New Zealand Society of Animal Production online archive

This paper is from the New Zealand Society for Animal Production online archive. NZSAP holds a regular annual conference in June or July each year for the presentation of technical and applied topics in animal production. NZSAP plays an important role as a forum fostering research in all areas of animal production including production systems, nutrition, meat science, animal welfare, wool science, animal breeding and genetics.

An invitation is extended to all those involved in the field of animal production to apply for membership of the New Zealand Society of Animal Production at our website  www.nzsap.org.nz

The New Zealand Society of Animal Production in publishing the conference proceedings is engaged in disseminating information, not rendering professional advice or services. The views expressed herein do not necessarily represent the views of the New Zealand Society of Animal Production and the New Zealand Society of Animal Production expressly disclaims any form of liability with respect to anything done or omitted to be done in reliance upon the contents of these proceedings.

This work is licensed under a  Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

You are free to:

Share— copy and redistribute the material in any medium or format

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

NonCommercial! — You may not use the material for commercial purposes.

NoDerivatives — If you remix, transform, or build upon the material, you may not distribute the modified material.

http://creativecommons.org.nz/licences/licences-explained/
Infusion of antibiotics into the udder at the end of the lactating period (“dry cow therapy”; DCT) is an essential control measure for bovine mastitis (Smith et al., 1967). Dry cow therapy eliminates existing intramammary infections (IMI) and reduces the incidence of new infections over the dry period with a resultant reduced prevalence of IMI at the commencement of the subsequent lactation (Smith et al., 1967; Harmon et al., 1986). The cure rate of existing infections after DCT has been reported as between 60-90% (Pankey et al., 1982; Sol et al., 1994; Browning et al., 1990; Williamson et al., 1995). Dry cow therapy reduces the new IMI rate by approximately 50% (Browning et al., 1994; Williamson et al., 1995).

Infusion of antibiotics at the end of lactation in dairy goats (“dry-goat therapy”; DGT) has been reported to cure between 66% and 100% of existing IMI (Fox et al., 1992; Poutrel & de Cremoux, 1995; Poutrel et al., 1997). However, the efficacy of DGT in reducing the new infection rate over the dry period has not been examined.

The aim of this trial was to assess the efficacy of intramammary antibiotic treatment of dairy goats at the end of lactation in curing existing mammary gland infections and reducing the incidence of new infections over the dry period and early in the subsequent lactation.

Duplicate milk samples were taken from 476 dairy goats from four herds, seven days prior to the end of lactation. Milk samples of ~5 ml were obtained from each gland following aseptic preparation of the teat end by spraying within 1 minute of treatment to the backward stepwise logistic regression was used to analyse cure and new infection rates. Initial analysis of the main effects (age, herd, treatment, bacterial species at drying off and length of the non-lactation period) was performed using univariate analysis (either $\chi^2$ or logistic regression) and factors found to be associated (P<0.2) were then offered to the backward stepwise models. A number of glands were missed or the samples contaminated at subsequent samplings and were removed from the analyses.

The prevalence of IMI before drying off was 27.2% (258/948) of glands. Pathogens isolated included coagulase negative staphylococcus (CNS) (59.3% of all IMI), Corynebacterium sp. (Coryn) (29.1%), Staphylococcus aureus (SA) (6.2%), Streptococcus agalactiae (SAG) (4.3%) and other species (1.2%). Cure rate increased following treatment ratio (OR = 46.6 for treated compared to control; P<0.01; Table 1), decreased with age (38/56 (67.9%) vs. 97/167 (58.1%), OR = 0.46, P=0.07) for 1-year-olds compared to > 1-year-olds, with age (38/56 (67.9%) vs. 97/167 (58.1%), OR = 0.46, P=0.07) for 1-year-olds compared to > 1-year-olds, respectively and was lower for SA infections than other bacterial species (OR = 0.74, 0.06, 2.34, P=0.50, 0.00, 0.39 for Coryn, SA and SAG, respectively; with CNS as the reference category).

Treatment reduced the likelihood of new IMI compared to untreated controls (OR = 0.14, P<0.01; Table 1). Older animals were more likely to acquire a new IMI than younger animals (8/287 (2.8%), 12/245 (4.9%) and 29/314 (9.2%) for 1, 2 and >2-year-olds respectively, P<0.01). Glands with an IMI at dry off were less likely to acquire a new IMI than glands uninfected at dry off (6/238 (2.5%) vs. 43/609 (7.1%), OR = 0.15, P<0.01). There
was a treatment by infection status interaction (P<0.05, Figure 1) as control glands within the uninfected group had a higher new IMI than treated but uninfected glands. Among the infected glands, treatment had no effect on new IMI rate.

This trial demonstrated that infusion of antibiotics at drying off into the goat mammary gland reduced the number of new infections over the dry period and increased the cure rate of existing infections.

The cure rate of existing infections was 92.5% in treated and 31% in untreated glands which is similar to increased the cure rate of existing infections and a reduction in new infection rate. Hence dry-goat therapy is a useful tool for managing milk quality in dairy goats.

**ACKNOWLEDGEMENTS**

The technical assistance of Helena Habgood is gratefully acknowledged. Financial support was provided by a Foundation for Research, Science and Technology grant (AHC 001) and a Barbara Smith Scholarship from the New Zealand Veterinary Association. The antibiotics were kindly provided by Intervet New Zealand limited. The cooperation of the herdowners is gratefully acknowledged.

**REFERENCES**

Anon: 1999: Laboratory Handbook on Bovine Mastitis, National Mastitis Council, Madison, Wisconsin, USA.


