

Bulk Tank Milk Quality in Tulare County

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Routinely, bulk tank milk is tested to assure compliance with the national, state and local milk plants. Testing bulk tank milk helps to ensure the safety and quality of dairy products. The following tests are routinely performed in bulk tank milk:

- Somatic Cell Count (**SCC**): Measures white blood cells in milk. Indicates the prevalence of mastitis in the herd.
- Standard Plate Count (**SPC**): Measures the colony forming units (**CFU**) in milk after 48 hours of incubation at 90°F. Indicates the number of bacteria entering the raw milk.
- Lab Pasteurized Count (**LPC**): Measure the colony forming units in milk after being pasteurized at 143°F for 30 min. Indicates environmental bacteria resistant to high temperatures entering the milk.
- Coliform Count (**Coli**): Measures the Coliform colony forming units in milk. Indicates bacteria from manure or a contaminated environment entering the milk.

Information on bulk tank milk samples, collected by the milk inspector with the Tulare County Health and Human Services Agency, was provided to University of California Cooperative Extension in Tulare County. Bulk tank milk data included information on SCC, SPC, LPC and Coli. The data comprised information from 305 herds for a twelve month period, from August 2007 to July 2008. The final data set included only herds with at least six bulk tank milk samples through the twelve month period. The number of bulk tank milk samples per herd ranged from 6 to 21. The percentage of Tulare County herds with all their bulk tank milk samples within the regulatory limits set by the California Department of Food and Agriculture (CDFA) is represented in Table 1.

Table 1. Percentage of Tulare County herds, classified by herd size, with all the bulk tank milk samples within the regulatory limits set by the California Department of Food and Agriculture.

Herd size	SCC (cell/mL)	SPC (CFU/mL)	LPC (CFU/mL)	Coli (CFU/mL)
	< 600,000	< 50,000	< 750	<750
< 800	85.3%	69.7%	83.5%	63.3%
800 - 1600	92.8%	72.3%	78.6%	45.5%
> 1600	93.5%	73.1%	81.0%	45.6%
Total	90.2%	71.6%	81.0%	52.0%

Researchers have established guidelines to classify bulk tank milk bacterial and somatic cell counts as low (good), medium (acceptable) and high (concern) values (Bushan and Wolfgang; 2003). The percentage of Tulare County herds with low, medium and high values for SCC, SPC, LPC and Coli are represented in Table 2.

Table 2. Percentage of Tulare County herds with low, medium and high counts for SCC, SPC, LPC and Coli.

Herds (%)	SCC (cell/mL)	SPC (CFU/mL)	LPC (CFU/mL)	Coli (CFU/mL)
Low Counts	< 150,000	< 5,000	< 100	< 10
	5.7%	32.4%	46.7%	9.7%
Medium Counts	150,000 - 250,000	5,000 - 10,000	100 - 200	10 - 50
	40.4%	30.1%	26.7%	21.0%
High Counts	> 250,000	> 10,000	> 200	> 50
	53.9%	37.5%	26.6%	69.3%

The average SCC count and the average SPC, LPC and Coli counts by season (January to March, April to June, July to September, and October to December) are presented in Fig 1 - 4.

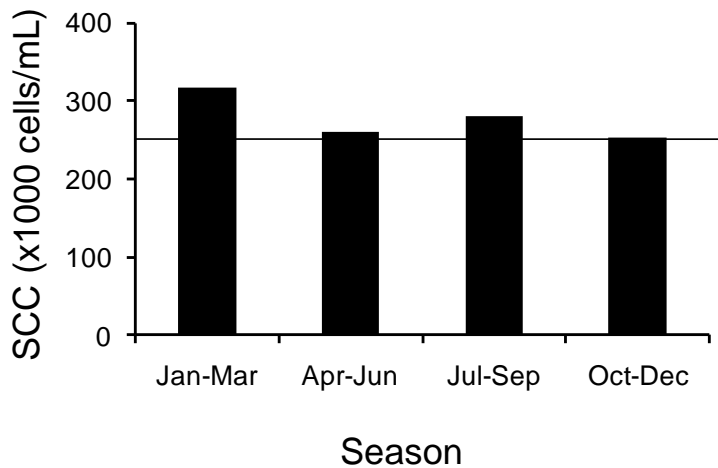


Figure 1. Average SCC counts in bulk tank milk by season. Acceptable values for SCC are <250,000 cell/mL.

