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IT'S TIME TO RETHINK YOUR GENETIC IMPROVEMENT

STRATEGY TO COMBAT MASTITIS AND LAMENESS

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The use of beef sires on dairy cows and right-sizing heifer inventories have been some of the most sweeping changes on dairy farms in recent years.

Now that many of these changes have been implemented, it is worthwhile to spend a minute and think about how they might impact your future dairy herd.

The obvious impact is: As you raise fewer replacement heifers, the turnover rate of your herd will likely decline. The turnover rate of your herd determines the average age of the cows in your herd. As turnover rates decline, the average age of your herd increases.

Relationship between turnover rate and the average cow lifespan

Managing a herd made up of 40% first-lactation cows is different than managing a herd where 35% of the cows are fourth-lactation or greater. As the average age of your herd increases, achieving production goals will be easier, but you will have more challenges in keeping cows healthy and keeping days open at reasonable levels. Management changes that impact the size of your heifer inventory should also include a review of your genetic selection strategy.

TABLE 1 Relationship between turnover rate and the average cow lifespan

Turnover rate	Average number of lactations/cow
40%	2.5
33%	3.0
25%	4.0

Your selection index is the primary tool for implementing your genetic strategy. Reviewing this periodically is a crucial part of planning your dairy's future. Considering the herd demographic changes that are coming, shifting to more emphasis on direct selection of health traits should be seriously considered.

Another reason to consider more direct emphasis on health traits is that they typically have an unfavorable genetic relationship to production traits. As we select for more productive cattle, we unintentionally are breeding for cattle less resistant to disease. Like what we learned with fertility traits over the course of the last several decades, a similar situation exists with health traits.

Fortunately, we've had indirect genetic evaluations for health traits by selecting for things like Productive Life (PL) and Somatic Cell Score (SCS) that have allowed us to maintain genetic levels for resistance to disease. Availability of direct evaluations for health traits now makes selection for disease resistance more effective and can help us do better.

Most industry indexes like Net Merit Dollars (NM$) include health traits, but only with a small emphasis. Dairy Wellness Profit Dollars (DWP$) is an alternative that has a different approach. A quick comparison of the two indices shows the difference.

Comparison of trait weightings in NM$ and DWP$

One thing that stands out in this comparison is the difference in emphasis on mastitis resistance. Direct evaluations for mastitis have been available from Zoetis since 2016 and from the Council on Dairy Cattle Breeding (CDCB) since 2018.

TABLE 2 Comparison of trait weightings in Net Merit $ (NM$) and Dairy Wellness Profit $ (DWP$)

Trait	NM$	DWP$
Production	45%	36%
Mastitis, SCS	5%	14%
Fertility	10%	12%
Other cow health	21%	19%
Calving ability	4%	3%
Calf health	0%	6%
Conformation	10%	0%
Size	–5%	–10%

These evaluations are independently validated and, when conducting herd audits, it is clear these evaluations effectively identify cows that have the genetic capability to resist clinical mastitis. In Table 3 are genetic audit results for second-lactation cows in a large herd with genomic

evaluation results.

TABLE 3 CDCB gPTA for Mastitis Quartile Analysis of second-lactation cows

gPTA Quartile	Number of cows	Average gPTA mastitis	Average SCC	% of cows with mastitis
Lowest	399	–1.4	324	45.6%
2nd	409	0.0	199	38.1%
3rd	381	+0.8	206	29.4%
Highest	437	+2.0	132	21.0%

CDCB gPTA for Mastitis Quartile Analysis of second-lactation cows

Mastitis is a management challenge for almost all dairies. The costs of clinical and sub-clinical cases of the disease are significant, and it is a major reason why cows leave the herd. Now that we have evaluations which directly assess genetic resistance to mastitis, it is highly recommended traits like CDCB Mastitis Resistance and Zoetis Mastitis be included in selection indexes.

