

# Development of a Centrally Based Dairy Performance Benchmark Program with the Capability of also Performing as a Sensitive Dairy Management Diagnostic Monitor

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## Introduction

A dairy herd performance monitoring/benchmarking system was developed with the objective to serve dual roles. First, as a central database of basic herd performance parameters, the program serves as a benchmarking system to allow comparison of one herd against a set of other herds, as defined by the user. Second, as a repository of performance data, the program serves as a performance monitoring tool for dairy managers and/or their consultants, veterinarians and advisers. Herd performance can be observed as recent trend analyses, or performance comparisons to previous time periods. Periodic summaries are also made available on a quarterly or as-needed basis. Emphasis was placed on minimizing lag time in parameters selected for monitoring.

## Materials and Methods

The program imports data from Dairy Comp 305<sup>®</sup> and several other herd management programs. In 2000, 20 large dairies in Minnesota and Wisconsin submitted data into the system. Initially, 48 basic parameters were imported and used to evaluate approximately 175 specific herd characteristics for accuracy, reliability and value in making herd management decisions. Some modifications of the program and parameters has occurred, including expansion of herd "filtering" capabilities, which enable comparisons to other herds with specific geographic, management or performance characteristics. Steps have been taken to provide a web-

based portal to expand availability and allow for immediate responses to database queries.

## Results and Discussion

Herd participation in the monitoring system continues to grow. The primary report structure and a sampling of monitored parameters is shown in Table 1. The report shows each parameter for the most recent three months, a quarterly average, a "Peer" average (same-quarter comparison), a herd goal and an "Attention Flag" column. In addition, a year-to-date average and same quarter-previous year values may be reported. Herd goals, defined by the herd manager, trigger "Initial" and "Critical" attention flags when current values fall outside of bounds also determined by the herd manager (e.g., if incidence of displaced abomasums (DAs) in fresh cows this period exceeds herd goal by 10% or 20%, Initial or Critical attention flags are triggered respectively).

Management areas monitored include production, herd demographics, calves, health, mastitis, reproduction and culling. If replacement heifer data is present in herd records, a Heifer Enterprise section is also available. Each area contains several key parameters, some containing subcategories which appear on the report only if certain attention flags are triggered in the key parameter or if directed by the user. The system provides managers a vehicle to compare performance with herds of similar characteristics, and herd advisers with a sensitive tool to identify and focus on problem, as well as profitable, areas in a timely fashion.

**Table 1.** Parameters monitored by the centrally based dairy performance benchmark program.

Parameter	1/05	12/04	11/03	Qtr. Avg.	Peer Avg.	Herd Goal	Attn. Flag
Latest Milk	75.0	75.5	75.3	75.3	69.8	75.0	
Milk at 28 DIM*	102.1	98.3	88.8	96.4	88.4	95.0	
% RPs**	11.1	16.6	6.5	11.4	5.7	4.0	<<<!
% DAs - Fresh Cows***	1.9	1.2	0.6	1.2	2.4	2.5	
% New Mast	9.4	6.8	3.1	6.4	3.9	5.0	<<<!
% Culled DIM<31	40.0	16.7	25.0	27.2	21.7	33.0	<
SCC for DIM<30****	1970	126	319	805	504	150	<<<!
% of Elig. Bred in period	91.0	89.0	84.0	88.0	87.0	90.0	
Pregnancy Rate	23	22	21	22	17	20	

\*Days in milk

\*\*Retained placenta

\*\*\*Displaced abomasum

\*\*\*\*Somatic cell count

## Serological Evaluation of Five Unvaccinated Heifers as a Method for Detecting Herds Infected with Bovine Viral Diarrhea Virus

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### Introduction

Cattle persistently infected (PI) with bovine viral diarrhea virus (BVDV) are the major reservoir of infection within and between herds. The key to eradicating BVDV is the identification and removal of all PI cattle. This requires testing all cattle within a herd, which is costly and labor-intensive for the producer. It would be desirable to accurately identify herds infected with the virus prior to committing the resources necessary for whole-herd screening. The objective of this study was to determine if the evaluation of BVDV antibody titers in five randomly selected unvaccinated heifers (sentinel heifers) was an accurate way to predict if a herd was infected with the virus.

### Materials and Methods

Blood samples were collected from all cattle in 14 Michigan dairy herds. To identify cattle infected with BVDV, virus isolation was performed on all samples using the immunoperoxidase monolayer assay (IPMA). Serum virus neutralizing antibody titers to both type I and type II BVDV were determined on five randomly selected unvaccinated heifers, 6-12 months of age, in each herd. A positive serological evaluation was defined as a herd with at least three of five heifers with BVDV titers  $\geq 1:128$  (SN positive) to either type I or type II BVDV. Conversely, a negative serological evaluation was defined as a herd with at least three of five heifers with BVDV titers  $\leq 1:64$  (SN negative). The genotype of