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**On-farm culture for mastitis treatment decision in dairy farms**

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**Abstract:**

**Background/Objective:** The use of antibiotics to treat mastitis in dairy farms has been related to residues and the development of antibiotic resistance. The implementation of rapid on-farm milk culture systems would allow farmers to make strategic treatment options for mastitis cases based on pathogen identification, indicating an immense chance to reduce antibiotic use.

**Methods:** The study was carried out on one dairy farm in Chiang Mai, Thailand, where the bulk tank somatic cell count (BTSCC) exceeded 500,000 cells/ml. All milk samples from the affected udder were collected aseptically and analyzed on-farm by the herdsman for bacterial identification using on-farm culture. The herdsman was trained in the study protocols, on-farm culturing procedures, and record keeping. The bacterial identification was confirmed using MALDI-TOF MS.

**Results:** In total, 26 quarters with clinical mastitis from 18 cows were involved in the study. The severity distribution of clinical cases enrolled in the study was 65.4% mild and 34.6% moderate. *Streptococcus uberis* was the most frequently isolated pathogen (50%), followed by *S. agalactiae* (15%), no growth (19%), and gram-negative (3.8%). According to on-farm culture, 50% of quarters with gram-positive cultures received antibiotic treatment, while 100% of quarters with gram-negative or no growth did not receive antibiotic treatment. *S. uberis* had a lower clinical and bacteriological cure rate within 21 days of treatment than *S. agalactiae*. Even though the bacteriological cure occurred in udder infected with *S. uberis*, the clinical signs persisted, particularly if the milk in the udder contained blood or pus. A quarter of those infected with gram-negative bacteria recovered spontaneously. Antibiotic use was reduced by 50% when mastitis was treated selectively based on on-farm culture.

**Conclusion:** Using on-farm culturing results to guide treatment decisions, with the potential to reduce mastitis costs and antibiotic use.

**Keywords:** On-farm culture, Antibiotic use, Mastitis, Dairy cows