MISSISSIPPI STATE UNIVERSITY EXTENSION

Dairy Products Judging

This publication is written to help you become a skilled judge of the quality of dairy products in a reasonable period of time. This unit includes lessons on the four major dairy products—milk, cheddar cheese, ice cream, and Swiss style strawberry yogurt.

Through the evaluation of dairy products, you will develop a greater understanding of and appreciation for high-quality dairy products. You will become a wise and economical shopper for dairy products, and, after you graduate from high school, you may be able to continue your judging activities in college.

The quality of milk produced on the farm largely determines the quality of dairy products found in the dairy case. Flavors of milk and dairy products may be caused by one or more factors: the health of the cow, feed consumed by the cow, bacterial action, chemical changes, and absorption of foreign flavors after the milk is drawn. Because the consumption of dairy products depends primarily on flavor, dairy producers are cautious about feeding and milking practices.

For example, cows eating silage or grazing on pasture containing onions immediately before milking will have off-flavors in the freshly drawn milk. Milk from cows confined in close quarters without adequate ventilation will contain foul odors. Improper cleaning and sanitizing of equipment and improper cooling of milk contribute to off-flavors in milk and milk products.

Judging Dairy Products

The hauler evaluates milk in farm bulk tanks before pumping the milk into the tank truck. Critical evaluation begins at the dairy plant. Judging and scoring milk and milk products are important parts of quality control, which starts in the receiving department and continues throughout the

processing operation. Milk processing plants have various points during the process where they check for **irregularities** that will affect product quality.

Normally, the quality control staff evaluates products as they come off the production line and after 7 to 10 days of storage. They use the same procedures and scorecards you will use to measure the quality of the dairy products they produce. This evaluation is necessary if the company wishes to maintain a quality product.

Dairy products can be analyzed for chemical composition, **microorganisms**, color, and physical properties; but these do not measure the "eating quality" of the products. The eating quality includes the feel, taste, and smell a person experiences when the product is put into their mouth.

There are various standards for measuring product quality. A scorecard is used for evaluating and recording quality, and it is used in all dairy product judging contests. It is important that you become familiar with the scorecard for each product.

Before moving to a different product, work with one product until you can recognize its defects. Learn the proper identification of defects first and then the score rating. You will not become an expert judge overnight. This requires training that comes from actual work with prepared samples. You will use sight, smell, taste, and touch in judging dairy products. The extent to which you use each sense depends on the product being judged. In general, beginners should place most emphasis on smell and taste.

The sense of smell is important in determining flavor. You are influenced greatly by your sense of smell in making decisions about the flavor quality of a product. Odor and taste, combined with the feel of the product in your mouth, make up the concept called "flavor." Since flavor has the greatest numerical value of any of the items on the scorecard, and since odor contributes largely to the flavor, your sense of smell has an especially important role in judging dairy products.

There are four primary taste sensations: sweet, sour, salty, and bitter. The taste **receptors** are located primarily on the sides and the base of the tongue. The product, in a liquid form, must make contact with the taste buds before a taste sensation occurs.

The different taste sensations occur on different areas of the tongue. You will note the sour taste chiefly along the sides of your tongue; salty, along the sides and tip; sweet, generally at the tip; and bitter at the base of your tongue. For this reason, you should **manipulate** the sample in your mouth and roll it over your tongue in order to give your taste buds the opportunity to come into contact with the product being evaluated.

To progress in learning to judge dairy products, you must learn to have confidence in your ability to taste and smell. The following rules should help you to make the best use of your time, develop concentration, work effectively, and gain confidence in judging dairy products.

1. **Be in physical and mental condition for scoring.** Just before judging, never eat a heavy meal or foods with strong flavors. Avoid hot drinks that might scald your tongue. Rinse out your mouth with plain water. Scrub your hands, using an unscented soap.
2. **Know the scorecard.** Learn all criticisms and the score value of each item. Learn the range of scores for each class of flavor quality for milk and other dairy products.
3. **Have the samples at the proper temperature.** You can determine the flavor and the body and texture best when the product is neither too cold nor too warm. Each product should be at its optimum temperature. Cheese should be 50°F to 60°F for best judging. The best range for ice cream is 5°F to 10°F.
4. **Take a representative portion of the sample to be judged.** Mix milk samples before sampling. Before pouring the sample, raise the top of the container slightly and smell to detect any off-odors that may be present. If a trier for cheddar cheese is used, don't take the sample from near the edge. Never take a surface sample.
5. **Observe the aroma immediately.** Some aromas become less intense and disappear, in part at least, when exposed to air. So it is important that you smell the aroma of the sample immediately after you remove it.
6. **Take a sufficient volume into your mouth for tasting.** Do not pass judgment on a product without adequately tasting it. Hold each sample approximately the same length of time in your mouth, regardless of the quality of the product. Avoid holding the sample in your mouth past a count of five. **Do not swallow the sample.**
7. **Fix the proper quality ideal in mind.** You can do this best by working closely with a sample having superior quality. Learn in what respect a sample fails to compare favorably with the ideal. The sooner you learn the ideal quality of a product, the sooner you will become proficient in judging that dairy product.
8. **Recondition the mouth occasionally.** You should clean your mouth at intervals or when an aftertaste persists, especially after having examined a poor sample. This can be done by rinsing your mouth with clean, warm water.
9. **Concentrate on the sample you are examining.** Close your eyes and mind to the world around you and practice self-examination as far as tasting is concerned. Make a mental record of your taste and smell reactions. Relax briefly after scoring each sample before proceeding to the next.
10. **Do not be too critical.** Carefully observe the taste and aroma of the sample, but do not form the questionable habit of trying to find objectionable flavors that may not be present. When in doubt, do not criticize.
11. **Check your own scoring occasionally.** You can do this by comparing the flavor of two or more identically scored samples and observing whether you scored the flavors consistently. Try rescoring some samples without knowing their identities.
12. **Be honest with yourself.** Use independent judgment. Judge the sample itself. Do not be influenced by the name, the trademark on the package, or the score you gave a similar product from a particular processor. Make your own decisions, and, after arriving at a conclusion, believe in your own judgment until shown otherwise.
13. **Recognize the fact that you need practice and experience to develop judging ability.** You must practice judging if you are to develop the ability to taste, smell, and determine flavors of dairy products. Do not become discouraged. You will improve with practice.

