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## Herd testing in the USA

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The United States has seen slow and steady growth in participation of herd recording programs. At the end of 2007, there were over 4.4 million dairy cows from 23 000 dairy operations participating in recording programs. The DHI industry in the United States continues to offer a wide range of programs for herds of all sizes. In addition to the 27 certified field service a provider working directly with dairy producers, the recording industry in the United States is supported by 49 certified laboratories, 45 certified meter calibration centers, and 4 dairy records processing centers. The combined efforts of these entities provide for a vibrant and growth-oriented milk recording industry that is focused on data accuracy, service to dairy producers, and flexibility to meet the needs of dairy herds of any size.

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### Summary

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**Key words:** *milk recording, Quality Certification Services, meters, Calibrations, Processing data.*

The milk recording industry in the United States has experienced significant changes over the past two decades. Traditionally, milk recording organizations were organized as non-profit entities, often working with land-grant universities as part of the Cooperative Extension Service. These organizations served defined territories (usually state lines) and were supported by resources and staff as needed to serve the dairies in their trade area.

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### Background

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At present, the milk recording industry is markedly different. While certain regions of the country are still served by traditional milk recording organizations, other geographic regions are now served by organizations that no longer resemble the former. The organizations currently providing milk recording services to dairies include sole proprietorships, privately held corporations, cooperatives and federated (either partially or fully) associations. These organizations no longer operate within a defined trade area; but rather compete in an open-market climate. In addition, the meter centers and laboratories providing services to the recording industry have seen similar changes in business structure, trade area and competition.

**Overview of herd testing**

Figure 1 provides a schematic for the flow of dairy within the milk recording industry in the United States. While this view is simplified for demonstration purposes, the diagram clearly demonstrates the interconnectivity of allied and industry partners.

All data generated from the various components of the recording entity are processed at one of four dairy records processing centers prior to submission to the Genetic Evaluation Program (GEP). Like the field service, meter center and laboratory entities, these processing centers have diverse business structures and compete in an open-market environment.

One of the challenges in this open-market climate is to maintain standards among competing organizations. The dairy industry in the United States has long realized the need for a quality certification program to ensure that the minimum standards of services are maintained and to assure the accuracy of data flowing between milk recording industry entities and flowing to the Animal Improvement Programs Laboratory (AIPL) and Interbull.

Figure 2 illustrates the areas reviewed for compliance by Quality Certification Services. The multi-level quality certification programs provides numerous checkpoints to assure data accuracy prior to reaching one of the dairy records processing centers, and then a final checkpoint of accuracy of processed data leaving each processing center. One important point is that Quality Certification Services does not determine if an entity should exist, only if each entity is operating with compliance to mutually agreed upon guidelines for the recording industry. In addition to providing a review of compliance at all levels, Quality Certification Services Inc. and its auditors serve in an educational and resource role to aid all herd testing program participants.

**Field collection of data and milk samples**

At the present time, there are 27 certified field service providers working directly with dairy producers participating in herd recording programs in the United States. Each of these field services is unique in their business structure and services offered to dairy producers, but all operate under uniform operating procedures and abide by a code of ethics. Combined these 27 field service organizations have 3 018 well-trained field technicians that work directly with over 4.4 million dairy

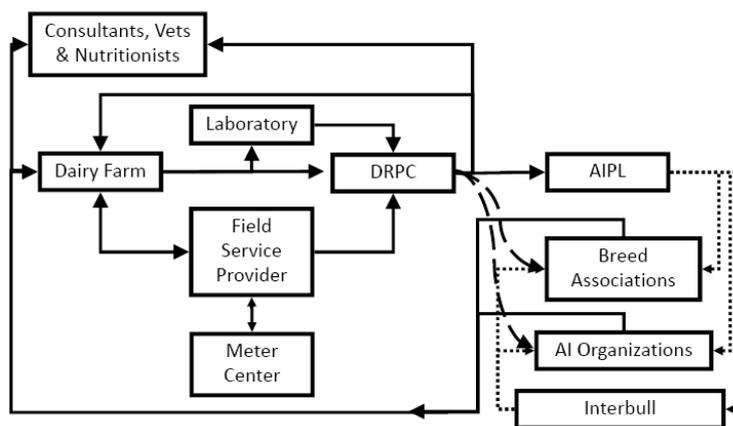


Figure 1. Overview of herd testing in the United States.

