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Milk Quality and Products CDE Team Trainning Manual

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**Handbook Introduction**

Participants in the **Milk Quality and Products Career Development Event (CDE)** demonstrate their knowledge about the quality production, processing, distribution, promotion and marketing of milk and dairy foods.

This CDE training manual was developed to assist CDE coaches in training and developing a high quality Milk Quality and Products Team. The tools outlined in this manual are baseline materials and can and should be modified to fit a specific teams training needs as outlined by your state.

**Milk Quality and Products FFA CDE Event Overview**



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| MQP Practice: Session 1 | Topic: Introduction of Contest |
| Practice Length: 60 minutes | |
| Materials:  CDE Handbook Printed- <https://www.ffa.org/participate/cdes/milk-quality-and-products/>  [Practice Exam Packet](texasffa.org/cde-milk-quality): <https://www.texasffa.org/cde-milk-quality>  File Folders  Index Cards or Digital Devices | |
| Pre-Practice Setup:  Print- CDE Handbook and Practice Exam Packet | |
| Summary of Content and teaching Strategies   * Welcome team members- have them pickup each of the handouts and place their name on one of the file folders (they should bring this to every practice) * Provide an overview of the contest- by directing team members through the [CDE handbook](https://www.ffa.org/participate/cdes/milk-quality-and-products/), highlight and overview of each section of the contest * Set team goals- do they want to win regionals, states, go to nationals, and be a top 10 national finalist etc.? [(Tip 1)](#Appendix) * Set entire team practice schedule for the CDE Season [(Tip 2)](#Appendix) * Introduce team exam packet- assign the first 25 problems for next practice- have them research the correct answers * Introduce cheese list [(Tip 3)](#appendix) * Have team members use the remaining time to make [cheese characteristic](#appendix) flash cards (digital or on index cards) | |
| References  National FFA Milk Quality and Products CDE Handbook | |

