

Bulk Tank Milk (BTM) Culture Interpretation Guide

Bacterial Count	Normal Range (cfu/mL)	Interpretive Criteria
SPC	<5,000	>5,000 = milking system needs attention
<i>Staphylococcus aureus</i>	0	If detected in 2/4 bulk tank samples, suggests cows with <i>S.aureus</i> infection
Group B Streptococci	0	If detected in 2/4 bulk tank samples, suggests cows with <i>S.aureus</i> infection
Enterobacterales	<50	>50 = check teat and teat end cleanliness, and check milking system cleaning
Non-enterobacterales	<200	>200 = check teat and teat end cleanliness, and check milking system cleaning
<i>Staphylococcus</i> sp. not <i>aureus</i>	<1000	>1000 = check teat end cleanliness, teat dipping, bedding and cows with mastitis
Environmental Streptococci	<1000	>1000 = check teat end cleanliness, teat dipping, bedding and cows with mastitis
<i>Mycoplasma</i>	0	Growth = cows with <i>Mycoplasma</i> infection
<i>Prototheca</i>	0	Growth = cows with <i>Prototheca</i> infection

Isolating either *Staphylococcus aureus* or *Streptococcus agalactiae* from a bulk tank milk culture means that at least one quarter of one cow that was milked into the bulk tank had an intramammary infection (IMI) with that contagious mastitis pathogen. However, BTM counts cannot be used to predict the number of quarters infected within a herd. In addition, negative cultures do not necessarily mean that the herd is negative for IMI caused by these pathogens.

Additionally, it is important to note the predominant bacterial groups in the sample. For example, if *Streptococcus agalactiae* is the predominant bacteria in the BTM having high standard plate counts, the first area of improvement for BTM quality could be to reduce the number of quarters infected with *S.agalactiae*. On the other hand, if Enterobacterales (coliforms) are the predominant bacterial group, another set of tactics must be employed to find the contamination source(s). In general, Enterobacterales are present in very low numbers in BTM. High counts are associated with improper cleaning of the milking system, improper milking procedures, inadequate cooling of milk, and intramammary infections. High counts from Enterobacterales IMI are infrequent, but they do occur. This is also true for the environmental streptococci. Interpreting BTM culture results requires an understanding of the ecology of these bacterial groups and their sources for contaminating the BTM.

BTM cultures are never substitutes for quarter milk samples and are useless indicators of IMI prevalence in a herd. They can be valuable supplements to quarter milk samples, but never a substitute for determining IMI incidence and prevalence based on quarter milk samples.

Reference: National Milk Council. Laboratory Handbook on Bovine Mastitis. 3rd Edition, 2020.