Prevalence of Major Mastitis Pathogens on Ontario Sentinel Dairy Farms

D. Kelton, A. Godkin,[1] D. Alves,[1] K. Lissemore, K. Leslie, N. Smart, C. Church, P. Meadows
University of Guelph, Guelph, Ontario, Canada
[1]Ontario Ministry of Agriculture, Food and Rural Affairs, Ontario, Canada

Introduction

In May and June 1997, 40 Ontario dairy practitioners and 60 of their dairy-producer clients were recruited to participate in the Sentinel Project. Composite milk samples from all lactating cows in each Sentinel herd were collected and cultured during July and August. A milking and management questionnaire was administered to each participating producer at the time of the initial herd culture. Subsequent herd cultures were carried out every 4 months through December 1998. Composite milk samples from all fresh cows were collected 24 hours after calving. Clinical mastitis cases were recorded and quarter samples were collected and stored. The fresh-cow and clinical-case samples were stored frozen and periodically cultured.

Results

Milk-quality data from the 60 Sentinel herds were compared to all Ontario dairy herds over a 10-year period, January 1988 to September 1997. Based on monthly bulk-tank somatic cell count data, these 60 herds had cell counts lower than the provincial average 10 years ago. However, they are currently typical of the industry and have maintained an average of about 250,000 cells/ml over the last 2 years. (Figure 1).

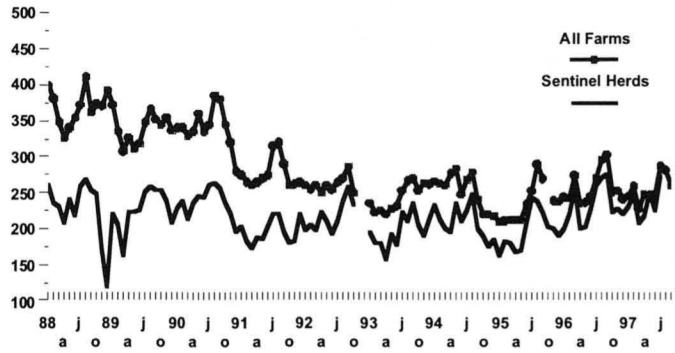

Figure 1. Bulk tank somatic cell counts for the 60 Ontario Sentinel herds compared to all Ontario dairy herds for the period January 1988 to September 1997.

Composite milk samples from all lactating cows in each Sentinel herd were collected and cultured during 5 periods: Aug 1997, November 1997, March 1998, August 1998 and November 1998. During the first 4 rounds of herd cultures, over 15,000 composite cow samples were plated. *Streptococcus agalactiae* was isolated only sporadically, with a total 16 positive cows in 9 of the Sentinel herds. Overall, based on 4 rounds of herd cultures, approximately 6% of samples grew *Staphylococcus aureus*, less than 1% grew coliforms and 4% grew environmental streptococci. At least 1 cow cultured positive for *Staph. aureus* in 92% of the herds (Figure 2). In total, 95% of herds had at least 1 sample grow a major environmental mastitis pathogen.

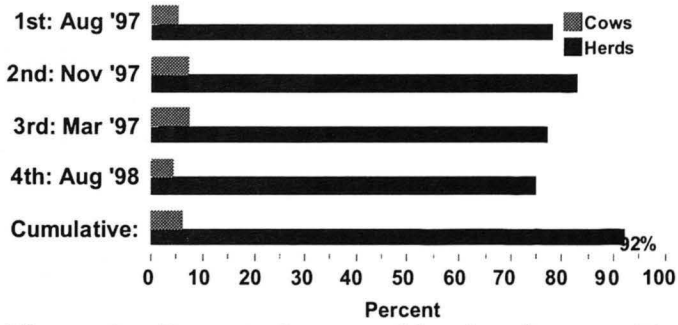

Figure 2. Percent of cows and herds culture-positive for *Staph. aureus* over the first 4 rounds of herd cultures.

While the overall distribution of organisms in this population of cows did not change dramatically, there was considerable variation in the prevalence of *Staph. aureus* cows among the Sentinel herds from culture to culture (Figure 3).

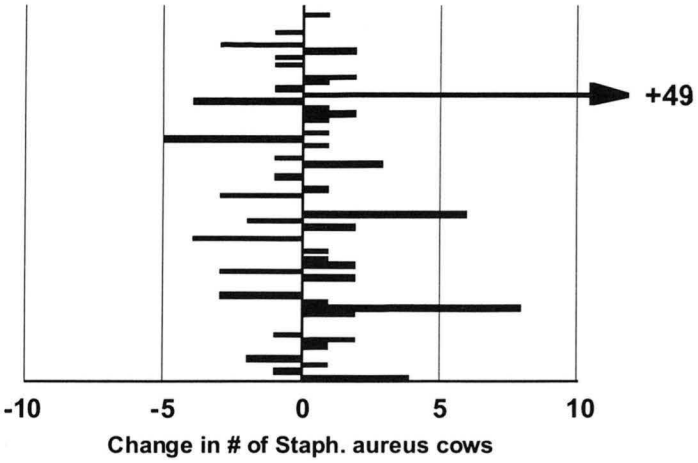

Figure 3. Change in number of *Staphylococcus aureus*-positive cows in each Sentinel herd from the first herd culture (August 1997) to the second (November 1997).