Lameness is another management challenge for most dairies and an important animal welfare concern. DWP$ is the only national index that includes lameness resistance. It is summarized in Table 3 as part of the Other Cow Health category. Traditionally, the industry has focused on feet and leg conformation traits as an indirect indicator of hoof health and mobility. When studying genetic evaluations of high-reliability bulls, we see the expected positive correlations between lameness resistance, Productive Life (PL) and Livability (LIV). Correlations of the conformation traits Feet and Legs Composite (FLC) and Feet and Legs Score (FLS) have negative correlations with PL and LIV, which is opposite of what we expect. The correlations between lameness resistance and the feet and leg conformation traits are slightly positive. Including lameness in your selection index will be much more effective at improving hoof health than using the traditional feet and leg conformation traits.

Correlation between common feet and leg traits and lifetime performance traits

DWP$ and NM$ are industry-wide indexes routinely available for your use. Industry indexes are very comprehensive to address the needs of a wide range of herds. They may not adequately address the uniqueness of your herd. They also may include more traits than what is needed for your dairy. Working with your genetic consultant to develop a customized index is a viable alternative to using national indexes. This can allow you the opportunity to focus on traits essential to your operation and to tailor the index to your specific milk pricing situation.

Whether you use a customized index or an industry-wide index, it is important to keep in mind the capabilities your cows will need to be profitable members of the herd in the future. As heifer inventories shrink and culling rates decline, future cows will need to have a higher level of disease resistance to allow them to last another lactation or two. Mastitis and lameness are among the most common health issues and should receive focus when choosing or designing a selection index.

TABLE 4 Correlation between common feet and leg traits and lifetime performance traits

Trait	Lameness	FLC	FLS
Productive Life (PL)	+0.25	–0.10	–0.22
Livability (LIV)	+0.27	–0.10	–0.23
Lameness	1.00	+0.14	+0.08

YOUR LOCAL CO-OP

GAVE BACK $385,458 IN 2020

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As a farmer owned and controlled cooperative, the success of member-owners is the top priority. An important benefit of cooperative membership is returning profits to member-owners. 2020 has proven to be a challenging year for many and has resulted in a year that your cooperative has given back like never before.

During the spring and summer of 2020, your local cooperative implemented a COVID-19 Relief Program to ease the unknown effects of the pandemic on member-owners. The program consisted of two parts. During the months of June, July and August, dairy customers received a 7% credit on all dairy semen purchased applied to their accounts in September. Similarly, for beef customers, a 7% credit was earned on beef semen purchases in April, May and June which will be applied to accounts in January 2021. This resulted in a total of $125,179.00 given back to members.

The second part of the relief program was the early return of 2018 Capital Credits. Effective June 15th, 2020 the Capital Credits owed for the 2018 business year were returned directly to member's Minnesota/Select Sires accounts. This resulted in a total of $99,296.50 being returned seven years earlier than the normal revolver calls for.

In addition, the usual obligation for Capital Credits being returned to members took place in December 2020 when the 2012 Capital Credits were returned totalling $160,982.00.

COWMANAGER INTRODUCES

NEW NUTRITION MODULE

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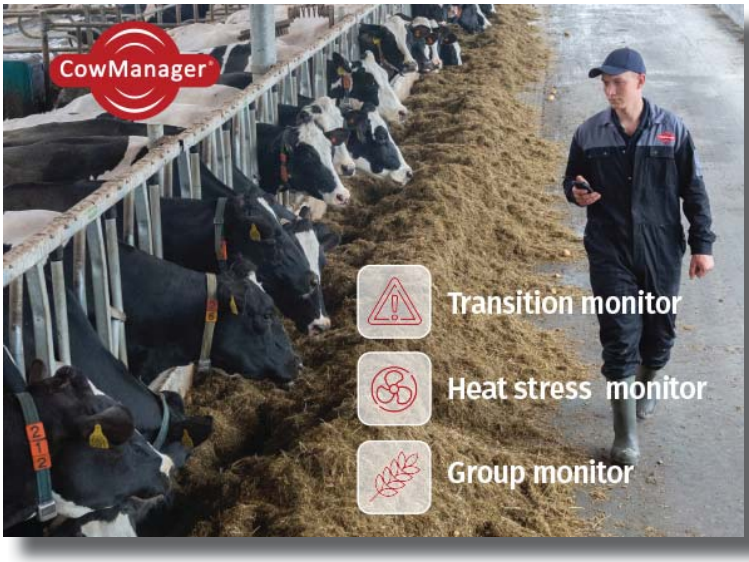