Scorecard

A scorecard is a tabulated list of the components describing the quality of a product, with a numerical value assigned to each component. The components are arranged on the card in alphabetical order.

Criticisms are listed under each component and are helpful in pointing out the possible defects that may be found in each product.

A standard scorecard is not suitable for scoring the different dairy products, since each product differs in its characteristics. A list of criticisms and the score range for each criticism are included here. Note that some defects are more serious than others. These scorecards are the ones formulated and approved by the American Dairy Science Association and are used throughout the United States in college judging contests. In marking the product score, write down the points allowed rather than the deduction made.

Dairy products usually are not given a perfect score. If flavor were scored perfect, then the highest quality would have been attained. The smallest deduction a contestant can make on any one item is one point. The maximum deduction depends on the degree and the severity of the criticism or criticisms for that particular product. The score guide will give the normal range: 1 to 10 for flavor criticisms and 1 to 5 for appearance and body and texture criticisms.

In grading the scorecards, the more closely the contestants agree with the official judge, the fewer points added to their scores. The lowest score is considered the winner. For the flavor criticisms, the highest penalty is two points per sample. The grade for the product score is the mathematical difference between the judge's and the contestant's score.

For instance, if you mark a sample of milk as being "cooked" and it is actually "oxidized," two points are added to your score. If you score the product as an "8" and the official score is "4," then four points will be added to your score. On this one sample, you would have missed a total of six points.

Another example: You mark a sample of cheddar cheese as being "bitter" and "sulfide" with a score of seven, and the official marks it as being "high acid" and "sulfide" with a score of eight; you will be charged with one point on the criticisms and one point difference on the score, for a total of two.

Judging Milk

The milk samples you judge will be homogenized whole milk. Six samples must be properly identified and must be considered as one group. This number will apply to any other dairy product you judge. Study the milk score guide carefully, noting the items on it and their values. Milk must be judged on flavor only. The temperature of the milk sample at the time of judging should be between 60°F and 70°F (15.5°C and 21°C).

Mix the milk in the container, partially open the top, and take a couple of good sniffs. Note any abnormal odors you detect. Again, mix the milk well before pouring the sample into a cup; take a generous sip, roll it about your mouth, note the flavor sensation, and then **expectorate** it. After spitting, breathe in through your mouth and out through your nose. Notice only off-flavors or odors.

The flavor of normal whole milk is pleasantly sweet and leaves only a clean, pleasing sensation after the sample is expectorated. If an odor or aftertaste is detected, the milk has a flavor defect. A number of milk flavor defects, together with their probable causes, are listed below. By understanding its origin, you will have a better basis for identifying and recognizing each of these particular flavors.

Bitter—A bitter taste may occur in milk as a result of cows' eating strong feeds or weeds that can be absorbed into the milk. Bitterness may be present in milk from cows in late **lactation.** The growth of certain bacteria in milk held several days at low temperatures may be responsible for bitter flavor. You will detect bitterness by taste and not by smell. It occurs at the back of your tongue and mouth.

Cooked—This flavor results from heating milk. It is present when the milk is heated too high or held too long at normal **pasteurization** temperatures. The higher the heating temperature above pasteurization, the more intense the cooked flavor. You can easily identify cooked flavors by taste and especially by the sense of smell. Most pasteurized milk has at least a slight cooked flavor.

Feed—Feeds that contain strong flavors, such as green grass, rye or wheat pasture in early spring, silage, turnips, or alfalfa hay, impart certain flavors to a cow's milk. The foreign odors are absorbed from the cow's stomach and lungs into the blood, then carried to the udder through the bloodstream. Certain feed flavors can be detected in milk from feed given to the cow 15 to 30 minutes before milking. In fact, if a cow inhales onion odor during milking, the onion flavor is present in the milk before milking is complete. Feed flavors in milk can be reduced or prevented by feeding cows immediately after milking and taking them off these types of feeds 3 to 4 hours before milking again.

Flat—Generally, water added to milk causes a flat flavor and diluted taste. The flavor may be described as tasteless. The characteristic flavor of normal milk is lacking, but the milk has no off-flavor. A flat flavor should not be confused with one lacking richness, which is associated with low-fat content. Milk lacking richness usually exhibits a sweetness, whereas milk with a flat taste does not.

Foreign—If cows breathe odors of substances such as fly spray, paint, oil, or kerosene, the odor is carried through the bloodstream to the udder, and the undesirable flavor is formed in the milk. Foreign flavors in milk may be caused by improper use of chemical **sanitizers.** After a sanitizer is used, it must be drained from the milking system before the milking operation starts. If any one of these flavors is pronounced in milk, it is considered unfit for human consumption and, therefore, merits a low score on flavor. Milk may absorb flavors, particularly if the container is left open in the home refrigerator.

Garlic/onion—Garlic or onion flavors are imparted to milk when cows eat or smell wild garlic or onions. You can recognize these flavors by their distinctive tastes and odors. These flavors are objectionable in fluid milk, and you should give milk with this defect a low score.

Acid—You can easily detect the high-acid flavor by smell and taste. Acid milk results from bacterial growth (generally *Streptococcus lactis*). Acid flavor develops rapidly if raw milk is not properly cooled. Acid flavor is characterized by a sharp, sour taste on the tongue.

Lacks freshness—"Lacks freshness" flavor generally develops before a more serious flavor is detected. This deterioration in flavor is due to the growth of **psychrophilic** bacteria that are responsible for the slow change in flavor. It may also be caused by an **enzymatic** or chemical action that occurs in old milk. Pasteurization kills psychrophiles; therefore, their presence in a pasteurized dairy product indicates **postpasteurization** contamination. The "lacks freshness" flavor may be described as lacking in clean flavor because of age.

Malty—This is not a common flavor but may be found in milk not properly cooled. Certain bacteria from improperly cleaned equipment, especially milking machines, cause the objectionable flavor, which can be described as a walnut or grape-nut flavor.

Oxidized—Oxidized milk has been described as tasting like wet cardboard. "Tallowy" is another term often used to describe this defect. It does not develop from bacterial growth in milk but from a chemical reaction involving the milk fat primarily. This flavor develops when milk, placed in a glass or plastic container, is left in the sun for a short time or for a longer time under artificial light in a store cabinet.

