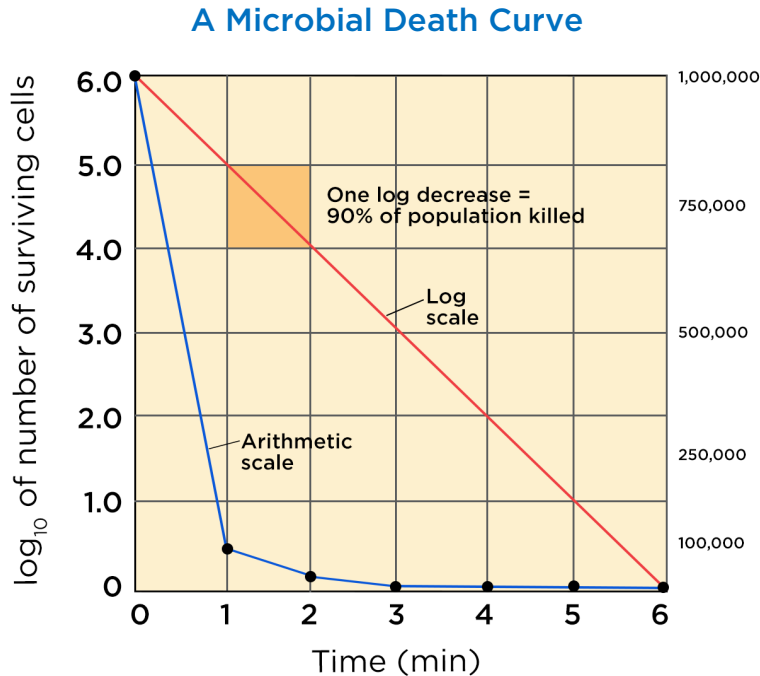


## Decimal Reduction of Bacteria - Why Cleanliness of the Raw Side of the Plant Matters!

All thermal processes for reduction/killing of bacteria in food products are calibrated in terms of “decimal reduction” of bacterial numbers. An example of thermal reduction in bacterial numbers is plotted arithmetically and logarithmically:



This means that higher numbers of initial bacterial loads take more time to reduce to <10 (or whatever level is tolerated).

Therefore: A process that has a “log 6” reduction of bacteria (example some spoilage bacteria in fluid products), can be overwhelmed if the counts in the raw product exceed 1,000,000 cfu/ml.

This can allow some bacteria can survive intact if the raw load is high enough! Not to mention residual heat tolerant enzymes and spoilage byproducts that can pass through an HTST process.

### CONCLUSION

Plant cleanliness and adherence to proper time/temperature relationship of raw material storage is as critical as the adherence to these practices in the pasteurized side of the plant, to achieve long shelf life on HTST pasteurized products.