

## KEEPING QUALITY OF MILK AND THE AGE ON TESTING FOR TOTAL BACTERIAL COUNT.

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DURING the period 1923-29 inclusive nearly six thousand samples of milk were tested at Wye for both total bacterial count and also keeping quality. An examination of the results shows that on the average the afternoon milks showed *nine hours less* keeping quality than morning milks of the same total bacterial count, see Table I. The age of the milk on testing for total bacterial count (reckoned from the time of milking) is 27-29 hours for morning milks and 20-24 hours for afternoon milks.

According to Table I the average keeping quality for samples of afternoon

Table I. *Keeping quality of morning and afternoon milks.*

Colonies per c.c.	Morning milk Av. k.q.*	Afternoon milk Av. k.q.*
0- 500	87.7	77.9
500- 1,000	83.7	73.9
1,000- 2,500	81.0	71.8
2,500- 5,000	78.0	67.2
5,000- 7,500	75.2	63.4
7,500- 10,000	71.4	63.8
10,000- 20,000	70.2	60.0
20,000- 30,000	68.0	59.9
30,000- 50,000	66.8	55.8
50,000-100,000	62.1	52.9
100,000-200,000	57.2	51.6
200,000-500,000	54.0	47.8
500,000-750,000	54.2	45.2
Over 750,000	—	—
Total of samples tested	2,808	3,032

\* Av. k.q. stands for average keeping quality in hours.

milk with a total count of 1,000-2,500 per c.c. (380 samples) is 71.8 hours, and this is the same average as shown by samples of morning milk where the total count is 7,500-10,000 per c.c. (146 samples). Similar comparisons could be made over the whole range of total count. It might be argued that a similar average keeping quality should imply a similar average total count. This would mean that samples of afternoon milk giving a total count of 1,000-2,500 per c.c. when tested at 24 hours old should, if tested at 28 hours old, record a total count of 7,500-10,000 per c.c. in order to be on an equal footing with samples of morning milk.

To investigate this, 258 samples of afternoon milk were tested for total count when 24 hours old; they were then kept for four hours at 60° F. and re-tested for total count when 28 hours old. The work was spread over two

years. Very little change in count took place in the four-hour interval. The results are summarised in Table II.

The results were arranged in count groups of 0 to 500 per c.c., 500 to 1,000 per c.c. and so forth, considering the total count when 24 hours old. The average keeping quality of each count group was thus obtained. The 258 results were then re-arranged in the same count groups, but in accordance with the total count when tested at 28 hours old. A fresh series of keeping-quality averages was thus obtained. Finally it was possible to compare the average

Table II. *Duplicate tests afternoon milk 24 and 28 hours old.*

Colonies per c.c.	24 hour tests		28 hour tests	
	No. of samples	Av. k.q.*	No. of samples	Av. k.q.*
0- 500	54	75.9	58	75.1
500- 1,000	36	66.9	35	65.2
1,000- 2,500	55	64.8	47	66.3
2,500- 5,000	31	64.7	27	64.8
5,000- 7,500	12	64.8	13	66.9
7,500- 10,000	6	61.3	5	64.0
10,000- 20,000	22	59.4	19	65.1
20,000- 30,000	10	58.0	9	58.8
30,000- 50,000	9	56.7	15	55.6
50,000-100,000	6	55.0	7	51.3
100,000-200,000	9	55.5	5	53.9
200,000-500,000	7	50.0	8	49.8
500,000-750,000	1	47.5	3	56.6
Over 750,000	—	—	7	50.6
Total of samples tested	258	—	258	—

\* Av. k.q. stands for average keeping quality in hours.

keeping quality given by the experimental samples both at 24 hours old and at 28 hours old (Table II) against the averages obtained by the routine samples over a number of years (Table I).

Despite the comparatively small total of experimental samples it will be seen that the average keeping quality at 24 hours old and at 28 hours old is practically the same, and that both these series of figures agree very closely with the figures for afternoon milks in Table I. There is no indication here that the nine-hour difference in keeping quality is connected with the four-hour difference in the age on testing.

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