Metallic—Contact with copper or iron causes this flavor. This is why stainless steel equipment is required in the production, handling, and processing of milk.

Rancid—Rancid flavor in milk is closely associated with bitter flavor, but unlike the common bitter flavor, it has an odor resembling spoiled nutmeats. Rancid flavor is caused by a chemical breakdown of milk fat.

Milk fat exists in milk as tiny globules, and they are surrounded by a protective layer of other substances. If this layer is disrupted, the enzyme lipase, present in the raw milk, gains access to the unprotected milk fat and chemically releases the **fatty acids**. Some of these fatty acids dissolve in the water portion of the milk, and this produces the rancid flavor.

Extreme agitation of warm, raw milk in the presence of air, causing foaming, results in a rancid-type flavor within a few hours. If cold, raw milk is warmed to 70°F to 90°F, and cooled back to 40°F, rancid flavor may occur. Rancid milk may also be caused by mistakes in processing. Rancid flavor develops if a small amount of raw milk is added to pasteurized, homogenized milk.

Unclean—The unclean flavor is seldom found, except in pasteurized milk that has been stored too long or at a slightly higher than normal refrigerator temperature. It may be caused by bacterial growth in milk or from milk contacting decomposed material on improperly washed equipment.

Preparing Milk Samples with Characteristic Flavors

To gain experience in judging milk, it may be necessary for you to prepare special samples. Therefore, methods for sample preparation are listed below. Intensity of the flavors may be adjusted by diluting the sample with untreated, high-quality pasteurized milk.

The following samples should be prepared from pasteurized milk intended for table use and tempered to 60°F before judging.

Bitter—Add a few drops of 1 percent solution of quinine sulfate.

Cooked—Heat milk to near boiling and cool, or heat to 160°F for 30 minutes and cool.

Feed—In a flask, boil a suspension of silage in water. Close the flask opening with a one-hole stopper to which a plastic or rubber tubing is attached. Place the open end of the hose in a container of milk so the gas that boils off will pass through the milk. Dilute to taste with good milk.

Foreign—Add a few drops of chlorine or a similar sanitizing solution having a distinctive flavor.

Garlic/onion—Add garlic powder or a few drops of juice from an onion, or put a piece of onion in the milk for a short time. When garlic and onion powders are used, only one or two granules will suffice if you store it overnight.

Acid— Add one-half cup of fresh, cultured buttermilk to a quart of pasteurized milk, previously warmed to 70°F to 80°F; mix and place in a refrigerator overnight.

Lacks freshness—Store high-quality pasteurized milk at refrigerated temperature for 7 to 10 days.

Malty—Add malt flavor purchased from your local grocer.

Oxidized (light-induced)—Expose pasteurized, homogenized milk in a glass or plastic bottle to direct sunlight for 20 to 30 minutes or to indirect sunlight for 1 hour.

Metallic—Place two copper pennies in a sample of milk for a few hours. For more intensity, add additional pennies.

Rancid—Mix nine parts pasteurized, homogenized milk with one part **raw milk**, and warm the mixture to about 98°F, then refrigerate it overnight.

Unclean—This flavor is difficult to reproduce. You can best obtain it by refrigerating several samples of pasteurized milk for several days and selecting samples with a somewhat putrid odor or bitter taste. Add this milk to good-quality milk to produce the unclean flavor at a lower intensity.

Samples are best judged or scored with only number identification. Score each sample on its own merits in comparison with the ideal. Depend on your own judgment, and do not let the comments or facial expressions of others influence you. If a sample reveals more than one flavor, record the flavor carrying the lowest rating.

Milk flavor scoring guide. Suggested flavor scores with designated intensities of flavor defects. Range of scores for each class of flavor quality: Excellent 10 (no criticism), Good 8–9, Fair 6–7, Poor 5 or less. Normal range 1–10. Dash (–) indicates product of unsalable quality. Official rules prohibit use of such products in contest.

	Intensity of defect		
Flavor criticisms	**Slight**	**Definite**	**Pronounced**
Acid	3	1	–
Bitter	5	3	1
Cooked	9	8	6
Feed	9	8	5
Fermented/fruity	5	3	2
Flat	9	8	7
Foreign	5	3	1
Garlic/onion	5	3	1
Lacks freshness	8	7	6
Malty	5	3	1
Metallic	5	3	1
Oxidized (light-induced)	6	4	1
Rancid	4	1	–
Salty	8	6	4
Unclean	3	1	–

4-H Dairy Products Judging

MILK SCORECARD

MISSISSIPPI STATE UNIVERSITY EXTENSION

__ __ __ __ __ __ Contestant #

__ __ / __ __ / __ __ __ __ Date

Marking Instructions

Fill circles completely. Erase changes cleanly and completely.

Do not use checkmarks, Xs, or any other marks. Do not make any stray marks.

CRITICISMS									
		Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**	**Sample 7**	**Sample 8**
No criticisms 10	**Flavor**	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩
	1. Acid	❍	❍	❍	❍	❍	❍	❍	❍
	2. Bitter	❍	❍	❍	❍	❍	❍	❍	❍
	3. Cooked	❍	❍	❍	❍	❍	❍	❍	❍
	4. Feed	❍	❍	❍	❍	❍	❍	❍	❍
	5. Fermented/fruity	❍	❍	❍	❍	❍	❍	❍	❍
Normal range 1–10	6. Flat	❍	❍	❍	❍	❍	❍	❍	❍
	7. Foreign	❍	❍	❍	❍	❍	❍	❍	❍
	8. Garlic/onion	❍	❍	❍	❍	❍	❍	❍	❍
	9. Lacks freshness	❍	❍	❍	❍	❍	❍	❍	❍
	10. Malty	❍	❍	❍	❍	❍	❍	❍	❍
	11. Metallic	❍	❍	❍	❍	❍	❍	❍	❍
	12. Oxidized (light-induced)	❍	❍	❍	❍	❍	❍	❍	❍
	13. Rancid	❍	❍	❍	❍	❍	❍	❍	❍
	14. Salty	❍	❍	❍	❍	❍	❍	❍	❍
	15. Unclean	❍	❍	❍	❍	❍	❍	❍	❍

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Judging Cheddar Cheese

Cheddar cheese is a firm, ripened cheese, usually made from pasteurized whole milk. Many of the points covered in milk judging apply to cheese judging; therefore, only points not covered in milk judging are covered here.

