

Chapter Ag 107

SAMPLING AND TESTING MILK AND CREAM

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History: Chapter Ag 107 as it existed on October 31, 1971 was repealed and a new chapter Ag 107 was created effective November 1, 1971.

Ag 107.01 Definitions. As used herein:

- (1) "Department" means the Department of Agriculture.
- (2) "Sample" means a sample of milk or cream used for testing to determine the value or quality of such milk or cream.
- (3) "Ounce" means fluid ounce.
- (4) "Sampler" means a licensed milk weigher and sampler as defined in section 98.146, Wis. Stats., or a cheesemaker or buttermaker licensed under section 97.17, Wis. Stats.
- (5) "Fresh milk sample" means an unpreserved milk sample.
- (6) "Composite milk sample" means a milk sample which is preserved with an approved chemical.

History: Cr. Register, October, 1971, No. 190, eff. 11-1-71.

Ag 107.02 Collection and care of samples. (1) **CONTAINER REQUIREMENTS.** (a) All sample containers shall be transparent. The container shall be clean, sanitized and dry prior to use. Single-service transparent containers may be used for taking samples for fresh milk. Sample containers shall bear legible letters or numbers identifying each patron's sample. When a patron discontinues shipping milk or cream, the numbers or letters used to identify his sample shall not be reused for a period of 90 days.

(b) Fresh milk sample containers shall be of sufficient size to permit proper mixing of a sample of not less than 2 ounces (60 milliliters).

(c) Composite sample containers shall be of 8-ounce capacity.

(2) **SAMPLING PROCEDURE.** (a) *Weigh tank sampling.* If milk is poured into a weigh tank, it shall be constructed or equipped in such a manner that a complete mixing of the milk results prior to sampling. Multiple weighings of a patron's milk shall be equalized in weight as nearly as possible. The entire contents of each can of milk shall be weighed in a single weighing. A separate sample container shall be used for each weighing.

(b) *Farm milk tank sampling.* 1. Milk shall be graded by appearance and smell before it is accepted. The sampler shall make an organoleptic determination whether the milk is acceptable. He shall reject all off-flavor and off-odor milk. The sampler shall reject milk that contains visible garget and extraneous matter.

2. The sampler shall take and record temperature of the milk. Milk in excess of 50 degrees shall be rejected.

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3. The sampler shall wash his hands after checking temperature and before he proceeds to measure milk.

4. The sampler shall obtain an accurate reading of the bulk measuring stick by using a dry, clean stick at approximately room temperature (65-70 degrees). The stick shall be wiped with a clean disposable towel and inserted into a bulk tank for reading. Immediately after reading the sampler shall convert the reading to pounds or gallons, using the chart of the tank manufacturer. The reading shall be recorded on duplicate forms. One form shall be posted in the milk house and one transmitted to the dairy plant with all other collection records.

5. The sampler shall agitate the tank to get a proper sample for fat and bacteriological determination. Milk shall be agitated at least 5 minutes or more before taking a sample.

6. The sample shall immediately be placed in ice to maintain its temperature at 40 degrees F. or lower.

7. After the completion of pumping the milk from the bulk load, the hose shall be disconnected and returned to the bulk truck. Rinsing of the bulk tank is not to be done until the hose has been disconnected and returned to the truck.

(c) *Fresh milk sample size.* The size of the sample shall be large enough to permit a retest for butterfat content by the dairy plant or by the department, but in no case shall it be less than 2 ounces (60 milliliters).

(d) *Composite samples.* Composite samples shall be built by transferring at least 10 milliliters of milk from the fresh milk sample container into a composite container by 10 a.m. of the day after collection of the milk on the farm or when a patron's daily delivery is weighed in a single weighing, a composite sample shall consist of 10 milliliter representative sample of each patron's daily delivery for one payment period, except when milk is frozen or otherwise delivered in such condition as to prevent complete dispersion of the butterfat. When milk deliveries are not made on a daily basis, an aliquot sample of sufficient quantity shall be taken from each delivery so that the resulting composite sample shall be at least 4 ounces.

(3) **CARE AND STORAGE OF SAMPLES.** (a) All milk samples shall be kept tightly covered and maintained at temperatures between 32 and 40 degrees Fahrenheit in a refrigerated cabinet in or near the receiving room.

(b) Fresh milk samples shall be refrigerated between 32 and 40 degrees Fahrenheit on the truck while being transported to the dairy plant for storage.

(c) Composite samples for each individual truckload of milk shall not be kept unrefrigerated in the plant intake any longer than necessary to complete the unloading, weighing and sampling of such truckloads and building composite samples from fresh milk samples. Transportation of composite samples to and from the dairy farm, from the dairy plant or laboratory, is prohibited. An adequate preservative approved by the department shall be used in each composite sample. The preservative may be a bichloride of mercury (corrosive sublimate) tablet which shall weigh not more than one gram and contain not less than 2.5 nor more than 3.5 grains of bichloride of mercury.