**14-Week Training Lesson Plans**

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| MQP Practice: Session 2 | Topic: Introduction to Cheese ID |
| Practice Length: 60 minutes | |
| Materials:  Cheese’s  Knife  Cutting Board  Ziploc Bags  Permanent Marker  Salt free saltine crackers or apples (pallet cleanser)  Sample Plates  Sensory Analysis Forms | |
| Pre-Practice Setup:  Cut all cheese’s into sample sizes and place into marked zip lock bags  Setup [sample plate](#Appendix) – see example in appendix (to reduce the number of plates needed) | |
| Summary of Content and teaching Strategies   * Review practice exam problems 1-25- Answer Key - <https://www.texasffa.org/cde-milk-quality> * As a group compete a sensory analysis for each cheese sample - have students take notes regarding what they see, smell, touch, taste- have student cleanse their pallet in-between each sample [(Tip 4)](#Appendix) * Provide students with the cheese identification handout- have them add their notes to the sheet * Review cheese characteristics via question and group answer- using the cheese matrix chart- see appendix * Begin problems 26-50 if time remains- complete for next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 3 | Topic: Cheese ID |
| Practice Length: 60 minutes | |
| Materials:  Pre-cut Cheese Samples  Permanent Marker  Salt free saltine crackers or apples (pallet cleanser)  Sample Plates | |
| Pre-Practice Setup:  Setup sample plates- plate all samples | |
| Summary of Content and teaching Strategies   * Review practice exam problems 26-50 * Using their notes & the cheese identification handout have each student ID the plated cheeses on their own- this can be done on scratch paper- plate all cheeses * Review the answers- have students re-taste cheeses as needed * Review cheese characteristics via question and group answer * Begin problems 51-75 if time remains- complete for next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 4 | Topic: Introduction to Milk Defects |
| Practice Length: 60 minutes | |
| Materials:  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands | |
| Pre-Practice Setup:  Pre-mix milk defect samples in mason jars according to mixing instructions- see appendix | |
| Summary of Content and teaching Strategies   * Review practice exam problems 51-75 * Review the list of milk defects (see appendix) – explaining/discussing why each one is a concern to the industry and how it forms * Have students taste each milk defect and take additional notes [(Tip 5)](#appendix) * Begin problems 76-100 if time remains- complete for next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 5 | Topic: Milk Defects |
| Practice Length: 60 minutes | |
| Materials:  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands  Pre-cut Cheese Samples  Permanent Marker  Salt free saltine crackers or apples (pallet cleanser)  Sample Plates | |
| Pre-Practice Setup:  Mix milk defects  Plate 10 cheese samples  Copy scan-tron sheets- from National FFA Handbook | |
| Summary of Content and teaching Strategies   * Review practice exam problems 76-100 * Introduce scorecard- from this point forward use for all practices * Have students individual identify each milk defect using their notes * Review correct answers- have students re-try samples as needed * Have students individual identify cheese samples * Review correct answers- have students re-try samples as needed * Begin problems 101-125 if time remains- complete for next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 6 | Topic: Milks and Cheese |
| Practice Length: 60 minutes | |
| Materials:  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands  Sample Plates  Sharpie  Sample Cups | |
| Pre-Practice Setup:  Mix milk defects  Plate 10 cheese samples  Copy answer sheets | |
| Summary of Content and teaching Strategies   * Review practice exam problems 101-125 * Have students individual identify each milk defect- no notes- place answers on scorecard * Review correct answers- have students re-try samples as needed * Have students individual identify cheese samples- place answers on scorecard * Review correct answers- have students re-try samples as needed * Begin problems 126-150 if time remains- complete for next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 7 | Topic: Milks and Cheese |
| Practice Length: 60 minutes | |
| Materials:  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands  Sample Plates  Sharpie  Sample Cups | |
| Pre-Practice Setup:  Mix milk defects  Plate 10 cheese samples  Copy answer sheets | |
| Summary of Content and teaching Strategies   * Review practice exam problems 126-150 * Have students individual identify each milk defect- no notes * Review correct answers- have students re-try samples as needed * Have students individual identify cheese samples * Review correct answers- have students re-try samples as needed * Begin problems 151-175 if time remains- complete for next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 8 | Topic: Introduction to Product Identification |
| Practice Length: 60 minutes | |
| Materials:  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands  Sharpie  Sample Cups  Dairy & Non-Dairy Samples- see National FFA Handbook for List  Index Cards | |
| Pre-Practice Setup:  Mix milk defects  Copy answer sheets | |
| Summary of Content and teaching Strategies   * Review practice exam problems 176-200 * Have students individual identify each milk defect- no notes * Review correct answers- have students re-try samples as needed * Introduce product identification- have students try each dairy product and take notes * Discuss how each product is formed and the fat content of each product * Have students make fat content notecards for each dairy product * Begin problems 201-225 if time remains- complete for next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 9 | Topic: Product Identification Review |
