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Got dairy data?

The cooperative spirit between USDA-ARS and the dairy industry is alive and well.

The Council on Dairy Cattle Breeding (CDCB) is preparing to take a big step forward on behalf of the U.S. dairy industry. CDCB is putting the finishing touches on a Cooperative Agreement (CA) with the Agricultural Research Service (ARS) of the U.S. Department of Agriculture (USDA) to ensure the long-term future of genetic evaluation and analysis of herd management information in the United States.

This agreement is a great example of how the public and private sectors can cooperatively work together for the benefit of individual farmers, international trade and U.S. consumers of dairy products. It's not news to anyone involved in the U.S. dairy industry that the landscape has changed. We've all witnessed the narrowing of profit margins, changes in how dairy data are collected due to the introduction of new technologies, and the threat of losing valuable government cooperation because of the looming federal deficit. However, rather than taking a wait-and-see attitude, CDCB decided to take on the challenge of getting organizations to work together to create and provide a sustainable cooperative effort for genetics and management information.

Genomic prediction is a key technology playing an important role in restructuring dairy production. Over the next several years, we're expecting to see a:

- decline in collection of traditional data.
- growing need for new data and traits, particularly in the areas of fertility, health and fitness.
- need to have the ability to compensate and encourage people to contribute data.
- need to collect revenue to sustain a national database and the production of accurate genetic evaluations and management information.

Assuring the continual flow of dairy data (both phenotypic and genotypic) to a national database is necessary for the U.S. dairy producer to remain at the forefront of genetic technology and management tools for years to come. Being a world leader is critical for the success and prosperity of the U.S. dairy industry and individual farms.

The database that is accessed for our national

dairy Genetic Evaluation Program (GEP) is the collective effort of CDCB members. It contains tens of millions of cow records on milk yield and its components, conformation traits, incidence of disease, fertility, calving difficulty, incidence of stillbirth, pedigree information, etc. What makes this vast amount of information truly unique is its structure and quality. It contains the progeny test information of more large families than any other dairy population in the world. It's through CDCB's efforts and in cooperation with National DHIA's subcontractor, Quality Certification Services Inc., that the accuracy and integrity of this database meets and exceeds all international standards. More recently, this database has been augmented with more than 80,000 genotypes on important ancestors, current elite animals and animals with unique characteristics. This is an extremely unique and valuable database that will provide even better information. Implementation of new technology will help sustain and enhance data flow and results in the future.

USDA and the international community recognize CDCB as the governing body coordinating the data flow into the U.S. national GEP. CDCB is made up of representatives from organizations and associations that maintain breed registries, provide artificial insemination services or perform dairy recording services. Its board consists of nine directors, with three members from each of the three sectors. With two meetings per year, it has provided a forum for all interested parties to come together, share information and coordinate activities that improve dairy cattle genetics, management practices and the competitiveness of our industry. A close interaction with USDA-ARS scientists has provided us with rapid transfer of technology, an excellent way of obtaining feedback and a focus to the management and genetic needs of the dairy industry.

At its Oct. 28, 2009 meeting, a motion was made by John Meyer, Holstein Association USA, seconded by Neal Smith, American Jersey Cattle Association, and approved by the full Council to establish a Dairy Data Working Group "to assure

that high quality genetic evaluations for the U.S. dairy industry will be available well into the future. Items for review are: 1) identify data needs of the future; 2) what is the best service structure to secure data, calculate and distribute genetic evaluations? 3) how do we allocate financial responsibilities?"

After a year's worth of planning, discussion, legal review and presentations to the membership of respective organizations, CDCB and USDA-ARS representatives drafted their CA. The key objectives of this agreement are:

1. CDCB would guarantee to provide GEP access to CDCB members' database capable of producing unbiased and accurate genetic evaluations and management information.

2. ARS would guarantee that they provide necessary resources (scientists, computer hardware and support personnel) to continue to develop effective procedures for estimating the genetic merit of dairy animals and dairy management decision support information for production efficiency.

USDA-ARS scientists will

A. Have full access to the CDCB database to develop and test effective analysis procedures for the estimation of the genetic merit of dairy animals.

B. Continue to improve the accuracy of the genetic predictions of the economically important traits that are currently evaluated and develop new methodology for new traits and higher-density genomic data.

C. Periodically publish documentation of enhancement of procedures used to estimate the genetic merit of dairy animals and provide summaries of information to research and extension personnel, and to others for educational purposes as appropriate.

CDCB members will

A. Continue to collect phenotypic and genetic data.

B. Conduct an effective quality certification program to ensure that only high quality data are added to the industry database.

C. Host a web site for access by

those agreeing to CDCB's terms and conditions.

D. Facilitate USDA-ARS access to the industry database.

E. Employ sufficient personnel to work in collaboration with the Animal Improvement Programs Laboratory staff to manage the database, interact with data suppliers and calculate and distribute estimates of genetic merit to further improve the genetic merit of the U.S. and worldwide dairy industry.

The CA will allow USDA-ARS scientists to more fully concentrate on their research and remove them from any service commitment that accompanies the running of a national genetic evaluation system. Responsibilities for running and distributing the results from the joint CDCB-USDA genetic evaluations will be the CDCB staff's responsibility. These CDCB-supported individuals will be physically located right next door to USDA-ARS scientists in Beltsville, Md. Close collaboration between the two groups will be strongly encouraged.

Ownership of CDCB members' database will be clearly established. This will protect the wealth of data that farmers have contributed over the years and protect the confidentiality of new data, such as health and fitness information.

The USDA-ARS agreement with CDCB is non-exclusive. Other parties may enter into a research agreement with USDA-ARS. However, it is now clear that they must provide their own phenotypes and genotypes as their dataset. There will be no commingling of CDCB members' data without CDCB's approval.

The genomic testing of bulls, for everyone, is still scheduled for March 2013. The new CA will NOT extend that date. Parentage verification will become more accurate, efficient and cheaper by having one large database of genetic markers that can be easily updated and accessed by breed associations.

Funding of CDCB activities will be largely derived from CDCB members and a fee for genomic testing. The CDCB board of directors will determine the actual fee structure. However, it is

anticipated that the fee will depend on the animal's gender. Test fees on males will be more than females. Also, the fee will depend on whether or not the owner submitted data into the CDCB database. The lowest fee would be for someone participating in DHI production recording, type classification and the submission of calving ease and fertility data.

It's the desire of CDCB members and USDA-ARS to encourage as many farmers and outside organizations to participate in genomic testing. Greater volumes will be beneficial in several ways – by reducing individual testing fees for everyone and perhaps generating revenue that can be put back into the overall system. In addition to paying for some CDCB-supported staff, it will be beneficial for everyone to reimburse those that contribute data and/or provide the necessary processing services that assist the flow of data to and from the farm.

Since the early 1900s, the dairy industry and USDA have worked closely together. CDCB, through its member organizations, has compiled the largest database of quality-assured dairy information in the world. Providing CDCB the ability to collect new and novel traits and having staff that can assist in the transfer of ARS technology into the U.S. dairy industry will be a major benefit for everyone.

Through the joint efforts of CDCB members and ARS researchers, the U.S. dairy population has witnessed great advances in the improvement of genetic merit and production efficiency of U.S. dairy cattle. The objective of the new CA is that the organizations involved in the National Dairy Genetic Evaluation Program and management tools will maintain the long-standing and highly effective cooperation to serve dairy farmers well into the future.

The CA with USDA-ARS may be one small step for CDCB, but in the long run it may be viewed as a giant step in the preservation of our U.S. genetic evaluations and dairy management information.