

Biological Risk Management for Dairies

A.S. Leaflet R2429

Danelle Bickett-Weddle, DVM, MPH, DACVPM
 associate director, Center for Food Security and Public
 Health, ISU

Introduction

The Center for Food Security and Public Health at Iowa State University developed a set of tools with an online database designed to assess the risk of disease entry or spread on livestock operations. The program is referred to as Biological Risk Management (BRM) and has the goal of increasing producer awareness of disease management practices. The assessments are based on the routes of disease transmission (aerosol, direct contact, fomite, oral, and vector borne) and answered in a yes/no/maybe fashion.

The tool was evaluated for use on 40 California dairy operations and 40 dairy farms in the Midwest (primarily Iowa) during 2006 and 2007. The purpose was to validate the survey questions based on responses to the questions and production data, conduct on-farm assessments with the tool (data collection), and analyze the cumulative results to identify correlations between production and disease prevention practices. Prevention practices can help minimize the risk of disease on dairy operations but often requires financial investment. Correlation of disease prevention practices with dairy production parameters is lacking. Using the BRM dairy assessment tool, the objective is to identify current biological risk management practices on 76 California and Midwest dairies of different size and identify specific prevention practices that are highly correlated with production parameters.

Materials and Methods

Extension faculty in California and Iowa asked farms with 90+ cows and who utilized a Dairy Herd Improvement

(DHI) record service to participate in an on-farm assessment of BRM practices. Participants represented a convenience sample and did not receive payment. The Pre-Assessment Questionnaire (PAQ) included 14 open-ended questions pertaining to herd demographics, production parameters, visitor protocols, and isolation facilities. The Assessment Questionnaire (AQ) consisted of 45 closed-ended questions with yes, no, or maybe as possible responses. Each question was worded so that if the producer was performing the prevention practice, they answered yes.

The assessment questionnaires were de-identified and sent to one technician either in California or Iowa for entry into an online database. The technicians provided the data collectors with a series of three reports to return to the dairy producers. All data was coded and entered into a spreadsheet program (Microsoft Excel™, 2003).

Results

On-farm assessments were conducted on 40 California and 40 Midwest dairies from Feb-June 2006 and Feb-June 2007, respectively. Assessments were conducted by six University of California, Davis dairy farm advisors in five counties and six Iowa State University extension faculty in 24 Midwest counties. On-farm interviews lasted 30-45 minutes. Three CA and one Midwest farm did not record production data and were removed from the final analysis. There were 60 Holstein herds, seven Jersey herds, one Guernsey herd and eight mixed breed herds. Herd size ranged from 92 to 3,550 head (median 500), 305ME ranged from 15,564 to 30,586 (median 24,236), and SCC ranged from 120,000 to 954,000 (median 259,000).

Data analysis is ongoing and will be summarized as part of a PhD project for Danelle Bickett-Weddle, DVM, MPH. To access the online tool, visit:

www.cfsph.iastate.edu/brm

Table 1. Management practices that less than 20% of the farms were doing (% Yes).

Do you request that your employees avoid contact with livestock outside of your operation?	18.7%
Do you require clean clothes on everyone entering your operation (visitors, service personnel)?	18.4%
Are signs posted and very visible restricting access to your facility to anyone not employed by the operation?	17.1%
Do you have a veterinarian necropsy all animals that die from undetermined causes?	17.1%
Are employees required to clean and disinfect their boots when moving into special areas of the farm such as the maternity and calf areas?	11.8%
Do you require visitors to sign in and disclose their last known cattle contact?	3.9%
Are employees required to change clothing when moving into special areas of the farm such as the maternity and calf areas?	1.3%