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Ag 107.03 Testing of samples. (1) **FRESH MILK TESTING.** Butterfat tests of fresh milk samples may be run by the ether extraction or Babcock test, or by the Milk-O-Tester method, which is the automated light scattering method for determining the fat content of raw un-homogenized milk as prescribed in the 1970 edition of "Official Methods of Analysis of the Association of Official Analytical Chemists," a copy of which is on file in the offices of the Department of Agriculture, Secretary of State and Revisor of Statutes, and which may be obtained from Association of Official Analytical Chemists, Inc., P. O. Box 540, Benjamin Franklin Station, Washington, D. C. 20044. Upon written approval from the department, fresh milk samples may be transported from dairy plants to a central laboratory for testing.

(2) **COMPOSITE SAMPLE TESTING.** Butterfat tests of composite milk samples may be run by the Babcock test or the ether extraction test.

(3) **MILK-O-TESTER METHOD.** (a) The Babcock or ether extraction test shall be used as the reference method to maintain the calibration of the Milk-O-Tester. Other methods may be used as a reference upon approval by the department. Written notification of the reference method shall be sent to the department prior to the installation and first use of a Milk-O-Tester. A subsequent change in the reference method used shall be made only with the specific approval of the department.

(b) At the beginning of each testing day the following items shall be completed and recorded:

1. Check the machine for zero setting as prescribed in the operator's manual.

2. At least four tests run in duplicate shall be run by the Babcock or ether extraction method and the same tests compared with the Milk-O-Tester. The Milk-O-Tester shall be calibrated so that the average variation between the Babcock or ether extraction method and the Milk-O-Tester does not exceed 0.015 percent.

3. During the use of the Milk-O-Tester each day, a homogenized sample of milk of known butterfat content, milk-o-gel or other substance approved by the department shall be tested with the Milk-O-Tester each hour and the results shall be recorded on the permanent test record. If at any time there is a variation from the original test, the Milk-O-Tester shall be flushed with diluent solution and checked for zero setting in order to get agreement on the test of the standard. At least three standard checks shall be run and if variation is noted, the Milk-O-Tester shall be recalibrated.

4. If at any time the Milk-O-Tester is recalibrated, the procedure shall be repeated as outlined in subparagraphs 1 and 2.

(c) Proper operating procedures as outlined in the operator's manual furnished by the manufacturer shall be followed. A separately wired or constant voltage electrical power source shall be provided for Milk-O-Tester installation. The following models are recognized for use:

1. Milk-O-Tester MK II—Manual.
2. Milk-O-Tester MK III—Semi-automatic.
3. Milk-O-Tester Automatic.

(4) **BABCOCK TEST.** (a) Samples shall be mixed and tested in accordance with one of the methods prescribed in the 1970 edition of

"Official Methods of Analysis of the Association of Official Analytical Chemists." A mechanical reader, such as a needlepoint divider or other device which accurately determines milk fat level in a test bottle, shall be used in the conduct of each Babcock test.

(b) Composite samples shall be tested within 3 days, Saturdays, Sundays and holidays excepted, after the last sample shall have been added to the composite sample. The department, after approval in writing, may extend such period of time. Such approval will be granted only if the department has been notified of the specific date on which the test will be conducted.

(c) Fresh milk samples shall be tested within 2 days, Saturdays, Sundays and holidays excepted, after the day the sample has been taken.

History: Cr. Register, October, 1971, No. 190, eff. 11-1-71.

Ag 107.04 Sample retention and retesting. The residue of each composite sample shall be removed from the water bath immediately after each sample has been pipetted. The residue of each sample, both composite and fresh, shall be held intact after testing and kept refrigerated at a temperature between 32 and 40 degrees Fahrenheit on the premises where tested for a period of not less than 5 days for composite samples and not less than 2 days for fresh samples. The department may retest such samples on the premises where they were tested or remove them to another laboratory for such purposes. The department may retain such samples for investigative or evidentiary purposes. The department shall return the residues of samples after testing upon request in writing made by the dairy plant operator at the time samples are collected. Fresh milk samples may be tested by the department on the premises where they are usually tested or removed to another laboratory for testing.

History: Cr. Register, October, 1971, No. 190, eff. 11-1-71.

Ag 107.05 Test records. (1) Each licensed tester, immediately after testing a sample, shall record, in duplicate, on a form prescribed by the department, the results of such test opposite the name or identification number of the patron whose milk or cream was tested. Such records shall show the date of the test and all copies shall be signed by the tester. One copy shall be available for examination by the department at the dairy plant. All test records shall be kept for a period of 3 years. No such record of tests shall be altered except that errors shall be corrected by striking through the original entry with a line and inserting the correct entry immediately adjacent thereto, along with the initials of the tester making the corrective entry.

(2) When using the fresh milk sample method of testing, the arithmetical average of 3 or more butterfat tests results during a test period, consisting of the first 15 days or the last 15 (or 16 days) or the average of 4 or more for a month shall be adjusted to the closest zero point (0.1%) with the results of the test used as a pay test for that period.

History: Cr. Register, October, 1971, No. 190, eff. 11-1-71.