

**Virginia 4-H Dairy Quiz Bowl Team Study Materials**  
Section 11. Dairy Products

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- Milk is nature's most nearly perfect food.
- Tests that milk plants use to determine milk quality:
  - Acid degree value
  - Antibiotic test
  - Bacteria count (Standard Plate Count)
  - Flavor
  - Freezing point
  - Leukocyte (somatic cell) count
  - Preliminary incubation (PI) count
  - Sediment test
- Acid degree value (ADV) is a test used to detect rancidity.
- The primary protein found in milk is casein.
- Calcium and phosphorus are two minerals found in milk that are important in bone growth.
- The Pasteurized Milk Ordinance (PMO) is the document that establishes the standards for Grade A milk.
- The three major components of dried whey are lactose, minerals, and protein.
- Milk is flash pasteurized by the high temperature, short-time method at 161°F for 15 seconds.
- The batch or holding method of pasteurization requires that milk be heated to 145°F for not less than 30 minutes.
- The name of the bacterium that is used to make sweet acidophilus milk is *Lactobacillus acidophilus*.
- The minimum total solids-not-fat content in the legal definition of milk is 8.25%.
- The amount of cheese one can get from a pound of milk is most affected by the protein content of the milk.
- The components of the solids-not-fat portion of milk are protein, lactose, and minerals.
- A sour flavor occurs when there are large numbers of bacteria present in milk.
- Dirty equipment is most frequently the cause of high bacterial counts in milk.
- A milk plant can check milk to determine if water has been added by checking its freezing point.
- There is a direct relationship between the quality of milk produced on the farm and that sold off the store shelf.
- The recommended temperature of water for washing the bulk tank, lines, and other equipment is 160°F.
- Vitamin D is essential for efficient use of calcium and phosphorus in bone growth.
- The dairy case is usually placed at the rear of the store because it causes shoppers to walk past many other products in order to get to the dairy case, which increases impulse buying.
- Cheese is classified according to its consistency. The four classes are:
  - Soft
  - Semi-soft
  - Hard
  - Very hard
- Cheddar cheese is the most popular variety of cheese in the United States.
- Rennin is the enzyme obtained from the lining of a calf's stomach that is used to coagulate casein protein when making cheese.
- Feta and Roquefort are two cheeses that are manufactured from the milk of animals other than the dairy cow.
- Milk is 96-98% digestible.
- Vitamin D is added to milk at processing time to prevent rickets.
- Mozzarella cheese can be made from reconstituted nonfat dry milk.
- Lactose is the major solids component of milk.
- Off-flavors in milk:
  - Bitter
  - Fermented
  - Fruity
  - High acid
  - Lacks freshness
  - Oxidized
  - Rancid
- Pigmented milk cartons are used to prevent an oxidized flavor.
- As the protein level in milk increases, milk taste improves.
- As a person's age increase, his/her milk consumption tends to decrease.
- Butter must contain a minimum of 80% fat.
- Churning is the process that turns cream into butter.



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- It takes 21.2 pounds of whole milk to make a pound of butter.
- It takes 10.0 pounds of whole milk to make a pound of cheese.
- It takes 12.0 pounds of whole milk to make a gallon of ice cream.
- Grade A raw milk must be cooled to 45°F or less within two hours after milking.
- Exposing milk to sunlight or copper bearing surfaces will result in an oxidized flavor.
- New Zealand is the leading exporter of casein to the US.
- According to World Agricultural Production, USDA, FAS, March 1999, Ireland had the highest per capita consumption of fluid milk, France had the highest per capita consumption of butter, and Greece had the highest per capita consumption of cheese.
- *Mycobacterium paratuberculosis*, the organism that causes Johne's disease, is killed by high temperature, short time pasteurization.
- Advantages of high quality milk from a processor's point of view:
  - Improved flavor
  - Long shelf life
  - Increased cheese yield
  - Reduced hauling and handling costs due to low quality milk not having to be diverted to an alternative use
- Advantages of high quality milk on the dairy farm:
  - Greater profitability
  - Increased milk yield
  - Larger milk checks due to improved milk per cow and premiums
  - Reduced labor and labor cost
  - Low culling rates
  - Low treatment costs
- McDonald's is the fast food chain that uses the most milk in the U.S.
- Milk is the victory drink at the Indianapolis 500 each year.
- According to Dairy Management, Inc., one out of every four pounds of cheese is eaten as part of a sandwich.
- *Bacillus stearothermophilus* disc assay is the official test for antibiotic residues.
- The phosphatase test is the test used to determine if raw milk has been added to pasteurized milk.
- The expiration date on a milk carton is a customer's assurance of a fresh dairy product.
- The "Real Seal" assures the customer that the product they are purchasing is a genuine dairy product.
- A bulk tank should be washed and sanitized every time it is emptied.
- After the first milking, the temperature of milk in a bulk tank should not reach higher than 50°F at any time.
- Milk temperature should be kept under 40°F to maintain the best quality.
- Animals other than the cow that are used to produce milk for human consumption throughout the world:
  - Human
  - Goat
  - Sheep
  - Camel
  - Water buffalo
  - Horse
  - Yak
  - Reindeer