The cheddar cheese scorecard is divided into two areas: flavor, and body and texture. You score each part separately. Many of the flavors listed on the cheddar cheese scorecard are the same as those listed on the milk scorecard, but the reason for a similar flavor in the two products may or may not be related.

Sample cheeses must be brought to a temperature of 50°F to 60°F to secure a uniform temperature throughout all parts of the cheese. This requires a few hours for the smaller styles and several hours for the larger ones. The body and texture must be evaluated before the flavor is evaluated.

Body

The term *body* is used to designate the physical properties, including firmness, cohesiveness, elasticity, and plasticity. These characteristics are called *consistency*. Physical properties of cheese are affected by the methods of processing and by the composition of cheese. The physical properties describe the appearance and feeling of the cheese when a plug of it is removed from the cheese with a trier.

A normal plug of ripened cheddar cheese shows a smooth, uniform surface; it feels solid and firm; it does not crumble when cut or pressed; it bends before breaking; it feels smooth and waxy, like cold butter when rubbed between the thumb and fingers.

Some of the common defects in the body of cheddar cheese include:

Corky body—Cheese with a firm, hard, tough body that is difficult to crush with the fingers is described as corky. This condition is caused by one or more defects: 1) low fat content, 2) lack of acid development in making, 3) overheating during the cooking operation, 4) low moisture content, and 5) excessive salt content.

Crumbly body—With this defect, the cheese falls apart when sliced; a full plug is difficult to remove from the cheese with a cheese trier; and it crumbles when crushed between the thumb and fingers. There are many reasons for crumbly body, such as allowing curd to cool to too low a temperature before pressing, insufficient pressing, and low moisture.

Mealy body—This characteristic appears when cheese is crushed and rubbed between the thumb and fingers; the structure of the curd feels rough, like cornmeal, on the tongue. This defect is almost always associated with a high-acid condition during the cheese-making operation.

Pasty body—Cheese with this defect is soft in consistency; when pressed and rubbed between the fingers, it quickly becomes sticky and clings to the fingers. This problem is usually caused by a high moisture content.

Short body—The plug may be dense but is rather fragile. The plug shows little elasticity and breaks easily when bent. This defect is associated with insufficient cheddaring, cheddaring at too low a temperature, or the development of too much acid before the curd has firmed properly.

Weak body—A weak-bodied cheese is soft due to high moisture and/or high fat and often is associated with fermented flavor defects.

Texture

Texture is the term used to describe the manner in which the cheese particles are bound together. Close texture shows only a few openings between the particles, whereas open texture shows spaces between the particles.

The two defects in texture most commonly found in cheddar cheese are:

Gassy—Small gas holes about the size of a pinhead or somewhat larger are caused by undesirable microorganisms growing within the cheese. The holes are fairly uniform in distribution, regular in shape, and shiny on their inside surfaces. Generally, an objectionable fruity or unclean flavor is formed along with this texture defect.

Open—Mechanical openings are characterized by their irregular, angular shapes and sizes and by the dullness of their inside surfaces. These holes result from incomplete matting and pressing of the curd. There is little or no relationship between their presence and the flavor.

Cheddar cheese body and texture scoring guide. Suggested body and texture scores with designated intensities of defects. Range of scores for each class of body and texture quality: Excellent 5 (no criticism), Good 3–4, Poor to Fair 1–2, Normal range 1–5.

Body and texture criticisms	Intensity of defect		
	Slight	Definite	Pronounced
Corky	4	3	2
Crumbly	4	3	2
Curdy	4	3	2
Gassy	3	2	1
Mealy	4	3	2
Open	4	3	2
Pasty	4	3	1
Short	4	3	2
Weak	4	3	2*

Flavor

High-quality cheddar cheese has a flavor described as clean, fine, nutty, and pleasantly sweet. How close the cheese flavor comes to this ideal flavor depends on the type of bacterial activity and chemical changes that occur during the manufacturing and curing processes.

Often a body and texture defect is associated with a specific flavor defect. After you have examined the body and texture of the cheese carefully, you will then determine the flavor. You can do this by: 1) noting the odor of the freshly drawn plug as you pass it slowly under your nose; 2) working a portion of the plug between your thumb and forefingers, then smelling for odors; and 3) tasting a small piece of the cheese.

The most common flavor defects you will find in cheddar cheese are the following:

High acid—Acid flavor results from the development of too much acid at any stage of cheese-making or curing. You can detect it by smell and taste. High-acid cheese generally develops a bitter flavor with aging.

Bitter—A true bitter flavor is distasteful and resembles quinine. It is picked up by the back of the tongue and mouth. Bitter flavor almost always results from high acid, causing excess **proteolysis**. You can detect this flavor by the sense of taste, and the sensation persists for some time. Do not confuse the sharpness of aged cheese with bitter flavor. A slight bitter flavor is not too serious in aged cheese.

Feed—This flavor is associated with strong feeds eaten by the cows. You can detect it with your sense of taste and smell.

Fermented/fruity—Fruity flavor suggests a flavor or aroma reminiscent of fruit, such as fresh apples, grapes, pears, pineapple, and other tropical fruits. The taste is generally sweet, and the odor resembles that of fermenting or overripe fruit. Fermented cheese has the alcohol smell associated with some brands of bread. The flavor is often associated with high moisture, resulting in a weak, pasty body; but the cause is usually inadequate acid development. Odor may be more important than taste in detecting this flavor.

Garlic/onion—This odor results from cows' grazing on pastures infested with wild onions or garlic.

Rancid—The rancid flavor is soapy and disagreeable. It is caused by the activity of the enzyme lipase that yields butyric acid. It is more likely that you will find this defect in aged cheese.

Sulfide—This odor results from hydrogen sulfide being released as a by-product of bacterial fermentation or enzymatic action on the protein. You can detect sulfide odor readily by passing the freshly drawn plug of cheese under your nose. The odor is similar to that of boiled eggs.

Unclean—This is a term used to describe odors and tastes that are mildly offensive but cannot be identified. This criticism suggests unclean conditions of milk production or of cheese manufacturing.

Yeasty—The odor resembles that of a yeasty fermentation, such as **fresh bread** dough. This flavor results from the growth of yeast organisms in low-acid, high-moisture, or low-salt cheese.

