

INTERPRETATION OF MILK BULK TANK TEST RESULTS

BACTERIA	USUAL SOURCE OF INFECTION	MAJOR MEANS OF SPREAD	CONTROL MEASURES
Staph Aureus	Infected udders and contaminated bedding or skin.	Transmission is from cow-to-cow with contaminated udder wash cloths or milking equipment; or inadequate milking equipment.	Milk clean, dry udders; use individual cloths to wash and dry; dip teats; dry cow treatment; herd culture and culling or segregation of infected cows.

COMMENT: There is significant variability in the shedding of this organism. Bulk tank cultures give a general correlation, however, individual cow cultures and somatic cell counts must be done to accurately determine the number of cows infected with Staph aureus.

Non-aureus Staph or Staph sp	Normal inhabitant of skin.	Poor cow preparation; milking wet udders.	Milk clean, dry udders; dip teats.
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COMMENT: Counts above 300 CFU tend to be associated with failure to dip teats or incomplete coverage of the teats. Use periodic or monthly bulk tank cultures to determine the efficacy of teat dipping.

Strep agalactiae	Infected udders of other cows in the herd.	Transmission is from cow-to-cow with contaminated udder wash cloths, teat cups, etc.	Milk clean, dry udders; use individual cloths to wash and dry; dip teats; dry cow treatment; herd culture and treatment of infected cows.
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COMMENT: There is significant variability in the shedding of this organism. Bulk tank cultures give a general correlation, however, individual cow cultures and somatic cell counts must be done to accurately determine the number of cows infected with Strep agalactiae.

Non-agalactiae Strep Or Strep sp	Skin and environment of cow.	Environment-to-cow from wet, dirty lots; poor cow preparation; machine problems and techniques that produce reverse jetting.	Improve barn and lot sanitation; milk clean, dry udders; avoid air leaks and liner slips.
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COMMENT: These organisms are frequently found in the cow's environment, so it is usually accurate to assume that most of the Strep sp found in the bulk tank sample originated from the teat skin. In rare cases, increased counts may be due to intramammary infection. Periodic or monthly bulk tank cultures can be used to determine the effectiveness of individual cow preparation and to evaluate changes made in how cows are prepared prior to milking.

Coliforms	Feces and environment of cow.	Environment-to-cow from wet, dirty lots; milking wet udders; poor cow preparation; machine problems and techniques that produce reverse jetting.	Improve barn and lot sanitation; milk clean, dry udders; avoid air leaks and keep cows standing 1-2 hours after milking.
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COMMENT: Cows infected with coliforms shed organisms for only a short period of time. Therefore, the number of coliforms in a bulk tank milk sample is almost entirely related to skin contamination at the time of milking and to the degree of bedding contamination with coliform bacteria.

Mycoplasma	Introduction of infected cows into a herd.	Contamination of teat ends during milking; fomites; intramammary infusion of antibiotics.	Early culling of infected cows or strict lifetime separation of infected cows from noninfected cows.
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COMMENT: Antimicrobial therapy is unsatisfactory and treatment is not recommended. Maintaining a closed herd, and not purchasing animals from herds with a history of mycoplasma infection, or animals of unknown origin, is the key to prevention. Intermittent shedding of this agent in the milk of infected animals is common occurrence.

Adapted from: Farnsworth RJ. Microbiologic examination of bulk tank milk. Vet Clin North Am Food Anim Pract 1993;9:469-474.

BULK TANK MILK CULTURE REPORT

Bacteria	Acceptable Levels	Moderate Levels	High Levels	Very High Levels
<i>Staphylococcus aureus</i> *	< 50	50-150	150-250	> 250
<i>Streptococcus agalactiae</i> *	0	1-200	200-400	> 400
<i>Mycoplasma spp.</i>	0	+ 1	+ 2	+ 3
Non-aureus <i>Staphylococcus</i> *	< 300	300-500	500-750	> 750
Non-agalactiae <i>Streptococcus</i> * ²	500-700	700-1200	1200-2000	> 2000
Coliforms* ³	< 100	100-400	400-700	> 700
Other Bacteria ⁴				

*Colony forming units per milliliter of milk

¹Mycoplasma numbers are subjectively scored as + 1, + 2 and +3

²Non-agalactiae *Streptococcus* (*Streptococcus bovis*, *uberis* and *dysgalactiae* and other species)

³Coliforms (*E. coli*, *Klebsiella* and *Enterobacter spp.*)