FFA Dairy Foods CDE Practice Test (Sample)

Study Guide

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Questions

1. What is the principal carbohydrate found in milk?

A. Glucose

B. Fructose

C. Lactose

D. Galactose

2. Why is the California Mastitis test performed?

A. To check the pH of milk

B. To determine whether the cow's mammary gland is inflamed or infected

C. To measure fat content in milk

D. To test for antibiotic residues in milk

3. What typically happens to the nutritional profile of milk when cows are given a high-quality diet?

A. It decreases

B. It remains unchanged

C. It improves

D. It becomes less varied

4. What aspect of milk pricing do federal marketing orders NOT address?

A. Retail pricing

B. Production costs

C. Milk quality

D. Milk source

5. What potential change can occur if dairy cows are fed lower-quality feed?

A. Increased milk fat content

B. No change in milk production

C. Decreased quality of milk produced

D. Better flavor in milk

6. Upon whose approval is the federal milk marketing order based?

- **A. State officials**
- **B. Milk producers**
- **C. Dairy cooperatives**
- **D. Consumers**

7. Which of the following is a common problem caused by improper storage temperatures of milk?

- **A. Increased viscosity**
- **B. Sour smell**
- **C. Improved nutritional value**
- **D. Crystallization of lactose**

8. What is the primary carbohydrate found in milk?

- **A. Glucose**
- **B. Fructose**
- **C. Sucrose**
- **D. Lactose**

9. What is rBST and its purpose in dairy production?

- **A. A type of feed for cows**
- **B. A hormone to increase milk production**
- **C. A method of pasteurization**
- **D. A disease in dairy cattle**

10. Which product is exempt from the regulation requiring immediate cooling after pasteurization?

- **A. Whole milk**
- **B. Chocolate milk**
- **C. Cream**
- **D. Skim milk**

Answers

1. C
2. B
3. C
4. A
5. C
6. B
7. B
8. D
9. B
10. B

Explanations

1. What is the principal carbohydrate found in milk?

A. Glucose

B. Fructose

C. Lactose

D. Galactose

The principal carbohydrate found in milk is lactose. Lactose is a disaccharide composed of two simpler sugars: glucose and galactose. It is unique to milk and dairy products, serving as a crucial source of energy for newborn mammals. Upon digestion, lactose is broken down by the enzyme lactase into glucose and galactose, which can then be absorbed into the bloodstream for use by the body's cells. In addition to its role as an energy source, lactose contributes to the sweetness of milk and can influence the texture and flavor profile of various dairy products. The presence of lactose is also what distinguishes dairy from non-dairy products in terms of carbohydrate content. The other options mentioned—glucose, fructose, and galactose—are present in various foods but are not the main carbohydrate found in milk. Glucose is a simple sugar that serves as a primary energy source for many organisms, while fructose is commonly found in fruits and honey. Galactose, although a component of lactose, does not occur in significant amounts on its own in milk. Therefore, understanding that lactose is the predominant carbohydrate in milk is essential for grasping the nutritional profile of dairy products.

2. Why is the California Mastitis test performed?

A. To check the pH of milk

B. To determine whether the cow's mammary gland is inflamed or infected

C. To measure fat content in milk

D. To test for antibiotic residues in milk

The California Mastitis Test (CMT) is specifically designed to assess the health of a cow's mammary gland by detecting inflammation or infection, which is often a result of mastitis. Mastitis is an infection in the udder, and the test works by analyzing the somatic cell count in milk, as elevated levels of somatic cells indicate that the gland is likely inflamed or infected. During the test, a sample of milk is mixed with a reagent; if the cow has mastitis, the mixture will thicken or gel, indicating the presence of these elevated somatic cells due to infection. In contrast, checking the pH of milk, measuring fat content, or testing for antibiotic residues involves different procedures and does not specifically indicate the health status of the mammary gland. Each of these other options serves a distinct purpose in dairy quality and safety assessment, but they do not directly correlate with diagnosing mastitis in cows.

