CLARIFIDE® PLUS ENHANCES KEY FINANCIAL DRIVERS IMPACTING NET FARM INCOME

Zoetis teamed with an agricultural banking and consulting institution to identify dairy operating measures that correlate with the financial health of contemporary dairy farms. From this, six key financial drivers of Net Farm Income on dairies were identified: net herd replacement costs, pregnancy rates, heifer survival, energy corrected milk, somatic cell count, and death loss in cows.

CLARIFIDE® Plus enhances the ability to improve the outcomes of these financial drivers by improving the ability to genetically select for key performance and wellness-related traits with the inclusion of two unique components developed by Zoetis:

- **Wellness traits** for cows include genomic predictions of disease risks in Holstein dairy cows - mastitis, lameness, metritis, retained placenta, displaced abomasum and ketosis (introduced March 2016) – and impact several financial drivers.
- **Calf wellness traits** (introduced March 2018), including genomic predictions of calf livability, respiratory disease and scours, helps enhance two important financial drivers for dairy producers—improving heifer survival and lowering net herd replacement cost.

A BETTER WAY TO GENOMICALLY SELECT AND BREED FOR MORE PROFITABLE ANIMALS WITH DWP$®

Producers can make more informed genetic decisions about the animals in their herds with reliable information from the cow and calf wellness traits provided by CLARIFIDE Plus. This can best be accomplished with the use of the unique comprehensive animal ranking selection index called **the Dairy Wellness Profit Index® (DWP$®)**, only found with CLARIFIDE Plus. With DWP$, producers can positively impact all of the important financial drivers of net farm income (NFI).

Variable	Correlation w/NFI[1]	Impact of CLARIFIDE Plus on financial drivers
Net herd replacement cost*	-0.33	Reducing net herd replacement cost is important and possible by right-sizing heifer inventory with the right genomic heifer selection strategy and improving cattle livability with the Zoetis cow and **calf wellness traits**.
21 day pregnancy risk	+0.29**	Increased days open is expensive. Genomic selection of **Daughter Pregnancy Rate** is an important part of the Dairy Wellness Profit Index® **(DWP$®)**.
Heifer survival rate, %	+0.18	Keeping calves healthy is beneficial. Genomic selection for **Calf Livability**, plus **Calf Scours** and **Calf Respiratory** traits can help improve chances that animals will survive and thrive post-birth to calving. Use as part of the **DWP$** index.
ECM lb./cow/d	+0.17	Higher production per cow is related to increased profitability. Genomic selection for **Milk**, **Fat** and **Protein** are important in **DWP$**.
Somatic cell count	-0.16	Investing to produce high quality milk is profitable. Genomic selection using **SCS and the Zoetis Mastitis** traits are important parts of **DWP$**.
Death loss (%)	-0.13	Death losses hurt profitability. Genomic selection using Zoetis **cow wellness traits** plus **Livability** are important within **DWP$**.

*Net herd replacement cost, $/cwt ECM (difference between replacement cow value and book value of dead + sold cull cows [for dairy or beef]
** Small sample size: 106 observations

DWP$® - THE RIGHT ANIMAL RANKING SELECTION FOR PROFITABILITY

Selection indexes are critical components of any genetic selection strategy because they provide an easy-to-use and meaningful way for producers to rank and select animals for comprehensive genetic improvement across a host of traits. Selection indexes are important because they not only include traits producers are trying to improve, but also can help producers protect against going backwards in traits they might not otherwise realize. A great example of this is if a producer chooses to only select for production traits, but not reproduction, they will likely experience serious consequences in future herd fertility, given their negative relationship.

The Dairy Wellness Profit Index® (DWP$®) was derived using standard selection index theory and used economic values utilized in primary Net Merit (NM$) traits in addition to economic values in peer-reviewed, published literature for cow and calf wellness traits. DWP$ includes six wellness traits for the most common dairy cow diseases, plus three calf wellness traits. To analyze and compare selection indexes, it is important to compare expected genetic response, and not necessarily compare the weights of traits going into the index as that can lead to misinterpretation. The expected response to selection per one standard deviation of genetic improvement for DWP$ is compared to a common industry index of NM$ in the chart below. It shows that for the primary traits (left side), there are minor differences in the expected response to the chosen selection index when comparing NM$ and the DWP$ index. But more compelling, is that current indexes, such as NM$, do not include key calf (or cow) wellness traits. The DWP$ index helps improve, sometimes significantly, all cow and calf wellness traits more than NM$ does, thus improving their progress towards enhancing overall herd health and productivity starting as calves and taking them to end of life.

TABLE 1. EXPECTED RESPONSE TO SELECTION PER STANDARD DEVIATION OF GENETIC IMPROVEMENT IN THE INDEX[2]

Genetic Trait	DWP$	NM$
Milk	305 lbs	259 lbs
Fat	18 lbs	16 lbs
Protein	12 lbs	10 lbs
Productive Life	1.94 mo	1.96 mo
Cow Livability	0.67%	0.78%
SCS	-0.06	-0.07
Body Size	-0.06	-0.04
Udder	0.40	0.36
Feet/legs	0.25	0.24
Dtr Preg Rate	0.51%	0.57%
Heifer CR	0.55%	0.52%
Cow CR	0.85%	0.89%
Calving Ability$	$ 9.73	$ 9.31

Genetic Trait	DWP$	NM$
Z_Mastitis	1.63	0.27
Z_Lameness	0.94	0.07
Z_Metritis	2.01	1.58
Z_RP	0.86	0.52
Z_DA	1.24	0.92
Z_Ketosis	2.00	1.82
Z_Calf Livability	1.53	0.93
Z_Calf Respiratory	0.50	0.02
Z_Calf Scours	1.64	1.36

Data on file, Jan. 2018. Zoetis Inc. – calculated using indexes as of April 2018.

CLARIFIDE Plus enables producers to genetically select and breed towards more profitable cows more confidently with the use of DWP$, all to achieve your dairy wellness outcome goals in combination with sound management practices. Genomic testing with CLARIFIDE Plus also is in alignment with the findings of the key financial drivers to assure your future success.

1. Data on file, Dairy Scorecard Project no. 14CARGOTH01, Zoetis Inc.
2. Data on file, January 2018, Zoetis Inc.

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