| Practice Length: 60 minutes | |
| Materials:  Pre-cut Cheese Samples  Permanent Marker  Salt free saltine crackers or apples (pallet cleanser)  Sample Plates  Dairy & Non-Dairy Samples- see National FFA Handbook for List | |
| Pre-practice Setup:  Plate 10 cheese samples  Copy answer sheets | |
| Summary of Content and teaching Strategies   * Review practice exam problems 226-250 * Have students individual identify cheese samples * Review correct answers- have students re-try samples as needed * Have students use their notes to identify the dairy and non-dairy products * Review correct answers- have students re-try samples as needed * Begin problems 251-275 if time remains- complete for next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 10 | Topic: Contest Overview |
| Practice Length: 60 minutes | |
| Materials:  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands  Sample Plates  Sharpie  Sample Cups | |
| Pre-Practice Setup:  Mix milk defects  Plate 10 cheese samples  Copy answer sheets  Print past national MQP exam | |
| Summary of Content and teaching Strategies   * Review practice exam problems 276-300 * Have students individual identify each milk defect- no notes * Review correct answers- have students re-try samples as needed * Have students individual identify cheese samples * Review correct answers- have students re-try samples as needed * Have students individually identify selected dairy and non-diary samples * Review correct answers- have student retry samples as needed * Review cheese characteristics via group question and answer session * Have students begin one of the past years National MQP Exam- finish for the next practice- <https://www.ffa.org/participate/cdes/milk-quality-and-products/> | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 11 | Topic: Contest Overview |
| Practice Length: 60 minutes | |
| Materials:  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands  Sample Plates  Sharpie  Sample Cups | |
| Pre-Practice Setup:  Mix milk defects  Plate 10 cheese samples  Copy answer sheets  Print past national MQP exam | |
| Summary of Content and teaching Strategies   * Review past practice exam- assigned at previous practice * Have students individual identify each milk defect- no notes * Review correct answers- have students re-try samples as needed * Have students individual identify cheese samples * Have students individually identify selected dairy and non-diary samples * Review correct answers- have student retry samples as needed * Review fat content of diary products via flashcards * Review cheese characteristics via group question and answer session * Have students begin another past years National MQP Exam- finish for the next practice- <https://www.ffa.org/participate/cdes/milk-quality-and-products/> | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 12 | Topic: Mastitis Testing |
| Practice Length: 60 minutes | |
| Materials:  Mastitis Testing Paddles  CMT Testing Solution  Mastitis milk samples of varying severity  Mastitis testing YouTube Video- <https://www.youtube.com/watch?v=CQAxUVMBtwQ>  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands  Sample Plates | |
| Pre-Practice Setup:  Mix CMT testing solution  Mix milk defects  Copy answer sheets  Print past national MQP exam | |
| Summary of Content and teaching Strategies   * Review past practice exam- assigned at previous practice * Provided an overview of mastitis testing- what is it, purpose and function of testing * Review the mastitis scoring via the National FFA handbook * Show mastitis testing video- <https://www.youtube.com/watch?v=CQAxUVMBtwQ> * Have students practice testing samples [(Tip 6)](#Appendix) * Have students complete milk defect ID practice- introduce defect intensity scoring via National FFA CDE Handbook * Review correct answers- have students re-try samples as needed * Have students begin another past years National MQP Exam- finish for the next practice- <https://www.ffa.org/participate/cdes/milk-quality-and-products/> * Have students study the milk defects intensity chart for the next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 13 | Topic: Mastitis Testing and Milk Defect Intensity |
| Practice Length: 60 minutes | |
| Materials:  Mastitis Testing Paddles  CMT Testing Solution  Mastitis milk samples of varying severity  Mastitis testing YouTube Video- <https://www.youtube.com/watch?v=CQAxUVMBtwQ>  Sample Cups (1 per milk defect per student)  Permanent Marker  1 gallon Whole Milk  Salt  Garlic Powder  Bleach  Quinine Sulfate (can use seltzer water with quinine)  Buttermilk  Salt  Malt Powder  Lipase enzyme  Grandmas Molasses  Distilled Water  Mason Jars with Lids and Bands  Sample Plates | |
| Pre-Practice Setup:  Mix mastitis testing solution  Setup mastitis testing stations  Copy answer sheets  Print past national MQP exam | |
| Summary of Content and teaching Strategies   * Review practice exam * Review mastitis scoring numbers and milk defect intensity via [practice sheet](#appendix)- found in appendix * Review correct answers * Have students complete the mastitis testing samples and review answers * Have students individual identify each milk defect and provide and intensity score- no notes * Review correct answers- have students re-try samples as needed * Have students begin another past years National MQP Exam- finish for the next practice- <https://www.ffa.org/participate/cdes/milk-quality-and-products/> * Have students study the milk defects intensity chart for the next practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