Again, you are encouraged to study and follow the flavor scoring guide in evaluating cheddar cheese.

Cheddar cheese flavor scoring guide. Suggested flavor scores with designated intensities of defects. Range of scores for each class of flavor quality: Excellent 10 (no criticism), Good 8–9, Fair 6–7, Poor 5 or less. Normal range 1–10.

Flavor criticisms	Intensity of defect		
	Slight	Definite	Pronounced
Bitter	9	7	4
Feed	9	8	6
Fermented/fruity	8	6	5
Flat/lacks flavor	9	8	7
Garlic/onion	6	4	1
Heated	9	8	7
High acid	9	7	5
Moldy	7	5	3
Rancid	6	4	1
Sulfide	9	7	4
Unclean	8	6	3
Whey taint	8	7	5
Yeasty	6	4	1

4-H Dairy Products Judging

CHEDDAR CHEESE SCORECARD

MISSISSIPPI STATE UNIVERSITY™ EXTENSION

__ __ __ __ __ __ Contestant #

__ __ / __ __ / __ __ __ __ Date

Marking Instructions

Fill circles completely. Erase changes cleanly and completely.

Do not use checkmarks, Xs, or any other marks. Do not make any stray marks.

Criticisms									
		Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**	**Sample 7**	**Sample 8**
No criticisms 10	**Flavor**	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩
Normal range 1–10	1. Bitter	❍	❍	❍	❍	❍	❍	❍	❍
	2. Feed	❍	❍	❍	❍	❍	❍	❍	❍
	3. Fermented/fruity	❍	❍	❍	❍	❍	❍	❍	❍
	4. Flat/lacks flavor	❍	❍	❍	❍	❍	❍	❍	❍
	5. Garlic/onion	❍	❍	❍	❍	❍	❍	❍	❍
	6. Heated	❍	❍	❍	❍	❍	❍	❍	❍
	7. High acid	❍	❍	❍	❍	❍	❍	❍	❍
	8. Moldy	❍	❍	❍	❍	❍	❍	❍	❍
	9. Rancid	❍	❍	❍	❍	❍	❍	❍	❍
	10. Sulfide	❍	❍	❍	❍	❍	❍	❍	❍
	11. Unclean	❍	❍	❍	❍	❍	❍	❍	❍
	12. Whey taint	❍	❍	❍	❍	❍	❍	❍	❍
	13. Yeasty	❍	❍	❍	❍	❍	❍	❍	❍
		Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**	**Sample 7**	**Sample 8**
No criticisms 5	**Body & Texture**	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤
	1. Corky	❍	❍	❍	❍	❍	❍	❍	❍
	2. Crumbly	❍	❍	❍	❍	❍	❍	❍	❍
	3. Curdy	❍	❍	❍	❍	❍	❍	❍	❍
	4. Gassy	❍	❍	❍	❍	❍	❍	❍	❍
	5. Mealy	❍	❍	❍	❍	❍	❍	❍	❍
Normal range 1–5	6. Open	❍	❍	❍	❍	❍	❍	❍	❍
	7. Pasty	❍	❍	❍	❍	❍	❍	❍	❍
	8. Short	❍	❍	❍	❍	❍	❍	❍	❍
	9. Weak	❍	❍	❍	❍	❍	❍	❍	❍

Form 801 (POD-06-26)

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. ANGUS L. CATCHOT JR., Director

Judging Ice Cream

The technique for judging ice cream is different in many respects from the scoring of other dairy products. Only vanilla ice cream is judged.

The ice cream scorecard is divided into two parts: flavor, and body and texture. An ice cream sample is seldom given a perfect score on flavor or body and texture.

Ice cream is stored between -10°F and -25°F and must be brought to a temperature of 5°F to 10°F for judging. At this temperature, the product is still partially frozen, which allows you to evaluate the body and texture.

You can get a fairly accurate impression of its body and texture characteristics by dipping the ice cream. Notice the way it cuts and the feel of the dipper or spoon as its cutting edge passes through the ice cream. It is important to note whether the ice cream tends to curl up behind the dipper, indicating excessive gumminess or stickiness.

After you take the sample from the container, begin at once to examine it for further body and texture characteristics and for flavor. You will need to make several determinations **simultaneously** when you take a sample into your mouth.

When the sample warms to body temperature, it will not be difficult for you to judge the flavor. To evaluate the flavor, place a small amount of the frozen ice cream directly into your mouth, quickly manipulate the sample between your tongue and **palate**, and note the taste and odor sensation. Press a small portion of the frozen ice cream against the roof of your mouth to determine the smoothness, the coarseness, the sandiness, and the relative size of the ice crystals.

After you have noted the flavor and body and texture, expectorate the sample. (Do not swallow the sample.)

Body and Texture Defects

Coarse/icy—This defect is perhaps the most common texture defect of ice cream. Such ice cream is characterized by its rough appearance, large ice crystals, feeling of unusual coldness in the mouth, and general lack of a smooth, velvety feeling. Icy texture is easy to detect. You can feel the ice crystals easily between your teeth or with your tongue. The defect is due primarily to slow freezing of the sugar-water solution in the freezer, or to the frozen ice cream's having been exposed to temperature fluctuation.

Crumbly—Crumbly body in ice cream is shown by a tendency of the ice cream to fall apart when it is dipped. As the ice cream melts in your mouth, a comparatively small amount of liquid results. This condition is associated with low solids, low stabilizer, and high overrun.

Gummy—A sticky or gummy body is the exact opposite of crumbly body. It tends to stick to the teeth when chewed. Gummy ice cream curls up behind the dipper, leaving coarse, deep, irregular waves. The defect is closely associated with the excessive use of stabilizer, sweetener, or both.

Sandy—Sandy texture in ice cream is one of the most objectionable texture defects and one of the easiest to detect. To detect sandiness, press a thin layer of ice cream against the roof of your mouth with your tongue. Hard, uniform particles, which are crystals of **lactose** and feel like fine sand, indicate a sandy texture in ice cream. Do not confuse the sandy and coarse texture defects in ice cream. The lactose crystals dissolve more slowly than do the ice crystals. This defect is caused by high total solids, age, and heat shocking.