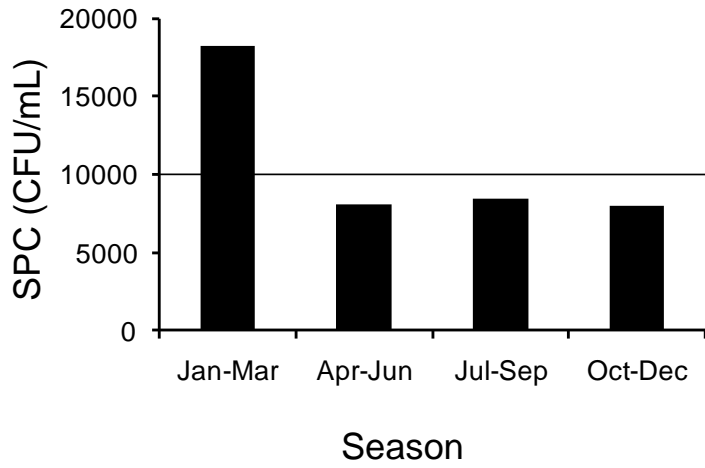


Figure 2. Average Standard Plate Count (SPC) in bulk tank milk by season. Acceptable values for SPC are <10,000 CFU/mL.

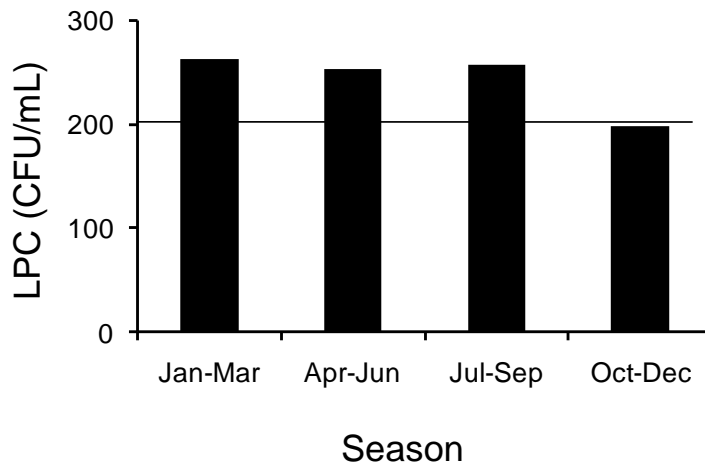


Figure 3. Average Lab Pasteurized Count (LPC) in bulk tank milk by season. Acceptable values for LPC are <200 CFU/mL.

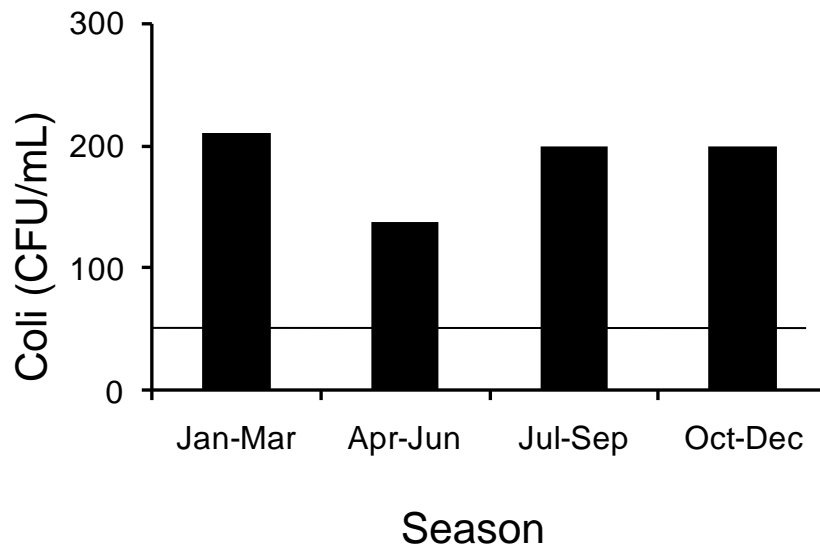


Figure 4. Average Coliform counts (Coli) in bulk tank milk by season. Acceptable values for Coli are <50 CFU/mL.

Reference:

Bhushan M. Jayarao and David R. Wolfgang. 2003. Bulk-tank milk analysis. A useful tool for improving milk quality and herd udder health. *Vet Clin Food Anim* 19:75-92.