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| MQP Practice: Session 14 | Topic: Team Run Off |
| Practice Length: 60 minutes | |
| Materials:  Cheese samples  Milk samples  Identification samples  Run-off Exam  Mastitis milk testing samples  Mastitis paddle  Mastitis testing solution | |
| Pre-Practice Setup:  Plate cheese samples  Mix milk defects  Pour ID samples  Copy exam  Copy answer sheets | |
| Summary of Content and teaching Strategies   * Using the scan-tron score sheet have students complete all of the individual parts of the contest (Written Exam, Milk ID, Cheese ID, Dairy and Non-dairy ID) * Review correct answers- have student switch exams and score * Determine team by the top four scores with the fifth score being the team alternate * Discuss contest day details * If time remains review past years exam from previous practice | |
| References  National FFA Milk Quality and Products CDE Handbook | |

\* In order to prepare for the team event, students/coaches should consult the past National FFA team event materials via the National FFA Website. This training manual places focus on the individual contest components.

**Appendix**

Tip 1- Have students bring their entire season calendar to the first meeting, then set a weekly routine practice schedule, this will help to ensure all team members can make the majority of practices. Ex: MQP practice is every Tuesday from 5:00-6:00

Tip 2- Consider putting an amendment into your chapter constitution regarding CDE practices commitments. Ex: students must attend 75% of all regularly scheduled team practices in order to be eligible for the team

Tip 3- To reduce team preparation costs have each team member bring in 2-3 cheeses for the next practice. Also note that many of the cheeses come in multiple forms, throughout practices switch up the forms/colors

Tip 4- Students should pay attention to how cheeses break apart, are they crumbly, spongy etc.

Tip 5- Students should not swallow the sample, instead they should smell the sample prior to drinking and then swirl the sample around their mouth and then spit back into the sample cup. Students should take note of how the sample coats the mouth and tongue and the initial taste as well as the after taste.

Tip 6- In order to help student to place the same amount of each sample into the paddle testing sections, have them use a spoon to measure out the samples.

**Sample Plate Layout**

1

2

3

**Cheese Characteristics Matrix**

**Milking Mixing Defect Guide**

The mixtures given here are for ½ gallon containers and are for the ***slight range*** on the scoring guide. Stronger flavors will be used for definite and pronounced ranges. When first starting out training a team you need to double the strength of the flavor until the students get the flavor imprinted in their memory and then gradually weaken them until you are down to the slight end of the scoring guide.

**Acid**- add 1 and ½ tablespoons of fresh cultured buttermilk to container and mix well. Score- 3

**Bitter**- use a solution of quinine sulfate made by dissolving two five grain tablets in two ounces of hot water and add 16 drops with an eye dropper to the milk and shake well. Score 5

**Feed**- dissolve ¼ teaspoon of Grandma’s molasses in one tablespoon of hot water and mix well in milk. Score- 9

**Flat/Watery**- replace 7 ounces of milk with seven ounces of bottled or distilled water and mix well. Score- 9

**Garlic/Onion**- dissolve ¼ teaspoon of onion or 1/8 tsp. of garlic powder in one tablespoon of hot water and mix well in milk. Score-5

**Malty**- add one teaspoon of unflavored Carnation malt powder (dissolve first in one tablespoon of hot water) and mix well in milk. Score- 5

**Oxidized**- set plastic container of milk in direct sunlight for 20 minutes. Rotate 180 degrees after 10 minutes. Score-6

**Rancid**- add 1/16 teaspoon of lipase enzyme (science teacher can order) or mix 50% raw milk with 50% whole store milk. Both mixtures should be shaken well and allowed to set at room temperature for 30 minutes. Refrigerate overnight. Score-4

**Salty**- add ¼ teaspoon of table salt (dissolve first in one table spoon of hot water) mix well in milk. Score-8

**Defect and Mastitis Scoring Practice**

Milk Flavor Intensity

|  |  |  |  |
| --- | --- | --- | --- |
| **Defect** | **Slight** | **Definite** | **Pronounced** |
| Acid |  |  |  |
| Bitter |  |  |  |
| Feed |  |  |  |
| Flat/Watery |  |  |  |
| Foreign |  |  |  |
| Garlic/Onion |  |  |  |
| Malty |  |  |  |
| No Defect |  |  |  |
| Oxidized |  |  |  |
| Rancid |  |  |  |
| Salty |  |  |  |