Vanilla ice cream should be pleasantly sweet and have a creamy, delicate vanilla flavor that cleans up well, leaving only a pleasant aftertaste. When you first taste the sample, you should not find the flavor of any one ingredient so strong that it predominates over the flavors of the other ingredients.

Due to the sweetness, it is difficult to observe other flavors that may be present in ice cream. In scoring flavor, this ability to taste beyond the sweetness is important. Do the flavor evaluation from a scooped sample and not directly from the original container.

Ice cream body and texture scoring guide. Suggested body and texture scores with designated intensities of defects. Range of scores for each class of body and texture quality: Excellent 5 (no criticism), Good 3–4, Poor to Fair 1–2. Normal Range 1–5. Dash (–) indicates product of unsalable quality. Official rules prohibit use of such products in contest.

Body and texture criticisms	Intensity of defect		
	Slight	Definite	Pronounced
Coarse/icy	4	2	1
Crumbly	4	3	1
Fluffy	3	2	1
Gummy	4	2	1
Sandy	2	1	–
Soggy	4	3	2
Weak	4	2	1

Flavor Defects

Cooked—Cooked flavor in ice cream occurs when the mix is heated too high and held too long at that temperature. The lactose caramelizes, giving the cooked flavor. The use of condensed milk or dried milk powder to build the total solids in the mix may contribute to the cooked flavor.

Unnatural—The presence of unnatural flavoring gives the sensation of synthetic vanillin, which produces a quick, sharp, burning sensation on the sides of the tongue. To determine unnatural flavor, keep in mind the desired flavor of ice cream, containing natural, high-quality vanilla.

High acid—You can distinguish high acid easily by a sour taste sensation. The high-acid flavor may have resulted from the development of lactic acid in one or more of the dairy products used. Such ice cream merits a low score.

Lacks fine flavor—This condition exists when the ice cream fails by a small degree to measure up to the ideal vanilla ice cream flavor. Such a sample merits a high score.

Oxidized—This is the same defect as in oxidized (light-induced) milk. It is caused by using oxidized dairy ingredients or allowing the mix to become oxidized. It will have the same cardboard flavor as oxidized milk.

Rancid—Rancid flavor is difficult to detect in ice cream, but if present, it will give a slight soapy taste.

Old ingredient—You will not note this defect when you first place the sample in your mouth, but it persists for some time as an aftertaste. The old ingredient flavor suggests uncleanliness and stale ingredients.

Storage—Storage flavor reveals a lack of freshness, and you will generally observe it during the latter part of the tasting period. Ice cream held in cold storage for a considerable length of time may gradually undergo decomposition of some of the protein, resulting in a storage flavor. This is especially true of ice cream made from low-quality cream.

Syrup flavor—Syrup flavor resembles the taste of an ice cream cone. If strong enough, it could resemble a marshmallow flavor. It is caused by adding too much corn syrup solids to a mix.

Whey—This defect leaves an aftertaste resembling graham crackers in the mouth. It is caused by the excessive use of whey powder to build solids.

Ice cream flavor scoring guide. Suggested flavor scores with designated intensities of defects. Range of scores for each class of flavor quality: Excellent 10 (no criticism), Good 8–9, Fair 6–7, Poor 5 or less. Normal Range 1–10. Dash (–) indicates product of unsalable quality. Official rules prohibit use of such products in contest.

	Intensity of defect		
Flavor criticisms	Slight	Definite	Pronounced
Acid	4	2	–
Cooked	9	7	5
Lacks fine flavor	9	8	7
Lacks flavoring	8	6	4
Lacks freshness	8	7	6
Lacks sweetness	9	8	6
Metallic	6	4	2
Old ingredient	6	4	2
Oxidized	6	4	1
Rancid	4	2	–
Salty	8	7	5
Storage	7	6	4
Syrup flavor	9	7	5
Too high flavor	9	8	7
Too sweet	9	8	7
Unnatural flavor	8	6	4
Whey	7	6	4

4-H Dairy Products Judging

ICE CREAM SCORECARD

MISSISSIPPI STATE UNIVERSITY™ EXTENSION

__ __ __ __ __ __ Contestant #

__ __ / __ __ / __ __ __ __ Date

Marking Instructions

Fill circles completely. Erase changes cleanly and completely.

Do not use checkmarks, Xs, or any other marks. Do not make any stray marks.

18 U.S.C. 707

CRITICISMS

		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8
No criticisms 10	**Flavor**	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩
	1. Acid	❍	❍	❍	❍	❍	❍	❍	❍
	2. Cooked	❍	❍	❍	❍	❍	❍	❍	❍
	3. Lacks fine flavor	❍	❍	❍	❍	❍	❍	❍	❍
	4. Lacks flavoring	❍	❍	❍	❍	❍	❍	❍	❍
	5. Lacks freshness	❍	❍	❍	❍	❍	❍	❍	❍
Normal range 1–10	6. Lacks sweetness	❍	❍	❍	❍	❍	❍	❍	❍
	7. Metallic	❍	❍	❍	❍	❍	❍	❍	❍
	8. Old ingredient	❍	❍	❍	❍	❍	❍	❍	❍
	9. Oxidized	❍	❍	❍	❍	❍	❍	❍	❍
	10. Rancid	❍	❍	❍	❍	❍	❍	❍	❍
	11. Salty	❍	❍	❍	❍	❍	❍	❍	❍
	12. Storage	❍	❍	❍	❍	❍	❍	❍	❍
	13. Syrup flavor	❍	❍	❍	❍	❍	❍	❍	❍
	14. Too high flavor	❍	❍	❍	❍	❍	❍	❍	❍
	15. Too sweet	❍	❍	❍	❍	❍	❍	❍	❍
	16. Unnatural flavor	❍	❍	❍	❍	❍	❍	❍	❍
	17. Whey	❍	❍	❍	❍	❍	❍	❍	❍
		Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**	**Sample 6**	**Sample 7**	**Sample 8**
No criticisms 5 Normal range 1–5	**Body & Texture**	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤
	1. Coarse/icy	❍	❍	❍	❍	❍	❍	❍	❍
	2. Crumbly	❍	❍	❍	❍	❍	❍	❍	❍
	3. Fluffy	❍	❍	❍	❍	❍	❍	❍	❍
	4. Gummy	❍	❍	❍	❍	❍	❍	❍	❍
	5. Sandy	❍	❍	❍	❍	❍	❍	❍	❍
	6. Soggy	❍	❍	❍	❍	❍	❍	❍	❍
	7. Weak	❍	❍	❍	❍	❍	❍	❍	❍

Form 800 (POD-05-26)

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. ANGUS L. CATCHOT JR., Director

Judging Swiss Style Strawberry Yogurt

Modern yogurt is the product of milk and dairy solids, sweeteners, and flavorings that are combined and fermented by two bacteria, *Lactobacillus bulgaricus* and *Streptococcus thermophilus*. This combination of microbes creates unique flavor compounds and is beneficial to intestinal health.

