2021
57th Annual Report

Working in the Present
Preparing for the Future
National DHIA 2021
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Farming is a Business - A Very Dynamic & Progressive Business

We are the leaders of tomorrow and together we shape the future of agriculture. As we complete another year that has seen many limitations with in person meetings, travel and things that affect our business, National DHIA has pushed forward with many projects that affect the dairy industry, helping to protect, improve and develop data, dairies, and the agriculture industries we use and need.

We have adapted and overcome obstacles as an organization. In person meetings didn’t resume until December of 2021. The board of directors has become very efficient at Zoom meetings. The directors have seen what personal offices, kitchens, porches and daily work environments look like. I personally have had meetings in a combine, on a mower, in my pickup truck and even standing out in the middle of a field.

Through all of this, progress is being made in many areas for the better of the industry. One of the many things we have worked on this year includes collaborating with IYOTAH, which has been identified as a strategic technology partner in setting up the DHI herd code portal. This encompasses herd code assignments, herd characteristics and Access and Use updates to the platform. The International Dairy Data Exchange Network (iDDEN), which National DHIA is stakeholder, has made progress on agreements with milking equipment manufacturers to efficiently move data through the data exchange and is working with equipment managers on a global basis.

The International Group (IG) continues moving forward with strategic planning and development of a universal sampling device. The Council on Dairy Cattle Breeding (CDCB) has updated the Material License Agreement with National DHIA to identify the Quality Certification Services (QCS) program participants as data providers and continues to advance genomic traits to help farmers. We are working with the Dairy Records Processing Centers to help maintain the stewardship of the data and the access and use of it.

The Factors and Spectral Data Project has been developed with data capture starting in early 2022. This will update AM/PM factors, MEs, 305, 365 and projections that are for every herd. This project is a continuing collaboration with USDA-AGIL, CDCB and National DHIA.

One of the new projects National DHIA is working on includes a fellowship grant with the University of Wisconsin for 3.5 years. Fiona Guinan will be involved in working on data quality and flow as a coop student with QCS, CDCB and the University of Wisconsin. She will be working on dataflow guidelines, applications and quality.

The Greener Cattle Initiative (GCI) is a group of organizations leading governance of a private non-profit collaboration organization. An example of this is the study of the methane emissions from dairy herds. The DHI System has data that could be used for these projects. The National DHIA board felt it was important to be a part of the steering committee to help evaluate what projects might be funded. There are ten members on this committee ranging from big business private companies and coops to non-profits. If we are not at the table for discussions we could end up on the menu as we farmers have learned from past experiences.

Throughout this year, the faces of DHI have changed. Leaders of field service organizations have retired, changed jobs, and merged with other organizations or just quit doing business. National DHIA has been there to support these changes in any way possible be it with QCS or walking through membership agreements with organizations joining National DHIA. These organizations see the value for their herds being a member of National DHIA. I would like to welcome them to National DHIA.

As we return to more normal forms of meetings and travel, we will notice a difference of who is present. Leaders of agriculture and other businesses are maturing and leaving the workday sector at a higher rate than ever before. The wealth of knowledge and leadership they take with them will be challenging to duplicate. It is now more important than ever that we encourage the younger generations to pick up the torch and keep the dairy data streams moving forward.

I would like to thank the National DHIA staff, board members and the support of other integral people for making this year go as smoothly as possible with the challenges we have faced. We have not been able to use the “easy button” as often as we had hoped, but we also have not used the “delete button” yet this year. As President, I appreciate the support of National DHIA and the board.
The data are fast moving (velocity) with increasing volume plus increasing frequency. This demands credibility and quality. Combining these areas is the foundation of dairy data. Providing value and benefit to the herds that generate data and participate in DHI creates results. These results have to be delivered back to the dairy herd for decision making whether it is for genetics or management.

There are expectations of more volume and frequent data feeds from on-farm sources for the management of today’s dairy herds. A look back at the fundamentals of dairy production brings everyone to production economics that is based on decision making. The DHI System basics put the volume of fat and protein and level of Somatic Cell Counts (SCC) as the fundamental basis of dairy production and ultimately what herd revenue is based upon. You could say these are the ultimate money traits. This is simple, time proven and remains key in dairy production today and in the future of the DHI System deliverables.