10: Excellent

8-9: Good

5-7: Fair

2-4: Poor

1: Unacceptable/un-salable

California Mastitis Test (CMT) Score

|  |  |  |
| --- | --- | --- |
| **CMT Score** | **Appearance** | **Participant Score** |
| Negative |  | **0** |
| T |  | **2** |
| 1 |  | **4** |
| 2 |  | **6** |
| 3 |  | **8** |

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Description and Causes of Off-Flavors in Milk

Flavors of milk may be caused, in general, by five factors: Health of the cow, feeds consumed by the cow, bacteriological action, chemical changes, and absorption of foreign flavors after the milk is drawn. Taste sensations include sweet, sour, salt and bitter. Odor sensations occur at the upper portion of the nasal cavity. In order to correctly identify odor, inhale slowly and deeply before and after you put the sample in your mouth.

Identification of Cheese Handout

| Table 1. Cheese Identification | | |
| --- | --- | --- |
| Variety | Color | Description |
| Blue | White interior, marbled or streaked with blue veins of mold | This blue-vein mold ripened variety is usually made from cows’ milk. It has a tangy peppery flavor after aging two to six months. The body and texture is semisoft, pasty, and sometimes crumbly. |
| Brick | Creamy yellow | The semisoft ripened variety is made from cows’ milk. It has a mild to moderately sharp flavor after aging two to four months. The body and texture is semisoft to medium firm, elastic, and has numerous small mechanical openings. |
| Brie | Creamy yellow interior with an edible thin, brown and white crust | This soft ripened variety is usually made from cows’ milk. It has mild to pungent flavor after aging four to eight weeks. The body and texture is soft and smooth when ripened. |
| Cheddar (mild) | White to medium-yellow orange | This firm ripened variety is made from cows’ milk. It has a mild to slightly developed characteristic nut-like Cheddar flavor after aging usually for two to three months. The body and texture is firm and smooth with some mechanical openings. |
| Cheddar (sharp) | White to medium-yellow orange | This firm ripened variety is made from cows’ milk. It has a sharp typically nut-like Cheddar flavor after aging usually eight to twelve months. The body and texture is smooth and waxy with some mechanical openings. |
| Colby | White to medium-yellow orange | This firm ripened variety is made from cows’ milk. It has a mild to mellow flavor after aging one to three months. The body and texture is softer and more open than Cheddar cheese. It is characterized by numerous irregularly shaped openings. |
| Cream | White to light cream | This soft unripened variety is made from cream from cows’ milk. It has a mild, acid flavor and is not aged. The body and texture is soft and smooth. |
| Gouda | Creamy yellow or medium-yellow orange interior, and may have a red wax coating | This firm ripened variety is made from whole or partly skimmed cows’ milk. It has a mellow, nut-like flavor after aging two to six months. The body and texture is semisoft to firm, smooth, and has small irregularly shaped or round holes. It has a cannonball or oval shape. |
| Monterey (Jack) | White to light cream | This firm ripened variety is made from cows’ milk. It has a mild to mellow flavor after aging one to three months. The body and texture is soft to semisoft and has small openings evenly dispersed throughout the cheese. |
| Mozzarella | Creamy white | This firm, unripened variety is made from whole or partly skimmed cows’ milk. It has a mild delicate flavor and is not aged. The body and texture is slightly firm and is plastic. |
| Munster | Creamy white interior with a yellow tan surface. | This semisoft, ripened variety is made from cows’ milk. It has a mild to mellow flavor after aging one to eight weeks. The body and texture is semisoft and has small openings throughout the cheese. |
| Provolone | Light creamy interior with a light brown or golden yellow surface | This firm ripened variety is made from cows’ milk. It has a mellow to sharp flavor with smoky and salty overtones after aging two to twelve months or longer. The body and texture is firm and smooth. |
| Ricotta | White | This soft, unripened variety is made from whole or partly skimmed cows’ milk, or whey from cow’s milk with whole or skim milk added. It has a sweet, nut-like flavor is not aged. The body and texture is soft and may have a grainy consistency. |
| Swiss | Light yellow | This firm ripened variety is made from cows’ milk. It has a sweet, nut-like flavor after aging three to nine months. The body and texture is firm and smooth with medium to large round eyes distributed throughout the cheese. |
| Feta | White | Rich and creamy soft cheese |
| Havarti | Cream to yellow | **Havarti** has a buttery aroma and can be somewhat sharp in the stronger varieties, much like Swiss **cheese**. The taste is buttery, and from somewhat sweet to very sweet, and it is slightly acidic |
| Gruyere | Darker yellow | creamery, unpasteurized, semi-soft **cheese**. The natural, rusty brown rind is hard, dry and pitted with tiny holes. The **cheese** is darker yellow than Emmental but the texture is more dense and compact. |
| Parmesan | White to beige | crumbly, sharp flavor |
| Processed American | Orange, yellow, or white | is mild, salty, and faintly sweet in flavor, has a medium-firm consistency |
| Queso Fresco | White | this cheese has a slightly salty, yet mild smooth flavor with a somewhat acidic aftertaste. |
| Romano | White to beige | crumbly, sharp flavor |