3. What typically happens to the nutritional profile of milk when cows are given a high-quality diet?

A. It decreases

B. It remains unchanged

C. It improves

D. It becomes less varied

When cows are provided with a high-quality diet, the nutritional profile of the milk they produce generally improves. This is because the quality of the cow's diet directly influences the composition of the milk. A high-quality diet is rich in essential nutrients such as proteins, fats, vitamins, and minerals, which are then reflected in the milk. For instance, a diet that contains adequate amounts of high-quality forages, grains, and supplements can lead to higher levels of beneficial fatty acids in the milk, enhanced vitamin content, and improved overall health of the cow. This results in milk that not only has a better taste and nutritional value but may also be of higher quality for processing into dairy products. Cows receiving optimal nutrition tend to produce milk with improved butterfat and protein levels, which are critical for the dairy industry. Therefore, a high-quality diet results in enhancing the nutritional value of milk rather than diminishing or leaving it unchanged. This is essential knowledge for anyone involved in dairy farming or dairy product production.

4. What aspect of milk pricing do federal marketing orders NOT address?

A. Retail pricing

B. Production costs

C. Milk quality

D. Milk source

Federal marketing orders are designed to regulate various aspects of the milk supply chain to ensure fairness and stability in the dairy market. While they play a significant role in addressing issues related to production costs, milk quality, and the source of milk, retail pricing is not an aspect they directly manage. Federal marketing orders focus on the pricing of milk as it moves through marketing channels from producers to processors, and then to wholesalers and retailers. These orders help establish minimum prices that processors must pay producers, taking production costs and quality into consideration. However, retail pricing is determined by market dynamics at the consumer level and is influenced by factors such as supply and demand, competition, and retailer pricing strategies. Therefore, while federal marketing orders have a considerable impact on how milk is priced upstream in the supply chain, they do not set or control the prices consumers pay at retail outlets. This distinction is crucial for understanding the broader framework of milk pricing and market regulation in the dairy industry.

5. What potential change can occur if dairy cows are fed lower-quality feed?

A. Increased milk fat content

B. No change in milk production

C. Decreased quality of milk produced

D. Better flavor in milk

Feeding dairy cows lower-quality feed can significantly impact the quality of milk produced, making the choice of decreased quality of milk produced the correct answer. The nutritional composition of the feed directly affects the milk's nutrient profile, including its fat content, protein levels, and overall quality. Lower-quality feed may lack essential nutrients and may not provide adequate energy, leading to diminished overall health and productivity in the dairy cows. As a result, the milk produced may contain reduced levels of fat and protein, adversely affecting its quality. This change can also influence the milk's flavor, shelf life, and processing characteristics—factors that are crucial for consumers and manufacturers alike. Therefore, using higher-quality feed is essential to optimize the dairy cows' health and the milk's overall quality.

6. Upon whose approval is the federal milk marketing order based?

A. State officials

B. Milk producers

C. Dairy cooperatives

D. Consumers

The federal milk marketing order is based on the approval of milk producers. This system is designed to ensure that dairy farmers receive fair prices for their milk while maintaining a stable supply for consumers. The process involves producers submitting a proposal for the milk pricing structure and market conditions to the appropriate federal authority, typically the USDA. Milk producers have a significant role because they are the ones directly affected by pricing and marketing policies. Their approval ensures that the order reflects the realities of the dairy market and supports their economic viability. This mechanism also aims to protect small farmers and stabilize the dairy industry, ensuring that they can remain competitive in the market. While state officials, dairy cooperatives, and consumers play important roles in the dairy supply chain, the approval decision for the federal milk marketing order ultimately rests with the farmers who produce the milk.