A focus of working in the present and planning for the future is the basis of the program of work for National DHIA, QCS and DHIA Services. National DHIA looks at areas that are big picture and in the pre-competitive broad delivery to dairy herds. QCS works in Field Service, Labs, Meter Centers and DRPCs on basic compliance of the QCS Guidelines and National DHIA Uniform Operating Procedures for Ethics, Data Collection, Access and Use and publication. The QC focus is to encourage continuous improvement in the DHI System. DHIA Services provides an e-commerce site for Animal Identification devices including tags and readers. DHIA Services is also a distributor for the Ori-Collector for milk sampling in most robotic milking systems. These services are the continuing commitment of working in the present. A few key areas working in the present and planning for the future are as follows:

### Quality Certification Services

The QCS program allows for continuous improvements that increase the quality of the processes and data flow in the dairy data systems. It is evolving to adapt as new data collection and channels are coming on the scene.

### Factors Research Project

A review, update and validation of milk, fat, protein production projections and lactations (MEs, 305/365), this project is in the final planning stages with USDA – AGIL, CDCB and National DHIA. The project is one of the most comprehensive to address the changing milk production practices and biology of the cow to have factors and lactation equations that are matched to the present and future needs of herds and allied cooperators. As a measure of the impact, the AM PM factors update will benefit over 95% of herds in the DHI System.

#### International Dairy Data Exchange Network (iDDEN)

iDDEN was established with seven international farmer-controlled stakeholders in an effort to provide a data hub to move data from the farm to data systems in each country. This effort is continuing by gaining milking equipment manufacturers, activity systems companies and farm management software companies to develop standard interfaces and data exchange protocols. This reduces the resources required to move the data as the effort is shared by many partners. This is a benefit to herds and organizations in each country. The iDDEN software and data conduits are being tested with two milking equipment manufacturers. iDDEN is working to establish partnerships with additional milk equipment manufacturers, and several dairy data organizations and DHIs in other countries are in discussions to have agreements with iDDEN. Work and discussions will continue with US organizations, including the DRPCs and Farm Management Software programs.

#### International Group (IG)

The IG continues working for the development of a Universal Milk Sampling Device and milk meters with new technology. The prototype for a new sampler is being developed and looking to pass the Proof of Concept. Field work for milk flow is being carried out to determine optimal sampling intervals with direct fill milk sample vials as the potential product. The operational functionality of the sampler will also be tested in 2022.

#### Collaboration with iYOTAH

National DHIA and iYOTAH Solutions formed a strategic partnership to identify pilot herds for the development of the iYOTAH data collaboration solution. This will allow for both feedback and input from DHI herd owners and managers to bring several data sources together for use by the herd managers and consultants.

#### Animal Identification

The National DHIA RFID passed a resolution by the delegates at the 2020 National DHIA Annual Meeting. Additional discussions and interaction with USDA-APHIS-VS are on-going to prepare for upcoming changes in Official Animal Identification programs. National DHIA is collaborating and taking a lead in a key area of...
Financial Results

2021 continued the trend of an atypical year for the financial results of National DHIA, QCS and DHIA Services. National DHIA results reflect reduced expenses due to travel restrictions for the staff and board with only one in person meeting which occurred in December 2021. Additional discovery costs and capital investment in the International Dairy Data Exchange Network (iDDEN) set-up and software were added on to the balance sheet.

Several new programs and projects were implemented to adapt to the new business environment which required investment including being a Founding Partner of the Greener Cattle Initiative (GCI). The National DHIA Scholarship Fund is a restricted account and is also included in the NDHIA total results. The Net Margin for National DHIA was $67,890. The FY 2022 NDHIA budget reflects these changes of meeting expenses and professional services and has a small margin.

QCS was impacted by increased travel expenses for the staff due to changes in the QCS participation with additional Field Service organizations coming directly to QCS. Funding was paid for the cooperative position of a PhD student for data flow between the CDCB, University of Wisconsin and QCS in FY 2021 but is for FY 2022 and 2023. The result for QCS was a $10,816 deficit.

DHIA Services continued a software upgrade to the EarTagCentral ecommerce site. Business volume was steady but software update expenses resulted in a profit of $3,943 in 2021. The new EarTagCentral site will be launched in the 2nd quarter of 2022. Solid financial results with key investments for the DHI System were carried out in 2021 during a time of many changes.