| Table 2. Off-Flavors in Milk | |
| --- | --- |
| Off-flavor | Description |
| Bitter | Bitterness is only detected by taste and not by smell. Bitter milk is sometimes confused with rancid milk. Detected on the base of the tongue as an aftertaste and tends to persist. The bitter sensation may be compared to coffee bitterness.  Caused by feeding strong feeds or weeds, which may carry through into the milk or by conditions present in milk from cows in late lactation, Bitter taste may also result from certain bacterial growth, but normally this will not occur unless the milk is held several days at low temperatures. |
| Feed or Weedy (Transmitted Flavors) | Tastes and odors range from pleasant to unpleasant; specific flavors include hay, mown grass, silage, cowy, or barny; unpleasant odor and may have unpleasant medicine or chemical aftertaste. The weedy flavor is not included among the usual feed flavors. It generally has a bitter characteristic, varying with specific weeds of certain localities. It may include obnoxious flavors caused by such plants as ragweed, bitter weed, or peppergrass, and may become a very troublesome flavor defect. Strong feeds will carry through more noticeably than others will. Green grass, silage, turnips, and alfalfa hay are outstanding examples of feeds that affect flavor. |
| Flat (watery) | The flavor may be described as tasteless but watery. The characteristic flavor or normal milk is lacking, but the milk has no off-flavor. No associated odor. Flat-flavored milk resembles normal milk that has been partially diluted with water, even though this may not have been done. |
| Foreign | Any seriously objectionable flavor foreign to milk, such as disinfectants, sanitizers, fly spray, paint, oil, kerosene, creosote, or a medicinal substance, will render the milk unpalatable or unfit for use. Such a flavor may either directly contaminate the milk or be absorbed. Sanitizers are included in this flavor category. |
| Garlic or Onion | Pungent odor or flavor and is very unpleasant in milk. The garlic or onion flavor is recognized by the distinctive taste and odor suggestive of its name. The obnoxious weed flavor, imparted to milk when the cow eats garlic, onions, or leeks, is not classified as one of the usual feed flavors described above. |
| High Acid | Unpleasant, disagreeable odor and acid or sour taste. Milk that has developed some acidity as a result of bacterial growth will have a detectable acid flavor long before it may be classified as sour. |
| Malty | May taste or smell like malted milk or grapenuts. Not a common flavor but may be encountered in milk not properly cooled. Certain bacteria from improperly cleaned equipment, especially milking machines, may contaminate the milk and cause the objectionable malty flavor. |
| Metallic | Taste sensations may range among metallic, wet cardboard, oily, tallow, fishy or chalky; you may feel pucker or astringent taste in your mouth (similar to the sensation from cranberry juice). “Papery” or cardboard, sunlight, and tallowy are forms of oxidized flavors with varying degrees of intensity. Rough and puckery on the mouth and tongue. It is caused when milk comes into contact with corrodible metal, such as exposed copper on equipment or rusty milk cans or lids. |
| Musty | This flavor is suggestive of must or mold. It may be absorbed directly by the milk, but is more likely to come from feed or stagnant water consumed by the cow. |
| Oxidized, UV-Light Induced | Tastes sensations may include burnt-protein or burnt-feather-like to almost a medicine-like flavor caused by exposure to UV-rays from sunlight or fluorescent lighting. Diminishes after several days’ storage. The oxidized flavor embraces many other flavors, which represent various stages of oxidation or partial changes in the fatty portion of milk. |
| Rancid | Rancid milk will give taste sensations that range among soapy, blue cheese, slightly bitter, foul, pronounced aftertaste and will not clear up readily from the palate. “Lipase” is closely associated with bitter flavor; but unlike the common bitter flavor, it has an odor resembling rotten nutmeats. Resembling the flavor of stale fat is not encountered in its extreme form in fresh milk. |
| Salty | Salty taste, which may be present in milk from cows in the late stages of lactation, is often characteristic of milk from cows infected with mastitis. Salty sensations are detected along the sides of the tongue. It is not commonly found in herd milk or mixed milk received at a dairy plant. This defect cannot be detected by odor. |

