Introduction

Mastitis, orudder inflammation, is a costly disease for the dairy industry that causes economic losses of $1.8 billion annually³ and is often caused by bacterial infection. Dairy cows are often treated with intramammary antibiotics during the non-lactating, or “dry” period, to cure existing infections and prevent future infections. An internal teat sealant can be used with an antibiotic to seal the teat from bacterial entry during the non-lactating period. Few thoroughly studied alternatives to antibiotics for dry cow therapy exist. Two herbal products, Phyto-Mast and Cinnatube, are commercially available and could be viable replacements for traditional antibiotic + teat sealant dry cow therapy.

Phyto-Mast is a blend of botanical oils, including thymol, labeled for intramammary use in lactating or dry dairy cattle to improve milk quality. Cinnatube is a blend of botanical oils, including cinnamon oil, labeled for intramammary use in dry cows as an internal teat sealant.

Objective

To compare the efficacy of two herbal remedies separately and used together as dry cow treatment versus positive (Quartermaster® antibiotic + Orbeseal® teat sealant) and negative (no treatment) controls.

Materials and Methods

• 216 Holstein, Jersey, and Holstein x Jersey crosses were assigned to one of 5 treatments: 1) Positive control = Conventional; 2) Phyto-Mast; 3) Phyto-Mast + Cinnatube; 4) Cinnatube; or 5) no treatment.
• Duplicate milk samples were aseptically collected from each functional quarter of each cow immediately before treatment and three to five days postpartum.
• Samples were assessed at the Mastitis and Milk Microbiology Laboratory in the College of Veterinary Medicine. Culture results were analyzed by comparing the presence or absence of bacteria in pre- and post-treatment milk samples.
• Differences between treatments were analyzed using the GLIMMIX procedure of SAS. Means reported are least-squares means.

Results and Discussion

The combination of Phyto-Mast + Cinnatube was significantly (P<0.05) better than all other treatments at curing existing infections. It is possible that the two herbal treatments worked synergistically to eradicate bacterial presence. Thymol and trans-cinnamaldehyde, a component of cinnamon oil, have both shown antibacterial activity against mastitis pathogens in vitro⁴. Percentages given are the percent of quarters per cow infected at time of treatment that were not infected post-calving.

Conclusions

Conventional treatment was most successful at preventing new infections post-calving; its numerically lower percentage of quarters infected indicates that the antibiotic plus teat sealant was the most effective at preventing bacterial entry into the teats. Percentages given are the percent of quarters per cow not infected at time of treatment that were infected post-calving.

Acknowledgements

Based on preliminary microbiology results, Phyto-Mast and Cinnatube used together was the best option for curing existing infections during the dry period whereas conventional treatment was more successful in preventing new infections.

References

²Phyto-Mast® is a product of Penn Dutch Cow Care, Narvon, PA
³Essential Cinnatube™ is a product of New AgriTech Enterprises, Locke, NY