.gov

PA FFA Milk Quality Question Bank

California Mastitis Test (40 Points)

The California Mastitis Test will be scored using even numbers from 0 to 8 inclusive. (See below for the Scoring Guide for the California Mastitis Test.)

Five samples of milk will be evaluated for abnormality, using the California Mastitis Test method.

Effective 2026, add a bacterial culturing component to CMT.

- On-Farm Culture systems can provide dairy producers with a quick, simple, and inexpensive way to identify the likely bacterial cause of clinical mastitis and are becoming more commonly used in the industry. This information can then be used in guiding clinical mastitis treatment decisions. Participants will assess images of Tri-plates of the Minnesota Easy® Culture System to evaluate the sample as 1) Contaminated, 2) No Growth, 3) Gram Negative, 4) Staphylococcus species, 5) Staphylococcus aureus, 6) Streptococcus species, or 7) Streptococcus agalactiae. One image will be provided corresponding to each of the 5 CMT milk samples. Practice images will be provided.

SCORING GUIDE

CMT Test Score	Appearance	Participant Score	* Somatic Cell Count
Negative	Mixture liquid, no precipitate	0	0
T	Slight precipitate tends to disappear with paddle movement	2	200–300,000
1	Distinct precipitate but does not gel	4	400–500,000
2	Distinct gel formation	6	1,200,000 – 1,500,000
3	Strong gel formation, which tends to adhere to paddle. Forms distinct central peak	8	Over 5,000,000

**Reference*