from each udder half, at the end of lactation (last day of milking, or "dry-off") and in the next lactation (6 to 10 days post-kidding). Bacteriological analysis was performed according to established methodology, and samples were flagged as infected when 1 or more bacterial colonies were isolated. Basic practices, such as milking hygiene, were observed for each farm. A Spearman correlation was used to determine the relationship between producer attitudes and infection prevalence at kidding (Proc CORR, SAS 9.2). Infection prevalence at dry-off was compared to post-kidding prevalence using paired t-tests (Proc TTEST, SAS 9.2). Pre-kidding samples were missing for 2 farms; these farms were excluded from the between sample comparison but were considered in the correlation.

Results

When asked about subclinical IMIs on their farm, most producers expressed little to no concern, and there was no relationship between concern and infection prevalence (R^2 = 0.006; ns). The lack of concern was reflected in milking hygiene; none of the farms incorporated hygienic preparation of the udder prior to milking into their general practices. Subclinical IMI prevalence in at least 1 udder half was high, and increased from dry-off to after kidding (mean ± SE: 40 versus 49 ± 3%; P = 0.02). The prevalence of infection in both sides of the udder was similar before and after kidding (mean ± SE: 12 versus 14 ± 3%; ns). The spontaneous cure rate was high (mean ± SD: 26 ± 18%), but this was matched by a high rate of new infections (mean ± SD: 30 ± 8%).

Significance

These results illustrate a disconnect between producer concern by Ontario dairy goat producers and prevalence of IMIs in goats under their care. Subclinical IMI prevalence was high among the farms, and higher than previous estimates (5 to 30%; Contreras et al, *Livest Prod Sci*, 2003). Next steps are to inform the producers of the impact of these infections on doe welfare and milk production, and recommend practices for reducing prevalence. Incorporating some level of hygienic udder preparation prior to milking will be a key recommendation.

Comparison of *Staphylococcus aureus* from bovine and caprine milk

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Introduction

Staphylococcus aureus is a frequent cause of infection in humans and animals. It is the most common cause of chronic subclinical bovine mastitis. Genotypes of *S. aureus* associated with one host can be transmitted among species. The purpose of this study was to compare genotypes and antimicrobial susceptibilities of representative bovine and caprine *S. aureus* isolates, and determine possible interspecies transfer of genotypes. It was hypothesized that genotypes and antibiotic susceptibility patterns of *S. aureus* would be similar for bovine and caprine isolates.

Materials and Methods

Isolates of *S. aureus* included 32 caprine milks submitted to the Mastitis and Milk Quality Laboratory for diagnostics, and 60 bovine milks representative of the laboratory's database. Antimicrobial susceptibilities were determined against 12 antibiotics, and genotypes were identified using pulsed-field gel electrophoresis following *Sma*I or *Cfr*9I digest. Genotypes were considered of the same group if they were ≥ 80% similar. Testing by PCR for the *mec*A gene and specific DNA sequences was performed to identify methicillin resistant *S. aureus* (MRSA) and/or ST398, more commonly isolated from pigs, poultry, and humans.

Results

A total of 13 genotype groups were identified, with the proportion of common genotype groups (4/13) not differing from those specific to caprine dairies (3/13), and to bovine dairies (6/13). More caprine (9/32) than bovine (2/60) isolates were resistant to 3 or more antibiotics. ST398 was identified, as were resistant genotypes identical or closely related to human CDC MRSA strains, showing potential trans-infection from humans and other animals.

Significance

Genotype ST398 as well as resistant *S. aureus* genotypes were found in caprine but not bovine milks. The presence of these resistant strains requires further study. Differences in management practices between bovine and caprine dairies should be investigated.

The effects of nutritional supplement on milk quality and milk components over an entire lactation in dairy goats

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Introduction

In the United States the legal somatic cell count (SCC) limit for dairy goat milk is 1,500,000 mL/L. However, it is common for the SCC to be much higher than this limit, especially near the end of lactation. Milk SCC from goats follows a linear increase throughout lactation, peaking just before dry-off. Mastitis, estrus, age, caprine arthritis encephalitis virus (CAE), and stressful events can all increase SCC in goat's milk. Production of milk with a SCC higher than the legal limit results in farms being unable to ship their milk and lost income. Additionally, many cheese processors pay premiums for milk containing higher amounts of fat and protein. The objective of this study was to evaluate the nutritional supplementation of OmniGen-AF® to dry and lactating dairy goats on milk quality and milk components over an entire lactation.

Materials and Methods

Thirty-five, 2-year-old does housed on a commercial goat dairy located in south-central Wisconsin were randomly assigned to 1 of 2 groups: 1) Control-fed (n = 18), and 2) OmniGen-AF-fed (n = 17). Animals in Group 1 were fed a complete-feed pellet twice a day and *ad libitum* alfalfa hay. Animals in Group 2 were fed the same diet but with 6 g/h/d of OmniGen-AF added to the pellet. The project started at dry-off (approximately 40 to 60 days prior to kidding) and continued for the full lactation. All study animals were housed on separate sides of a pole barn with roll-up curtain sides on a bedded pack and had continual access to pasture. Does were milked twice a day in a single, 12-stall parlor with rapid release. Breeds of does included in the study were Alpine, Saanan, Nubian, and La Mancha, and all breeds were equally represented in each group. Monthly Dairy Herd Improvement Association (DHIA) milk testing was performed on all animals for 9 months. Somatic cell counts, percent milk fat, percent milk protein, and milk production data were collected at each test. Data were analyzed using PROC GLM (SAS, Statistical Analysis Systems) with days-in-milk (DIM) as a covariate, and significance evaluated at the $P < 0.05$ probability level.

Results

The mean SCC for OmniGen-AF-supplemented does was 585,000 mL/L, which was significantly lower ($P < 0.05$) than the mean SCC for control-fed does (894,600 mL/L). These differences were more pronounced as does approached the end of lactation where the mean SCC was 1,669,000 mL/L lower in OmniGen-AF-fed does compared to controls (2,094,000 mL/L vs 3,763,000 mL/L, respectively). Milk percent fat ($P < 0.01$) and percent protein ($P < 0.05$) were different between the OmniGen-AF-fed and control-fed does. Specifically, mean milk percent fat from control-fed does was 3.21% compared to 3.45% from OmniGen-AF-fed does. Mean milk percent protein was 2.93% and 3.08% from control and OmniGen-AF-fed does, respectively. There was no difference in milk production between groups.

Significance

There are multiple endpoints available to measure milk quality, which include SCC, milk percent fat and percent protein. Data from this trial demonstrate that goats fed OmniGen-AF experienced benefits in milk components and attenuation of the dramatic increase in SCC that normally occurs late in lactation, both of which are indicative of improved mammary gland health.