

ABSTRACT

**Prevalence and Epidemiology of Subclinical Mastitis
on Selected Dairy Farms in Trinidad**

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This three-phase study was conducted on farms in two major dairy areas, Carlsen Field and Waller Field, which supplied milk to the major national milk processing company. A questionnaire designed to identify prevalent risk factors for mastitis and antibiotic residues was administered to 171 dairy farms in Phase I, a 3-month study. Statistically significant differences were observed in the number of milking cows between Carlsen Field and Waller Field as well as in the number of human milkers and pattern of water supply ($P < 0.05$; χ^2).

In Phase II, a 12-month longitudinal study of 10 farms chosen by stratified random selection based on data on from Phase I, bulk and composite milk samples were assayed using the California Mastitis Test (CMT), somatic cell counts (weeks 1-7), N-acetyl- β -glucosaminidase (NAGase) and cultured for aerobic bacteria, *Staphylococcus* spp. and *E. coli*. Water samples used in pre-milking preparation were also collected for total and faecal coliform count

enumeration. Subclinical mastitis prevalence based on CMT was 18.8% (219 of 1164) ($p \leq 0.05$; χ^2). The mean bulk somatic cell count for the first seven weeks of sampling was $475\,248 \pm 448\,509$ cells per ml. *E. coli* prevalence for composite milk was 8.3 (97 of 1170) ($P \leq 0.05$; χ^2) and the total coliform prevalence was 33.3% (84 of 252) ($P \leq 0.05$; χ^2). Mean milk production based on assays of production of study cows during each visit was 3.6 ± 1.3 kg/afternoon. Analysis of CMT data revealed that the use of dry cow therapy and the use of the milking machine were statistically significantly associated with the occurrence of subclinical mastitis on study farms.

In the final Phase, based on data generated in Phase II of the study, an intervention was introduced on 6 selected farms subsequent to twelve weeks of monitoring the CMT, NAGase, TAPC, prevalence of *Staphylococcus* spp. and milk production. A bleach (sodium hypochlorite) teat dip was used on farms 100, 102 and 103; water used to wash the udder on farm 101 was treated with bleach and iodine teat dip was on farms 99 and 104. Farms were then monitored for 8 weeks post-intervention. Pre- and post- intervention differences in prevalence of aerobic bacteria and *Staphylococcus* spp. were statistically significant for Farms 100 and 103 ($P \leq 0.05$; χ^2).

It was concluded that milk on local dairy farms should be screened for subclinical mastitis with greater frequency since subclinical mastitis is present on local dairy farms and it may be limiting milk production. In addition, dry cow therapy and machine-milking are risk factors for subclinical mastitis on the dairy farms

studied. The intervention method of teat dipping with bleach, a relatively inexpensive agent, is recommended to reduce aerobic bacterial counts in milk.

Keywords: Lisa Benjamin; subclinical mastitis; prevalence and epidemiology