Yogurt is available in two main forms, Swiss style and sundae style. Swiss style is sold with the fruit and yogurt thoroughly mixed before being packaged. Sundae style is packaged with the fruit on the bottom of the container and the plain (usually sweetened) yogurt on top of the fruit, hence the label "Fruit on the Bottom" or FOB. The consumer mixes it to their preference. The flavor and texture of the yogurt will be influenced by the quality of the dairy ingredients and added strawberries.

In 4-H Dairy Products Judging, only Swiss style yogurt will be used, but all levels of fat content are acceptable for judging. Products containing artificial/non-nutritive sweeteners are also included in the products evaluated. As with cheddar cheese and ice cream, flavor and texture will be evaluated separately on the scorecard. Yogurt needs to be evaluated as soon as possible after removing it from the refrigerator. The yogurt is emptied onto a plate with no stirring beforehand.

Texture

Texture most often refers to the feel/consistency of yogurt in the mouth. A yogurt with a perfect texture will have the feel of pudding in the mouth. It is smooth and slightly heavy, but not chewable. Such a sample would receive a score of 5, and no criticism would be marked on the scorecard. Below is a description of the texture defects most often experienced in Swiss style yogurt.

Gel-like—Yogurt with a gel-like texture goes beyond pudding-like and has an appearance and mouthfeel like fruit gelatin. A cuttable texture will be a clue to the possibility of a gel-like texture, but you should draw your conclusion from the feeling of a firm gel structure in the mouth. Not all samples with a gel-like appearance will have a gel-like texture. The deciding factor is the mouthfeel.

Grainy—A grainy texture can be the result of high dairy solids and a high level of acid developed during fermentation. The solids precipitate out of solution in small grains that cause a chalky and/or sandy mouthfeel.

Ropy—Some strains of yogurt culture bacteria have a "slick" cell membrane compared to other strains of culture. This can impart an overall smooth texture to the yogurt but can also cause the yogurt to "string" from the bottom of a spoon. This defect is judged by using a spoon. Touch the bottom of the spoon to the surface of the yogurt and lift it straight up. If the yogurt strings down from the bottom of the spoon more than an inch (almost like syrup), it is ropy.

Too firm—Dairy solids, sweeteners, and stabilizers are used to thicken the texture or body of the yogurt. If these ingredients are overused, the yogurt becomes too firm and loses its pudding-like texture. It will be heavy, beyond the pudding-like texture, and almost cuttable. The final determination is made in the mouth.

Weak—Weak texture is the opposite of too firm. The yogurt is low in solids and has a watered-down feel in the mouth. It "melts" or has little to no weight or thickness in the mouth.

Strawberry yogurt body and texture scoring guide. Suggested body and texture scores with designated intensities of defects. Range of scores for each class of body and texture quality: Excellent 5 (no criticism), Good 3–4, Poor to Fair 1–2. Normal Range 1–5.

Body and texture criticisms	Intensity of defect		
	Slight	Definite	Pronounced
Gel-like	4	3	2
Grainy	4	3	2
Ropy	3	2	1
Too firm	4	3	2
Weak	4	3	2

Flavor

Flavor refers to the sensations in the mouth and on the tongue that, when combined, create the taste of a product. Yogurt has a variety of flavors that are created by the quality of the dairy ingredients, sweeteners, strawberry flavoring, and fermentation process. The ideal strawberry yogurt would have an overall balance between these four components. There is a fair amount of leniency in how these combine to create an overall flavor impression, unless it is an off flavor caused by poor milk quality (bitter, foreign, oxidized, unclean). As with other products, a perfect flavor is scored 10 with no defects marked. A perfect flavor score is extremely uncommon in strawberry yogurt.

Artificial sweeteners—This is a flavor caused by the overuse of non-nutritive sweeteners such as aspartame, sucralose, and others. This can be recognized by the "diet cola" aftertaste.

Bitter—Bitter is an acrid, unpleasant flavor that usually is sensed in the back of the mouth and tongue. It can be caused by spoilage bacteria and artificial sweeteners.

Cooked—Cooked flavor is caused by heating the milk to a high temperature. It imparts a scalded milk flavor. Cooked

flavor can also describe the flavor of the strawberries. Cooked strawberries would taste like strawberry preserves.

Foreign—Foreign flavor refers to any flavor that is not normally associated with the yogurt or any of its ingredients. This would include flavors caused by cleaning and sanitizing compounds. They may taste soapy.

High acetaldehyde—Acetaldehyde is a flavor compound naturally present in yogurt. It is only noted when the flavor is too strong or out of balance with other flavors in strawberry yogurt. It has a distinctive green-apple flavor.

High acid—Yogurt should have an acidic or sour taste due to the fermentation process. Again, this flavor should be in balance with other flavor compounds and ingredients. When it is too strong, the yogurt tastes like lemon juice, especially on the sides of the tongue.

High flavoring—Strawberry yogurt should, of course, taste like strawberries. If the strawberry flavor is overpowering, it should be considered high flavoring.

High sweetness—If the sweetness level is too high in relation to the other flavors, it should be marked as such. This is caused by too high levels of corn syrup, sugar, or artificial sweetener.

Low acid—This refers to the lack of acid or tartness in the yogurt. This points to a low level of activity of the yogurt culture or the premature ending of the fermentation process.

Low flavoring—This refers to the lack of strawberry flavor in the yogurt.

Low sweetness—This refers to the lack of sweetness in the yogurt.

Oxidized—The oxidized flavor is caused by overexposure of the milk used to make the yogurt to fluorescent light or sunlight. It can also occur to the finished product while being displayed too closely to fluorescent lighting common in markets. Oxidized flavor and aroma closely resemble that of wet cardboard.