The new CowManager Nutrition Module identifies cows at risk weeks prior to calving and gives insights into feed and transition.

In early November, CowManager® launched a new Nutrition module that provides actionable insights regarding feed and transition management on dairy farms. The module has been expanded with clear graphs and user-friendly comparison functionality. Timely notifications regarding cows at risk during the transition period, heat stress, low feed intake, and herd health help to focus a producer's attention where it is needed most. These notifications allow the producer to approach herd management in a preventive, proactive, and precise manner, resulting in better cow health and a more productive herd.

Koen van Meurs, Head of R&D at CowManager, said, "Nutrition is of great importance to a cows' performance. It also accounts for the largest portion of the variable costs on farms. Having the right insights to make data-driven decisions about feed and transition management are key to successful and profitable farming. Machine learning technology helped us to create exactly these insights based on the behavior and temperature data we collected from millions of cows worldwide."

WORKING PREVENTIVELY

The transition period is the primary risk period where 75 percent of all adult cow disease events occur. In the past, producers could only dream of cows at risk being identified days or weeks before they became sick. Today this has become reality. Dry cows with decreased eating and rumination behavior will be flagged as being at risk of becoming sick after calving. Early intervention prevents losses and results in a healthier herd. All alerts within the Nutrition module are designed to foster preventive management practices.

OPTIMIZED FEED MANAGEMENT

The Nutrition module consists of various easy-to-read graphs offering full insight into the eating, rumination, and activity of each group of cows. The comparison functionality makes it easy to compare certain groups or time frames with each other, allowing the producer and nutritionist to evaluate the impact of ration changes and feed management in a fact-based and quick manner. Access to valuable herd data can be granted to trusted advisors through the MultiView function. The Nutrition module provides producers with the tools to take feed and transition management to the next level. More control and full insights will help producers achieve the goals they have set for their herds with better pregnancy rates, an overall healthier herd, lower feed costs and more milk per cow.

NEW CDCB TRAIT

FEED SAVED

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Genetic and genomic evaluations for Feed Saved (FSAV) will be provided for both Holstein males and females. The predicted transmitting ability (PTA) represents the expected pounds of feed saved per lactation based on Body Weight Composite (BWC) and Residual Feed Intake (RFI) evaluations. Larger, positive values are more favorable. Daughters of a sire with a FSAV of +200 are expected to consume on average 200 pounds less feed per lactation than expected based on their levels of milk, fat and production. Daughters of a sire with a FSAV of -300 pounds are expected to consume an average of 300 pounds of feed per lactation more than expected.

BENEFITS OF FSAV

- Feed costs can make up over half of the total costs on a dairy farm. Selecting for more feed-efficient cows can reduce these costs and improve profitability.
- Improving the efficiency of dairy cows will help reduce the amount of natural resources and energy needed to produce and process feed required.
- Several studies have shown that cows that are more feed-efficient also produce lower methane emissions.
- Genetic selection for feed efficiency supports industry goals to reduce the environmental footprint of dairy production.

FSAV is not intended to be used as a stand alone trait when selecting bulls. Select Sires has incorporated FSAV into our Herd Health Profit Dollars (HHP$) index (formerly referred to as SSI Health $) with December evaluations. It is now also included in calculations for the FeedPRO® designation in Dec 2020 and will be included in the net merit indexes with the April 2021 proofs.

If you have questions about FSAV, please contact your local Minnesota/Select Sires team member.

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