

STUDIES ON THE QUALITY OF MILK FROM DIFFERENT SOURCES

SKARIAH OOMMEN

*Division of Animal Husbandry, Agricultural College and
Research Institute, Vellayani, Kerala*

Consumers obtain milk from different sources. Very often the quality of milk of the different sources is not the same. The variation in quality may be due to variation in the nutrition of the animals and adulteration. The present studies were undertaken with a view to ascertain the variations in the quality of milk obtained from different sources in and around the Agricultural College, Vellayani, Trivandrum District.

Ten samples each of cow and buffalo milk were collected from different sources viz. a Government Dairy (Agricultural College Dairy, Vellayani), a Co-operative Society (at Kalliyoor, Trivandrum District), a few private milk producers and some milk vendors and analysed for specific gravity and contents of fat, solid not fat (SNF) and total solids (TS). The specific gravity was determined by a lactometer and fat, SNF and TS contents determined by Gerber methods (Davis and Macdonald 1952).

Results

The results obtained are given in Tables 1 to 4.

Table I

Specific gravity of milk collected from different sources

Source and type of milk	Range	Average	Percent below normal range (1.027 - 1.035)
Co-operative Society			
Cow	1.0302 - 1.0322	1.0314	0
Buffalo	1.0312 - 1.0332	1.0327	0
Government Dairy			
Cow	1.0291 - 1.1306	1.0300	0
Buffalo	1.0296 - 1.0322	1.0308	0
Private owners			
Cow	1.0286 . 1.0328	1.0305	0
Buffalo	1.0294 - 1.0328	1.0312	0
Vendors			
Cow	1.0117 - 1.0276	1.0194	80
Buffalo	1.0176 - 1.0324	1.0233	80

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Table 1 gives the specific gravity of milk collected from different sources. It will be seen that excepting the samples collected from vendors all other samples had specific gravities within the normal range of 1.027 to 1.035 (Eckles 1951). Eighty percent of both cow and buffalo milk samples collected from vendors showed specific gravities below the normal range.

Table 2

Percent fat contents of milk from different sources

Source and type of milk	Range	Average	Percent below Standard*
Co-operative Society			
Cow	3.6 - 4.0	3.79	Nil
Buffalo	5.7 - 6.3	6.00	Nil
Government Dairy			
Cow	4.4 - 4.9	4.68	Nil
Buffalo	8.5 - 9.6	9.09	Nil
Private owners			
Cow	3.0 - 4.2	3.70	20
Buffalo	6.2 - 9.6	7.35	Nil
Vendors			
Cow	1.8 - 3.5	2.76	90
Buffalo	4.8 - 8.5	5.85	10

*Minimum fat contents according to Food Adulteration Act -- Cow milk 3.5 %, Buffalo milk 5.0%. (Farm Guide 1970)

Table 2 gives the results relating to fat contents of milk of different sources. Fat contents were maximum in the milk produced in the Government Dairy which may be due to better nutrition of the animals. Cow milk of the private producers and vendors was below standard in fat contents to the extent of 20 and 90% (of samples) respectively; buffalo milk of vendors also was substandard in fats to the extent of 10 percent.

Table 3
Percent Solid Not Fat contents of milk from different sources

Source and type of milk	Range	Average	Percent below standard*
Co-operative Society			
Cow	8.78- 9.06	8.904	Nil
Buffalo	9.40- 9.80	9.681	Nil
Government Dairy			
Cow	8.56- 8.96	8.728	Nil
Buffalo	9.46-10.24	9.906	Nil
Private owners			
Cow	8.23- 8.89	8.669	30
Buffalo	8.94- 9.88	9.561	Nil
Vendors			
Cow	5.16- 7.32	6.220	100
Buffalo	5.94- 9.52	7.324	90

*Minimum SNF according to FAA -- Cow milk - 8.5%, Buffalo milk - 9.0%

In Table 3 is represented the contents of solids other than fats in the milk of different sources. It will be observed that cow milk of private owners and both cow and buffalo milk of vendors were substandard with respect to SNF contents.

Table 4
Percent total solids in milk from different sources

Source and type of milk	Range	Average
Co-operative Society		
Cow	12.54 - 12.88	12.694
Buffalo	15.37 - 16.06	15.681
Government Dairy		
Cow	13.02 - 13.86	13.408
Buffalo	18.06 - 19.54	18.936
Private owners		
Cow	11.23 - 13.02	12.369
Buffalo	15.24 - 19.40	16.911
Vendors		
Cow	7.26 - 10.82	8.980
Buffalo	10.74 - 16.18	12.970

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Table 4 shows that the total solid contents of cow milk and buffalo milk from the Government Dairy was the highest and statistically higher than that of milk from all other sources. The milk from the co-operative society and private owners had the same standards while that from the vendors ranked far below others.

Summary

Comparitive studies made on the quality of cow and buffalo milk from different sources in terms of specific gravity, fat contents, solid notfat contents, and total solids showed that milk of different sources can be ranked thus:-

Government Dairy Farm (Agricultural College, Vellayani, Kerala) > Co-operative society (at Kalliyoer, Kerala) > Private owners > Vendors. The vendors' milk was substandard in all respects.

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