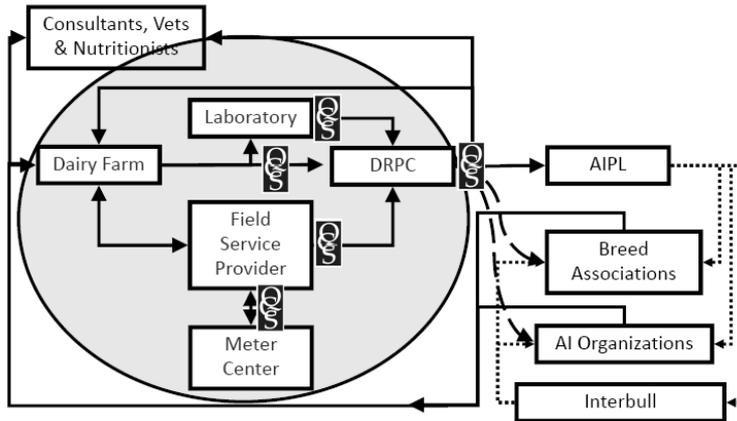


Figure 2. The Role of Quality Certification Programs in the United States.



Figure 3. Certified Providers of Field Services in the United States.

cows on a regular basis. As expected, these field service affiliates are located near areas of concentrated dairy cattle populations (Figure 3), but the entire United States and Puerto Rico are served by at least one field service provider.

Participation in milk recording programs has seen a steady growth over the last five years in the United States (Figure 4). At the end of 2007, there was approximately 47% of the United States dairy cow population participating in DHI (herd recording) programs. Contributing to the growth in dairy cows on recording programs is the fact that each of the individual field service affiliates working with dairies in their respective trade area continue to develop, build value, and market recording services to herds that aid not only provide data to the nationwide genetic evaluation program, but provide timely and useful data to individual dairy producers to aid in the daily management of their respective operations. As detailed in Figure 5, there is a relatively flat distribution of dairy herd size when looking at participation in herd recording programs. While it is probable that the herds of the smallest and largest size (dairy cow numbers) are not on an identical recording program, each of these herds is enrolled in an approved test plan with a certified provider. As a result, dairy cattle

**Cows on DHI Programs**

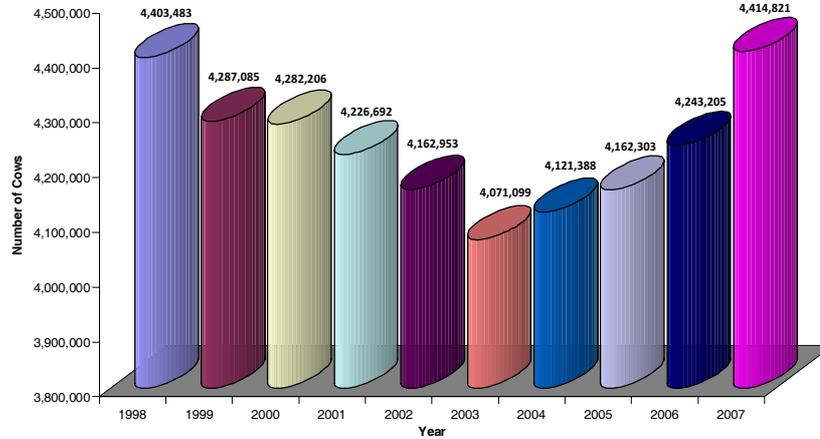


Figure 4. Participation in milk recording programs in the United States (1998-2007).

