

## CULTURE BASED MASTITIS TREATMENT DECISIONS

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Mastitis is the main reason dairy cows are administered antibiotics. Prudent use of antimicrobials is based on informed decision making. Culture based decision making regarding which cows to treat and what to treat with will help achieve prudent use of antibiotics in the dairy industry. Doing this will help preserve the public's trust in the quality and safety of dairy products as well as perhaps reduce the risk of antimicrobial resistance. Culture based decision making is also profitable for individual dairies because they may be able to save money on intramammary antibiotics as well as potentially have less discarded milk while cows are waiting for the withholding times to expire such that are no antibiotic residues entering the food supply. Approximately 25 to 35% of clinical mastitis cases have no bacteria that can be grown with conventional culture techniques and thus do not likely have bacteria associated with them that are responsive to available antibiotics. Further, there are certain organisms that either do not respond favorably to antibiotic treatment (e.g. *Pseudomonas*) or have spontaneous clinical cure rates similar to treatment (e.g. *E. coli*). In these three instances using antibiotics likely does not help cure rates while it does cost money, decreases the amount of saleable milk, and perhaps increases the risk for antimicrobial resistance. Unfortunately, one cannot tell which organism is associated with a case of mastitis based on clinical signs alone which necessitates culturing a milk sample.

There are four main ways of reacting to clinical mastitis and treating it on dairy farms. The first is to not treat any of the mild and moderate cases and provide supportive care, e.g. fluids, systemic antibiotics, anti-inflammatory drugs, to only cows with severe cases. This was in style approximately fifteen to twenty years ago and on many dairies led to increased chronic cases, especially with Streptococcal infections, and increasing bulk milk SCC. The second could be to treat all clinical cases the same way, e.g. use intramammary antibiotics in all cows with abnormal milk. As described above this is likely not the most profitable choice, especially for larger dairies. A third way would be to culture the milk on-farm and make a treatment decision approximately 24 hours after detection of mastitis. The fourth way would be to have some outside service culture the milk and then make treatment decisions approximately 24 hours after detection of mastitis. Using data from typical NY dairies we have estimated that the increased net cash flow increase per 1000 milking cows could be between \$20,000 and \$35,000 using culture based treatment decision versus treating all cases with intramammary antibiotics depending on treatment protocols and the ecology of organisms on a particular dairy.

During the presentation and in the slides that will be available after the meeting on-line details will be provided about how to use on-farm culture and have support and

training from Quality Milk Production Services to ensure a quality result or use QMPS for culturing milk from local dairies to support treatment decisions.