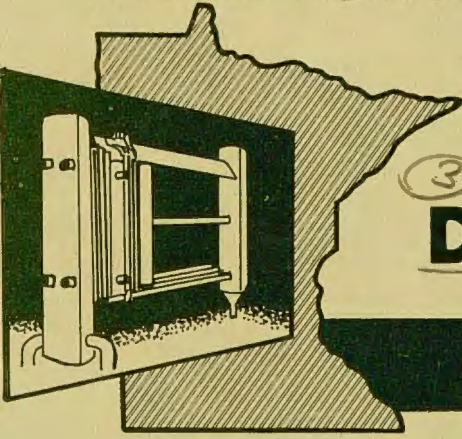
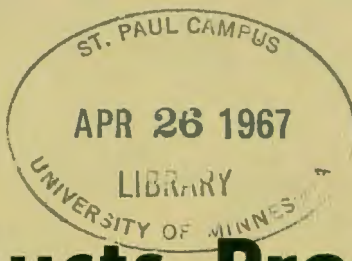


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Dairy Products Processor

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TOLERANCES ESTABLISHED

The Food and Drug Administration has established administrative tolerances for residues of DDT and its breakdown products (DDD and DDE) in milk. The tolerance in milk is 0.05 parts per million (p. p. m.). On a milkfat basis the tolerance is 1.25 p. p. m. This ruling does not mean that these compounds can be applied intentionally to dairy cows or feed crops.

Formerly, the regulation stated: "There is no tolerance for DDT in milk." The regulation now reads: "There is no tolerance for DDT in milk from feeding corn forage, corn fodder, corn silage, corn stover, or sweet corn cannery waste to dairy cows" and..... "from feeding apple pomace which contains DDT to dairy animals."

In effect, the regulation merely takes into account the inadvertent presence of DDT in milk because of its broad application and persistence in the environment. The same restrictions on usage still apply.

WISCONSIN MASTITIS TEST

Interest has been expressed in the Wisconsin Mastitis Test (WMT) as a dairy plant screening test. It currently is used by the Minnesota Department of Agriculture.

Some advantages of WMT are:

1. It is useful for large numbers of samples; results are available in a few minutes.
2. It uses the California Mastitis Test Reagent which is readily available.
3. It uses inexpensive equipment.
4. It provides results in terms of absolute values.

Some disadvantages of WMT are:

1. It is not a cow-side test.
2. For best results, samples must be fresh, preferably less than 24 hours old. Aging of samples decreases the reaction; that is, samples appear to be of better quality than they are. In the catalase test, another commonly used mastitis screening procedure, the reverse is true. Older samples grade more harshly than fresher samples.

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Equipment and Reagents for WMT

Complete WMT kits can be purchased commercially. Equipment includes:

1. An aluminum rack (formed from an 18 by 8 by 0.04-inch aluminum sheet). Racks hold two rows of test tubes, 10 in each row. Tubes are held by friction.
2. Plastic test tubes (12.5 by 125 mm.), Flex-vials with matching plastic caps. Caps have a 1.15 mm. diameter hole in the center. Tubes have a breather hole 65 mm. measured from the outside bottom.
3. Two continuous pipetting devices, 2 ml. each, and one 10 ml. continuous pipetting device.
4. Two 14 gage cannulas, one 4 inches and one 2 inches.
5. A measuring device (calibrated to measure units of 5 mm. from the inside bottom of test tubes).
6. Timing device with a sweep second hand.

The reagent is the California Mastitis Test Reagent diluted 1:1.

Procedure

1. Warm the milk to 75° F. $\pm 3^{\circ}$ F.
2. Warm the reagent to 95° F.
3. Pipette 2 ml. of well mixed milk from each sample into different test tubes.

Between samples, rinse the syringe once in water, then two or three times in the new sample.

4. Add diluted reagent, 2 ml. in 1 ml. deliveries, below the surface of the milk to get good mixing and to prevent formation of foam which interferes with reading.
5. Cap the tubes.
6. Within 30 seconds after you add the reagent, mix samples by gently rocking the rack back and forth 10 times in about 10 seconds; keep tubes in a nearly horizontal position. Place tubes in the rack so that breather holes are up during mixing and reagent-milk mixture is not lost.
7. Let tubes stand 20-30 seconds.
8. Invert rack in a vertical position. Permit flow of mixture through hole in the cap for exactly 15 seconds; then tip rack back to upright position.
9. Allow tubes to set 2-3 minutes while mixture drains down the tube walls.

10. Using a ruler device, measure amount of mixture remaining in each tube. Make reading between inside bottom of the tube and top of the meniscus. Record results in millimeters.

11. Prepare tubes for next series by rinsing them in flowing tap water. Don't use hot water.

Since mastitis milk thickens when the reagent is added, there is less outflow (longer columns of milk-reagent mixture remaining) in poor quality milk than in high quality milk. The relationship between WMT and cell count is:

<u>WMT Value</u>	<u>Total Cell Count</u>
5	75,000
10	190,000
15	350,000
20	570,000
25	830,000
30	1,200,000
>35	>1,500,000

Calibrate tubes and caps before using them and at periodic intervals. Use 10-ml. continuous pipetting device. Add 6 ml. of water at room temperature to each tube. Cap and invert tube and permit outflow for 5 seconds. Return the rack to an upright position and measure the water column. If tubes and caps are satisfactory, 27-29 mm. water columns will remain. Measure from inside bottom of tube to top of water meniscus. If water column is less than 27 or greater than 29 mm., discard the cap, (1, 2).

ON THE CATALASE TEST

Recent research uncovered some interesting facts about the catalase test:

1. Catalase shows maximum activity over a pH range of from 5.64 to 10.74 at 65° F. Activity is close to maximum at 59° and 72° F. and only slightly low at 50° and 77° F. (3).

2. Iodophors, quaternary ammonium compounds, an acid sanitizer, and a sanitizer containing both potassium iodide and Chloramine-T at concentrations of 5 to 50 p. p. m. do not influence the test. Chlorine compounds reduce the activity of catalase at the above concentrations and markedly alter the test's reliability. (4).

REFERENCE SOURCES

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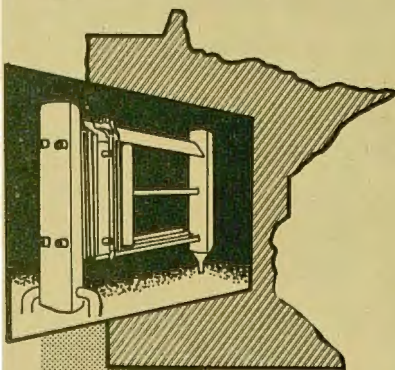
3. Willets, R. E. and F. J. Babel. 1966. "Factors Related to the Estimation of Catalase Activity in Milk." J. Milk and Food Tech. 29 (12):363.

4. Randolph, H. E. et. al. 1967. "Factors Affecting Reliability of Catalase Test Results in Sanitizers." J. Dairy Sci. 50(1):32.

NEW FACT SHEET

Attached is a new fact sheet written by E. A. Zottola. It is available through the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul, Minnesota 55101.

Trade names are used for convenience only. No endorsement is intended of products mentioned; no criticism is implied of those not mentioned.



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Agricultural Extension Service
Institute of Agriculture
University of Minnesota
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