**DHI Cows by Herd Size**

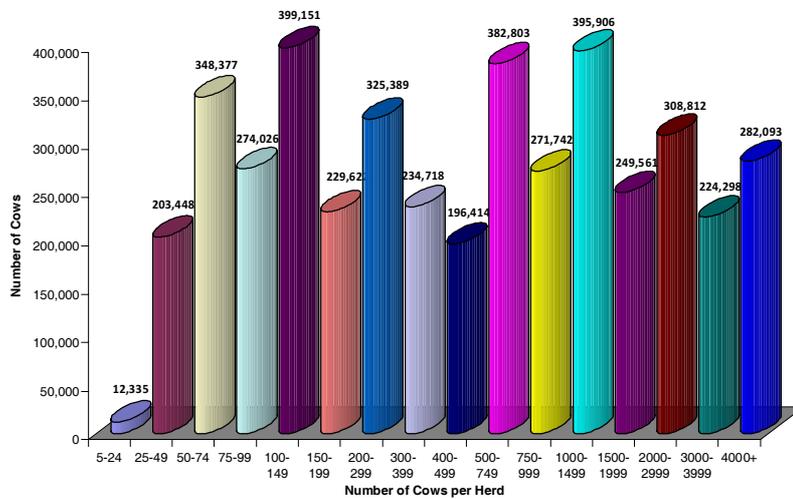


Figure 5. Distribution of herd size for cows enrolled in milk recording programs in the United States, 2007.

from herds of all sizes, geographic locations, and varying management programs are included in the genetic evaluations generated from the United States dairy cattle population.

As required by the quality certification program in the United States, all recording devices used in herd recording programs must be approved by ICAR and National DHIA. Serving the DHI industry in the United States are 45 certified meter calibration and repair centers, once again located near concentrations of dairy cattle populations. Each meter center is inspected and audited on-site biennially. Further, all meter technicians performing calibration and repair services are also audited biennially as well as attend periodic training schools or seminars.

All portable (monthly) meters are required to be calibrated at least once every 12 months in the United States. During 2007, the 45 certified meter centers calibrated 108 139 portable meters. In addition, over 66 000 electronic (daily) meters were evaluated for performance on their respective dairies. Calibration data from both daily and monthly meters are reported to Quality Certification Services each year for review as part of the certification audit for each of the aforementioned 27 field service providers.

The DHI laboratories providing services to the recording industry have seen similar changes in business structure, trade area and competition. At the end of 2007, the milk recording industry in the United States was served by 49 certified laboratories (Figure 6). Based on reported statistics, the cumulative total of samples analyzed by all laboratories is approximately 4.7 million samples monthly, with a range of 8 000 samples monthly at the smallest laboratory to 410 000 samples at the largest. These samples were analyzed on 204 unique instruments from three different manufacturers. As part of a comprehensive quality certification program, each laboratory is inspected and audited biennially on-site. In addition, each laboratory participates in a monthly unknown samples program to monitor and assess performance and accuracy.

Each of these laboratories competes in an open marketplace, offering a range of services to dairies participating in recording programs. All laboratories provide milk component and somatic cell count analysis of samples. Other services provided to dairy farmer include analysis of milk urea nitrogen (MUN), ELISA analysis of milk samples for Johne's and/or leukosis, and microbiology analysis. Figure 1 highlights the locations of the certified DHI laboratories operating withing



Figure 6. Certified DHI Laboratories in the United States.

## Use and calibration of recording devices in herd recording

## DHI laboratories in the United States

the United States. These labs are located near dairy cow populations (Figure 6) and provide for rapid analysis of milk samples. The average turn-around time from milk sample collection at the dairy farm to lab analysis is 1.45 days across all nationwide DHI laboratories.

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**Processing data  
from  
participating  
herds**

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Handling the data on over 4.4 million cows the 23 005 enrolled in herd testing programs in the United States are four distinct dairy records processing centers (DRPC). Each of these DRPC are voluntary participants in the quality certification program as well – audited both monthly and annually for accuracy of data calculations and data transfer. As with DHI field service providers and DHI laboratories, these processing centers compete in an open-marketplace environment for business. In addition to providing data to the Animal Improvement Programs Laboratory (AIPL), they each provide reports and tools direct to dairy producers to aid in the daily management of individual dairy operations.

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**Conclusion**

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The United States milk recording industry is served by a dynamic herd testing system that efficiently and cost effectively meets the needs of dairy producers of any herd size in all geographic locations. Participation in herd recording programs continues to grow, and the United States DHI system is flexible to adapt to the needs of our nation’s diverse dairy operations. Each organization, though distinct in business structure and size, participates in a common certification program. The quality certification program in the United States is neutral on many fronts – business structure, size, geography or other external factors – and provides a basis for compliance by all entities within the recording industry without providing a barrier to entry. As a result, users from within the system along with industry partners such dairy studs, breed associations, and other interested parties can be assured of the accuracy of data generated from the United States dairy cow population.