Planning for the future of all sectors of the DHI System in a pre-competitive setting results in benefits and values for everyone.

DHI for the Future

The agendas in both technical and applied areas should be reviewed and developed with input from herd owners and managers and industry collaboration to have the most value in moving into the future. This planning should include a summary of current areas of innovation and technology and then developing priorities to address specific areas.

Taking principles in football and business instilled by the Green Bay Packers coach of the 1960s, Vince Lombardi: Stick to the Fundamentals.

This is the Plan – This is DHI
DHI HERDS AND COWS SUBMITTING DATA TO THE NATIONAL COOPERATOR DATABASE IN 2021

DHI HERDS IN 2021
10,887

DHI COWS IN 2021
3,988,791

AVERAGE HERD SIZE
260 COWS

DHI PROGRAMS FOR THE ENTIRE INDUSTRY

- 50% of DHI herds have less than 100 cows
- 61% of DHI cows are in herds of more than 750 cows

392 herds with more than 2,000 cows/ herd representing 1.41 million cows submitted data through the DHI System to the National Cooperator Database [CDCB] in 2021

DHI HERD AVERAGE SCC REMAINS UNDER 200,000 IN 2021

98.5% of DHI herds & 97.9% of DHI cows participated in SCC testing

AVERAGE SCC OF DHI HERDS OVER THE PAST 20 YEARS

2000 | 316,000
2005 | 296,000
2010 | 228,000
2015 | 204,000
2020 | 178,000

AVERAGE SCC BY HERD SIZE (COWS PER HERD) IN 2021

Source: CDCC-National DHIA, 8K Report: Semitic Cell Counts of Milk from DHI Herds During 2021

CHANGE IN SIZE, YIELD AND SCC OF DHI HERDS

Average Size of DHI Herds Submitting Data to CDCCB - 2011 to 2021

Average Test Day Milk Yield of DHI Herds Submitting Data to CDCCB

Average SCC of DHI Herds Submitting Data to CDCCB
DHI Herds Submitting Data to CDCB by Herd Size During 2021

Cows from Differing Herd Sizes on DHI Programs and Submitting Data in 2001, 2011 & 2021
Working Together for the DHI Industry
DHI Herds & Cows in 2021

Distribution of Herds and Cows on DHI Programs Submitting Data to CDCB in 2021

<table>
<thead>
<tr>
<th>Herd Size in Cows</th>
<th>1-99</th>
<th>100-299</th>
<th>300-749</th>
<th>750-1999</th>
<th>2000+</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Herd of Herds</td>
<td>50.26</td>
<td>28.42</td>
<td>11.48</td>
<td>6.52</td>
<td>3.31</td>
</tr>
<tr>
<td>% Cow of Herds</td>
<td>8.89</td>
<td>14.11</td>
<td>16.39</td>
<td>23.85</td>
<td>36.76</td>
</tr>
</tbody>
</table>

DHI Herds Submitting Data to CDCB by Type of Test Plan During 2021

- **Supervised**
  - 5,630 Herds
  - 51.7%

- **Supervised DHIR**
  - 2,001 Herds
  - 18.4%

- **Supervised Commercial**
  - 448 Herds
  - 4.1%

- **Unsupervised**
  - 2,808 Herds
  - 25.8%
DHI Cows by Herd Size Submitting Data to CDCB During 2021

<table>
<thead>
<tr>
<th>Number of Cows per Herd</th>
<th>Number of Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-99</td>
<td>353,779</td>
</tr>
<tr>
<td>100-299</td>
<td>561,360</td>
</tr>
<tr>
<td>300-749</td>
<td>652,069</td>
</tr>
<tr>
<td>750-1999</td>
<td>548,585</td>
</tr>
<tr>
<td>2000+</td>
<td>1,462,175</td>
</tr>
</tbody>
</table>

DHI Cows Submitting Data to CDCB by Type of Test Plan During 2021

- Supervised: 2,971,755 Cows (74.5%)
- Supervised Commercial: 186,488 Cows (4.7%)
- Unsupervised: 273,124 Cows (6.8%)
- Supervised DHIR: 557,424 Cows (14%)
Quality Certification Services® (QCS) continues to focus its program areas to meet or exceed the needs of our cooperators and to provide both the DHI industry and our industry collaborators with accurate, quality data for informed genetic and management decisions. With an emphasis on continuous improvement by implementation of quality management systems and certification audits, the US dairy data flow system benefits directly from the work of QCS.

