Preliminary Results of An On-going Clinical Trial Evaluating Effects of Treatment of Culture Negative Cases of Clinical Mastitis on Somatic Cell Count and Milk Production

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Introduction

✓ Mastitis is the most costly disease in the dairy industry (Rajala-Schultz et al., 1999; USDA, 2007).

✓ Clinical mastitis (CM) is the most commonly treated disease on dairy farms in the U.S. (USDA, 2008).

✓ The majority of the antimicrobial treatments of CM are not targeted based on etiology (Oliveira et al., 2013).

✓ Symptomatic treatment is difficult to justify in culture-negative cases of CM (Lago et al., 2011).

✓ Societal concerns about usage of antimicrobials in farm animals.
On-farm culture (OFC) programs are based on the use of selective medias to arrive at limited microbiological diagnoses.
The objective of this presentation is to report initial results of an on-going study of treated and non-treated mild and moderate cases of culture-negative CM during a follow-up period of 12 weeks.

- Preliminary results of:
  - Quarter-level somatic cell count (SCC) trends
  - Milk production
Enrollment of Cows, Treatments and Sampling

Grade 1 or 2 Clinical Mastitis Detected by Milking Technician:
Eligible for Screening to Enroll
Results

This preliminary data is based on the first 32 cases enrolled in the study.
Results: Quarter-level SCC

No significant differences were observed in SCC quarter-level between treated and not-treated culture-negative cases.

Figure 1. Log-transformed quarter-level somatic cell count curves from week 0 to 12
Results: Daily milk production

No significant differences were observed in daily milk yield between treated and not-treated culture-negative cases.

Figure 2. Daily milk production for treated and not-treated groups from clinical mastitis cases until 90 d

Results:

- No significant differences were observed in daily milk yield between treated and not-treated culture-negative cases.

Treatment effect: $P = 0.9369$

Day effect: $P < 0.0001$

Trt*day effect: $P = 0.0355$
Discussion

✓ Selective treatment of culture-negative CM cases have resulted in no differences in monthly composite linear SCC (Lago et al., 2011) but quarter level results have not been previously reported.

✓ Lago et al. (2011) found no differences in monthly milk production between positive-control and culture-based treatment programs.
Conclusion

- These results should be interpreted cautiously as they represent a small number of initial cases in the on-going study. However, if these preliminary results are validated at the end of the study, they provide evidence that selective antimicrobial therapy can result in reduced antimicrobial usage without affecting clinical outcomes.
Take home message

1. Increasing societal concerns about antimicrobial use has become a challenge to the dairy industry

2. Need of involvement of veterinarians in antibiotic therapy of CM

3. Selective antimicrobial therapy can reduce antibiotic use in dairy farms

4. On-farm culture can help guide treatment decisions based on culture results
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Questions?