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Sources:

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**Example Team Run Off Exam**

Select the best answer to the following multiple choice questions

1. Mild and Sharp Cheddar cheese both have a maximum moisture content of \_\_\_\_\_%
   1. 29
   2. 39
   3. 49
   4. 59
2. Blue cheese is ripened with which of the following
   1. Bacteria
   2. Fungi
   3. Mold
   4. Other
3. Muenster cheese come from which country of origin?
   1. US
   2. France
   3. Italy
   4. England
4. One gallon of milk weighs approximately\_\_\_\_\_ pounds
   1. 5.5
   2. 7.8
   3. 8.6
   4. 10.1
5. Butter is made from milk and/or cream and must contain a minimum of \_\_\_\_\_ percent fat?
   1. 3.25
   2. 80
   3. 36
   4. 10.5
6. The most popular retail size container for fluid milk is the U.S. is a\_\_\_\_\_
   1. Quart
   2. Pint
   3. Gallon
   4. Half Gallon
7. \_\_\_\_\_\_\_\_\_\_ dominate U/S. cheese production.
   1. New York and Wisconsin
   2. Wisconsin and California
   3. Texas and Florida
   4. Texas and California
8. The flavors which cannot be detected by odor are-\_\_\_\_
   1. Acid and Rancid
   2. Oxidized and Malty
   3. Bitter and Salty
   4. Feed and Garlic
9. Light whipping cream has a minimum of \_\_\_\_\_ percent milk fat.
   1. 80
   2. 36
   3. 30
   4. 18
10. For the maximum intake of calcium, one should consume\_\_\_\_\_ milk
    1. 1 percent
    2. Whole
    3. 2 percent
    4. Skim
11. Today, an average dairy cow produces approxiamtly\_\_\_\_\_quarts of milk per cow annually.
    1. 6500
    2. 5500
    3. 6800
    4. 8800
12. The largest percentage of the US milk supply is utilized in the production of\_\_\_\_\_
    1. Cream and specialty products
    2. Evaporated, condensed, and dried milk products
    3. Cheese
    4. Frozen dairy desserts
13. The \_\_\_\_\_ is the length of time after processing during which a dairy product normally remains suitable for human consumption.
    1. Shelf date
    2. Code date
    3. Product life
    4. Package date
14. The hormone oxytocin is released by the \_\_\_\_\_ gland. This release stimulates the mammary gland.
    1. Endocrine
    2. Pituitary
    3. Thalamus
    4. Hypothalamus
15. A process that makes milk more easily digested by those with sensitive digestive systems is\_\_\_\_\_
    1. Evaporation
    2. Ionization
    3. Homogenization
    4. Pasteurization

Complete cheee identification, diary non-dairy and milk defects on scorecard

National FFA References