The COVID-19 pandemic presented challenges in the delivery of auditing services over the past two years. Staff evaluated all programs and adapted to the changes in the DHI industry and US dairy herd population. The lessons learned have laid the foundation for strategic planning to improve service and support provided by QCS.

Auditing of DHI Service Providers
With a goal of fair and balanced compliance auditing that is independent of the provider’s business size, structure, scope or geographic location, QCS staff and contracted auditors worked with field service providers, meter centers, meter technicians, DHI component laboratories, enzyme linked immunosorbent assay (ELISA) laboratories and DRPCs on a routine basis.

The DHI industry continues to evolve, resulting in consolidation in certain areas and new providers in other parts of the country. These providers, along with their numerous staff members, each demonstrated a commitment to continuous improvement in providing data to the DHI industry.

Internal Program Development & Support for DHI System
The success of any QC program does not depend solely on the compliance auditing process, but also on strengthening the system with tools and resources available for all program participants. Working with the Advisory Committees for field services, laboratories, and DRPCs, staff and auditors offered training and support for meeting the auditing guidelines as well as for improving overall business success.

QCS continues to offer hands-on meter technician training schools which address calibration and repair and maintenance of the many milk recording/sampling devices owned by DHI affiliates. QCS continues to invest in new resources for field and laboratory technician training as well as monthly proficiency testing (PT) for laboratories as the types of milk tests offered to dairy producers expands.

External Leadership and Partnership
To serve as a resource for the DHI program in the United States, staff continue to be involved with many national and international industry groups. Providing leadership and expertise to ICAR (International Committee for Animal Recording), IDF (International Dairy Federation), CDCB (Council on Dairy Cattle Breeding) and other organizations provides a presence for the US dairy data industry, and allows staff to bring both new innovations and ideas back to our service providers. These partnerships support and complement the core QCS activities with the goal of increased credibility and confidence in DHI data used for management and genetic information in the US and worldwide.
National DHIA 2021 Outstanding Service Award

Pat Wright Datamars/Tru-Test

If we saw National DHIA’s 2021 Outstanding Service Award recipient sitting in a room, very few people would recognize her. And likewise, it is doubtful 2021’s recipient would recognize our faces. Yet the minute you would say hello and start to introduce yourself, she would immediately recognize your voice and call you by name. 2021’s winner, Pat Wright, was the voice on the phone when the DHI industry needed portable meters and/or parts. For 24 years, Pat worked for Tru-Test and most recently, Datamars (which acquired Tru-Test).

In her role as Customer Service – Dairy, Pat came to know us by our voice and most likely knew the meter parts needed by DHI field service affiliates better than they may have; often anticipating orders, coordinating with New Zealand, and having parts on hand when we needed them, including the sometimes yesterday. It is safe to say that when you talked to “Pat at Tru-Test,” you felt good and you knew “it will get done.”

As one of the foundations of the DHI industry, accurate milk weights and representative milk samples are where quality data start. Though she may never have tested a cow, Pat was an integral part of every DHI test day conducted with Tru-Test meters and the data generated on farm. And, we are sure Pat’s co-workers, Brett Ellis in NZ and Wes Schroeder in the US, would echo the comment that “Pat simply took care of all of us.”

It was our pleasure, on behalf of all the US DHI field service providers, meter technicians, field technicians and ISPs, to present Pat Wright, Datamars/Tru-Test, with the National DHIA Outstanding Service Award for 2021.
DHIA Services/EarTagCentral

DHIA Services, a subsidiary of National DHIA, works with our vendors to sell visual and electronic identification (EID) tags, accessories, and EID readers. It has been especially challenging for our vendors to process orders in a timely manner during the COVID-19 pandemic. Some vendors have begun 24/7 operations to get through the backlog of orders created by the pandemic. There continue to be shipping delays due to the availability of raw product due to international and interstate shipping delays. Manufacturers are also dealing with staffing shortages. Extra work for National DHIA staff has followed because of these delays. Customers want to know where their product is. Our focus continues to remain on customers, including increased calls with vendors and customers to fill orders as quickly as possible.

