Adoption of biosecurity practices on Canadian dairy farms

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Introduction

Biosecurity refers to management practices aiming to prevent the introduction and the spread of infectious diseases, and it has been associated with reduced odds of disease, improved productivity, and decreased use of antimicrobials. In 2013 the Canadian dairy industry developed a tool to help producers implement biosecurity practices; the National Standard for Biosecurity. There was, however, no information available detailing the adoption of the different practices on Canadian dairy farms. The objective of this study was to describe the adoption of biosecurity practices on Canadian dairy farms in order to inform strategies and priorities for implementing the tool.

Materials and Methods

As part of a national cross-sectional study focused on describing the health and management of Canadian dairy farms, data were collected on farm and producer characteristics, and on the adoption of biosecurity practices. Data were collected using two pre-tested, translated, and validated questionnaires. In phase I, all Canadian dairy producers were invited to participate in a phone, mail or online comprehensive questionnaire between March 1 and April 30, 2015. In phase II, a second more focused questionnaire was administered in person between May 10 and August 30, 2015 to a stratified random sample of producers who participated in phase I. Proportions (SE) for binary and categorical variables were adjusted for geographical region according to the distribution of Canadian dairy farms. The association between farm and producer characteristics, and the adoption of biosecurity practices was explored using multiple correspondence analysis (MCA). Statistical analyses were conducted using R (R Core Team).

Results

Results are based on responses to 1,157 questionnaires from phase I and 368 from phase II. Respondents were from all Canadian provinces, and they had a median of 54 milking cows (interquartile range: 39-86) that were kept in tiestall (59%) and loose (41%) housing.

Biosecurity practices implemented for preventing the spread of diseases between animals on the farm were: having a vaccination program (70%), never allowing newborns to nurse the dam (52%), always changing needles for each animal (57%), never housing sick or lame cows in calving pens (27%), housing preweaned heifers individually (63%) or in pairs (11%), never using feeding equipment for handling manure (65%), and always keeping the cows (27%) and the calving pens (30%) clean around calving.

Biosecurity practices implemented for preventing the introduction of diseases onto the farm were; having a closed herd (41%), not letting the milking cows have contact with other farm animals or wildlife (62%) or with dogs and cats (33%), not sharing vehicles or equipment with neighbors' farms (67%), having measures to control access to the farm (2 to 13%), requiring employees to wear coveralls (31%) and boots (49%) designated for working with the dairy herd, and always requiring visitors to wear clean or disposable footwear (28%) and coveralls (11%) on the farm. In open herds, practices such as vaccinating (57%), segregating (39%), and testing for specific diseases (25%) all newly acquired animals were also adopted.

Geographical region, herd size, and type of housing were associated with the adoption of practices linked to animal movement, cleanliness of calving area, and visitor biosecurity.

Significance

The results of this survey highlight the limited adoption of most biosecurity practices in Canadian dairy herds and offer benchmarks for the promotion of the National Standard for Biosecurity. Biosecurity practices targeting animal-to-animal contact were adopted by more respondents than the ones targeting fomites. Finally, regional differences, herd size, and type of housing should be considered when recommendations are made to producers for implementing biosecurity practices.