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## Overview of DHI laboratory services in the USA

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The milk recording industry in the United States is served by a variety of certified laboratories – each unique in business structure, services and analyses offered, and marketing programs. DHI laboratories in the United States compete in an open marketplace and analyze approximately 4.7 million individual DHI milk samples monthly. While significant differences exist in each of the laboratories, all DHI laboratories participate in a voluntary quality certification program administered by Quality Certification Services, a subsidiary of National DHIA. This program, operating on approved guidelines, monitors each participating laboratory on a monthly basis for compliance and performance. The end result is a certification program that is size-neutral, provides for a level field of competition in an open marketplace, and assures accurate and timely milk component data from cows participating in recording programs.

**Key words:** *Quality certification, Milk recording industry, Laboratory Advisory Committee, Routine analysis.*

At the end of 2007, there were 4 414 821 dairy cows in the United States participating in milk recording programs. While the number of cows on programs fluctuates, the United States has seen a small, but steady growth in the participation in milk recording programs by dairy operations over the last five years. All data and milk samples are collected at the dairy level by field technicians working with a certified milk recording organization (27 certified field service affiliates/milk recording organizations in the United States). Each of the aforementioned field technicians are required to complete training with respect to field services programs, including but not limited to data handling and proper milk sampling and collection procedure.

Traditionally, milk recording organizations served defined territories (usually state lines) and were supported by resources and staff as needed to serve the dairies in their trade area. At present, the milk recording industry is markedly different. While

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### Summary

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### Background

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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.

## DHI laboratories in the United States

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. 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.

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 luekosis, and microbiology analysis. Figure 1 highlights the locations of the certified DHI laboratories operating withing the United States. These labs are located near dairy cow populations 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.



Figure 1. Certified DHI Laboratories in the United States (Puerto Rico not shown).

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DHI laboratories in the United States' milk recording industry are audited by Quality Certification Services, Inc. (QCS). Each participating laboratory is evaluated on a routine basis to assure compliance with all aspects of the current auditing guidelines as approved by the dairy industry. It is important to note that these guidelines are business-structure neutral and do not exist to determine if an entity should be in business – rather to certify that the entity is operating within compliance. In addition, DHI laboratory managers have a mechanism of input on the certification guidelines. A Laboratory Advisory Committee (LAC) meets annually, and suggestions, clarifications, or revisions to the guidelines are proposed and reviewed. The end result is a dynamic system that ensures auditing guidelines for DHI laboratories are current, relevant, and serve the best interest of the milk recording industry.

To receive or retain certification, each DHI laboratory must be within compliance with both components of certification. These components are:

1. A monthly analysis of Samples Unknown (test samples with actual component analysis unknown to the laboratory). Specific tolerances for lab accuracy and deviation have been established as part of the auditing guidelines, and each DHI laboratory must demonstrate on a monthly basis that all instruments are operating in compliance.
2. A biennial on-site audit of all laboratory procedures, instruments, and documentation conducted by QCS. This comprehensive review ensures the processes and systems are in place to ensure accurate sample analysis and data integrity. In addition, the auditor may serve as an educational resource to assist DHI laboratories in the improvement of procedures or processes.

The United States milk recording industry is served by a wide variety of laboratories that routinely analyze milk samples. These laboratories operate in an open marketplace setting that encourages competition, excellent service, timely analysis, and accuracy. While the DHI laboratories serving milk recording industry in the United States range in size and scope, a common certification program exists to assure the accuracy of the data flowing from the system. 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, over 4.7 million samples are accurately analyzed each month in the United States milk recording industry, providing useful information to the dairy industry on both the management and genetic levels.

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## Quality certification of DHI laboratories

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## Conclusion

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