The launch of the new EarTagCentral.com site, expected in 2022, will have a new format optimized for desktops, tablets and mobile devices. This will allow more options to place orders in a user-friendly layout. This continues to be a many layered process to incorporate the National DHIA member level discounts. These discounts will remain a core component of new EarTagCentral.com.

DHIA Services continues to place orders for Ori-Collector milk samplers for DHI affiliates, targeting orders twice yearly based on needs to service DHI herds effectively. The Ori-Collector is key for collecting milk samples in robot milking systems. Ori-Collectors are certified with multiple brands of robotic milking systems including DeLaval, Galaxy, and Lely systems, making them almost a universal milk sampler, providing representative milk samples for component analysis and diagnostic screening tests at DHI laboratories for herd management decisions & genetic evaluations.

International Committee on Animal Recording

National DHIA staff, along with representatives of National DHIA members and industry partners, work collectively to achieve the aims and objectives of ICAR that include guidelines, standards, collaboration, and cooperation among recording organizations worldwide. The leadership and technical contributions of the following individuals and organizations to these efforts is appreciated.

**Steven Sievert, National DHIA**
- Chair, ICAR Subcommittee for Measuring, Recording and Sampling Devices

**Muril Niebuhr, Eastern Lab Services**
- ICAR Subcommittee for Milk Analysis [Observer]

**Bruce Dokkebakken, Minnesota DHIA**
- ICAR Dairy Cattle Milk Recording Working Group

**Robert Fourdraine, DRMS**
- Co-Chair, ICAR Animal Data Exchange Working Group
- ICAR Sustainability Task Force

**Ezequiel Nicolazzi, Council on Dairy Cattle Breeding**
- Interbull Steering Committee
- DNA Working Group

**Melton DeJarnette, National Association of Animal Breeders/Select Sires**
- Artificial Insemination and RT Working Group

**Jiansheng Qiu, Neogen Genomic Operations**
- DNA Working Group

**Matthew McClure, ABS-Global**
- DNA Working Group

**John Cole, URUS**
- Functional Traits Working Group [Associate Member]

**Paul VanRaden, USDA-ARS-AGIL**
- Interbull Technical Committee

**Tom Lawlor, Holstein USA**
- Interbull Technical Committee

**Daniel Gianola, University of Wisconsin**
- Interbull Scientific Advisory Committee

www.eartagcentral.com

THE GLOBAL STANDARD FOR LIVESTOCK DATA

Eastern Wisconsin DHIC’s Main Office is located on the west Shore of Lake Michigan. The service area for EWDHIC is a highly concentrated area for dairy farms within Wisconsin.

The cooperative currently serves 250 herds that total 90,000 cows. Eastern Wisconsin DHIC was formed in 2009 when neighboring independent DHI Associations working together decided to consolidate together to form one DHI cooperative. Those small associations had started in the 1940’s and continued their operations up until the consolidation.

The current cooperative provides field and laboratory services to all of its members. The processing of records are done at either VAS/AgSource or AgriTech Analytics. The current EWDHIC staff consists of 18 total employees between the field and laboratory.

Capstone Dairy Data Services, LLC, established in December of 2021, is a National DHI field service affiliate located in the arid plains of Eastern New Mexico and West Texas. Capstone, a subsidiary of ADM Laboratories, LLC in Clovis, New Mexico, provides services to herds ranging in size from 600 cows to 12,000 cows.

We certify five separate independent service providers and their testing crews that have a multi-generational interest in the DHI system. These crews bring a combined experience that well exceeds one hundred twenty years of testing cows.

Coupled with a lab that has more than sixty years of combined experience in analyzing feeds, forages, and raw milk, as well as providing logistical services to obtain analysis on various other agricultural products, Capstone is geared to providing a wide range of services to the dairy industry.
Mission Statement

To serve dairy herds by advancing management information services

Vision Statement

National DHIA will lead dairy records providers and facilitate the delivery of effective, usable management information.

We will:

- Ensure information accuracy
- Represent and support our members
- Be the unifying voice for the dairy information industry
- Collaborate with industry partners