Unclean—The unclean flavor occurs when spoilage bacteria have caused the breakdown of proteins in the yogurt, creating an objectionable aroma and flavor.

Unnatural flavor—An unnatural flavor is present when flavors other than natural strawberry flavor are used to replace or enhance the "fruit" flavor of the yogurt. This presents itself as a candy-like strawberry, cherry, or watermelon flavor. Often the letters WONF appear on the container. This stands for "with other natural flavors," but they are often lesser quality flavors used for cost-control when formulating the yogurt. These may not have the true strawberry flavor.

Strawberry yogurt flavor scoring guide. Suggested flavor scores with designated intensities of defects. Range of scores for each class of flavor quality: Excellent 10 (no criticism), Good 8–9, Fair 6–7, Poor 5 or less. Normal Range 1–10.

Body and texture criticisms	Intensity of defect		
	Slight	Definite	Pronounced
Artificial sweeteners	9	7	5
Bitter	9	7	5
Cooked	9	8	6
Foreign	8	7	6
High acetaldehyde	9	7	5
High acid	9	7	5
High flavoring	9	8	7
High sweetness	9	8	7
Low acid	9	8	6
Low flavoring	9	8	7
Low sweetness	9	8	7
Oxidized	6	4	1
Unclean	6	4	1
Unnatural flavor	8	6	4

4-H Dairy Products Judging

SWISS STYLE STRAWBERRY YOGURT SCORECARD

MISSISSIPPI STATE UNIVERSITY™ EXTENSION

__ __ __ __ __ __ Contestant #

__ __ / __ __ / __ __ __ __ Date

Marking Instructions

Fill circles completely. Erase changes cleanly and completely.

Do not use checkmarks, Xs, or any other marks. Do not make any stray marks.

CRITICISMS

		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8
No criticisms 10 Normal range 1–10	**Flavor**	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩	①②③④⑤ ⑥⑦⑧⑨⑩
	1. Artificial sweetener	❍	❍	❍	❍	❍	❍	❍	❍
	2. Bitter	❍	❍	❍	❍	❍	❍	❍	❍
	3. Cooked	❍	❍	❍	❍	❍	❍	❍	❍
	4. Foreign	❍	❍	❍	❍	❍	❍	❍	❍
	5. High acetaldehyde	❍	❍	❍	❍	❍	❍	❍	❍
	6. High acid	❍	❍	❍	❍	❍	❍	❍	❍
	7. High flavoring	❍	❍	❍	❍	❍	❍	❍	❍
	8. High sweetness	❍	❍	❍	❍	❍	❍	❍	❍
	9. Low acid	❍	❍	❍	❍	❍	❍	❍	❍
	10. Low flavoring	❍	❍	❍	❍	❍	❍	❍	❍
	11. Low sweetness	❍	❍	❍	❍	❍	❍	❍	❍
	12. Oxidized	❍	❍	❍	❍	❍	❍	❍	❍
	13. Unclean	❍	❍	❍	❍	❍	❍	❍	❍
	14. Unnatural flavor	❍	❍	❍	❍	❍	❍	❍	❍

		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8
No criticisms 5 Normal range 1–5	**Body and Texture**	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤	①②③④⑤
	1. Gel-like	❍	❍	❍	❍	❍	❍	❍	❍
	2. Grainy	❍	❍	❍	❍	❍	❍	❍	❍
	3. Ropy	❍	❍	❍	❍	❍	❍	❍	❍
	4. Too firm	❍	❍	❍	❍	❍	❍	❍	❍
	5. Weak	❍	❍	❍	❍	❍	❍	❍	❍

Form 1188 (POD-06-26)

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. ANGUS L. CATCHOT JR., Director

Glossary

If you encounter unfamiliar words not found in this glossary, look them up in a dictionary.

Diacetyl—a desirable flavor substance formed by certain bacteria in a starter culture.

Enzymatic action—the action of chemicals produced by living cells, which brings about a reaction without the chemicals themselves undergoing a change in the process.

Expectorate—to spit out or discharge a substance from the mouth.

Fatty acids—a group of acids combined with glycerol to form the milk fat. Milk fat contains 17 or more fatty acids.

Irregularities—practices not conforming to the uniformity in method or practice, which is essential to produce a high-quality product.

Lactation—the milking period, normally 10 months.

Lactic starter culture—a prepared culture of bacteria, which is added to pasteurized milk for the purpose of making cheese, yogurt, and other cultured dairy products.

Lactose—milk sugar; yields lactic acid on fermentation.

Manipulate—to move a substance around.

Microorganisms—simple, one-celled microscopic plants or animals.

Palate—the roof of the mouth.

Pasteurization—exposing a substance (as a fluid) to a temperature that destroys objectionable organisms without major chemical changes in the substance.

Postpasteurization—following, after pasteurization.

Proteolysis—a breakdown of protein.

Psychrophilic—bacteria that grow best at refrigerated temperature.

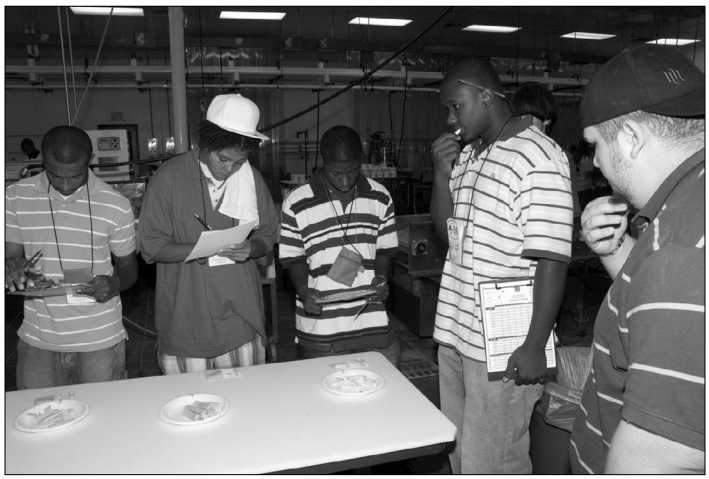
Raw milk—milk as it comes from the cow (not pasteurized).

Receptors—a group of cells that receive flavors.

Sanitizer—a substance that has the ability to lower bacterial count.

Simultaneously—occurring at the same time.

Trier—an instrument used to obtain a sample of cheddar cheese.



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