7. Which of the following is a common problem caused by improper storage temperatures of milk?

A. Increased viscosity

B. Sour smell

C. Improved nutritional value

D. Crystallization of lactose

Improper storage temperatures of milk can lead to a variety of quality issues, one of which is the development of a sour smell. This unpleasant odor is typically caused by the growth of spoilage bacteria that thrive in warmer temperatures. When milk is stored outside the recommended temperature range, these bacteria can multiply rapidly and begin to produce lactic acid, which increases acidity and results in the sour smell associated with spoiled milk. The other options do not accurately reflect issues that arise from improper storage temperatures. Increased viscosity may occur due to other factors, such as the presence of certain additives or the natural process of cream separation, but it is not a direct result of temperature misuse. Improved nutritional value contradicts the effects of improper storage, as spoilage generally leads to a decrease in quality and safety. Finally, crystallization of lactose is more related to drying processes and freezing rather than improper temperature during storage, as lactose typically remains dissolved in liquid milk under proper conditions. Thus, the sour smell is a clear indicator of spoilage linked to improper storage temperatures.

8. What is the primary carbohydrate found in milk?

A. Glucose

B. Fructose

C. Sucrose

D. Lactose

The primary carbohydrate found in milk is lactose. Lactose is a disaccharide composed of two monosaccharides, glucose and galactose. It is peculiarly significant in milk because it serves as the main source of energy for young mammals, including humans. The presence of lactose also influences the overall nutritional profile of milk, contributing to its sweetness and affecting how it is digested and absorbed in the body. Lactose is unique in its function and biological implications, particularly because some individuals may have a deficiency in the enzyme lactase, which is necessary for digesting lactose. This leads to lactose intolerance, a condition affecting a substantial segment of the population that can cause discomfort when consuming dairy products. In contrast, glucose and fructose, while important carbohydrates in various foods, are not the primary sugars found in milk. Sucrose, commonly known as table sugar, is not naturally present in significant amounts in milk; instead, it's often added to products for flavoring. Understanding the role of lactose helps in appreciating not just dairy chemistry but also nutrition science as it relates to dietary restrictions and health.

9. What is rBST and its purpose in dairy production?

A. A type of feed for cows

B. A hormone to increase milk production

C. A method of pasteurization

D. A disease in dairy cattle

rBST, or recombinant Bovine Somatotropin, is a synthetic hormone that is administered to dairy cows with the primary purpose of increasing milk production. This hormone functions by enhancing the efficiency of feed conversion and stimulating the mammary glands to produce more milk. By using rBST, dairy farmers can improve milk yield from the same number of cows, which can lead to more efficient dairy farming and potentially reduce costs. In this context, it's important to recognize that rBST is not a type of feed; rather, it is a biologically active hormone that influences the cow's metabolic processes. It also does not relate to methods of pasteurization, which involve heat treatment to kill harmful bacteria in milk, nor is it connected to diseases in dairy cattle. Understanding the role of rBST is crucial for discussions around dairy production practices and the implications for animal welfare and consumer perceptions.

10. Which product is exempt from the regulation requiring immediate cooling after pasteurization?

A. Whole milk

B. Chocolate milk

C. Cream

D. Skim milk

The product that is typically exempt from the regulation requiring immediate cooling after pasteurization is chocolate milk. This exemption can be attributed to the standard practice in the dairy industry regarding the formulation of chocolate milk. When cocoa is added to milk, it results in a product that has a different pH level and composition, which can influence the stability and safety of the product post-pasteurization. Unlike other dairy products, chocolate milk often undergoes additional processes, such as mixing with syrup that already has a lower pH. This can create an environment that is less conducive to bacterial growth, leading to a reconsideration of the immediate cooling requirement. On the other hand, whole milk, cream, and skim milk are not typically exempt from this requirement due to their susceptibility to bacterial growth if not cooled promptly after pasteurization. Proper cooling for these products is crucial for maintaining quality and ensuring food safety, as they retain higher levels of nutrients and moisture, providing optimal conditions for spoilage organisms. Thus, the exemption for chocolate milk reflects its unique characteristics and processing methods, distinct from regular milk products.