Name: _____

CASE

Activity 9.1.3 The Milky Way

Purpose

The USDA recommends three servings of milk products per day for most teenagers. Milk is an important source of several essential nutrients including protein and calcium. Typically, when you hear the term milk it is referring to cows' milk produced for human consumption.

Determining the quality of milk and defects in fluid milk is a skill useful in production, processing, and consumption. The ability to identify the defect often leads to determining the cause of the defect, which is necessary in correcting the problem. When sampling milk, you must rely heavily on your taste and odor sensations. The four primary tastes are sweet, sour, salt, and bitter. Four fundamental odor sensations also exist; fragrant or sweet, sour or acid, burnt, and caprylic or goat-like. Because flavor is a combination of taste and odor, you may find flavors based on the taste, odor, or a combination of the two.

Your taste buds sense various tastes at different sites along the side, tip, and base of your tongue. Thus, you should roll food samples through your mouth to engage all taste buds. Your ability to detect odors comes from the upper portion of the nasal cavity. To maximize your ability to smell the sample, breathe in slowly and deeply before and after putting the sample in your mouth. Do you think you can find a defect in milk samples or determine the kind of cheese you are eating?

Materials

Per student:

- *Activity 9.1.3 Dairy Products Guide*
- Milk samples
- Sample plate
- Cheese samples
- Glass of water
- Sheet of paper
- Waste container
- Pencil
- *Agriscience Notebook*

Procedure

You will be sampling milk to determine quality and to detect off flavors in the milk. You will also taste several types of cheese and identify the variety of the cheese.

Part One – Milk Tasting

1. Read *Description and Causes of Off-Flavor Milk* in *Activity 9.1.3 Dairy Products Guide.* Use the *Key to Milk Quality* in *Activity 9.1.3 Student Worksheet* and the *Dairy Products Guide* to assist you in Part One.
2. Obtain a freshly poured sample of milk from your teacher.
3. Determine the odor of the sample by inhaling slowly and deeply before and after putting the sample in your mouth.
4. Take a small sip of the milk without swallowing. Work it throughout your mouth with your tongue to engage all taste buds. Breathe in and out through your nose. Keep the sample in your mouth no more than 10 seconds.
5. Spit out the sample. Do not swallow it.
6. Try to detect any aftertaste.

7. Record the taste and aroma in Table 1 of *Activity 9.1.3 Student Worksheet*.
8. Rinse your mouth with water before getting the next sample.
9. Repeat Steps 1-7 for each sample provided.

Part Two – Cheese Classification

Use the information provided in *Activity 9.1.3 Dairy Products Guide* to develop a flowchart or dichotomous key that will assist in classifying each of the 14 types of cheese. Use the sheet of paper provided to record your classification chart. Refer back to *Lesson 2.2. Naming Animals* to assist you in developing your chart.

Part Three – Cheese Tasting

1. Obtain the samples of cheese from your teacher.
2. Observe the color and texture of each cheese and record in Table 2 of *Activity 9.1.3 Student Worksheet*.
3. Taste each sample and use the dichotomous key developed in Part Two to identify the cheese. Record the type of cheese you think the sample represents in Table 2. Compare your answer to the *Activity 9.1.3 Dairy Products Guide* to ensure that your answer is correct.
4. Between samples, rinse your mouth with water to cleanse your palate.

Conclusion

1. How might handling and processing milk influence the defects in milk?

2. What off-flavors would you be more likely to find in retail milk?

3. How do you think your experiences in sensory evaluation will influence you as a consumer?

Source: United States Department of Agriculture. (2008). *Judging and scoring milk and cheese*. Agricultural Marketing Service Farmer's Bulletin No. 2259. Washington, D.C.: Author. Retrieved from **http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3004794**

Name: _____

Activity 9.1.3 Student Worksheet

Key to Milk Quality	
Excellent	No defects
Good	Slight cooked, slight feed, flat
Fair	Slight bitter, slight malty, slight metallic, slight musty, slight oxidized, slight unclean, slight weedy, cooked, feed, or salty
Poor	Slight foreign, bitter, high acid, garlic/onion, malty, metallic, musty, oxidized, rancid, unclean, weedy, strong cooked, or strong feed
Unacceptable	Foreign, strong garlic/onion, strong high acid, strong metallic, strong musty, strong oxidized, strong rancid, or strong weedy

Table 1. ***Milk Tasting***

Sample	Quality	Defect	Comments

Table 2. ***Cheese Tasting***

	Color	Texture	Flavor	Tastes Like	Variety
1					
2					
3					
4					
5					