



## What's Coming in April 2024?

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With the April 2024 official genetic evaluation release just around the corner, let's take some time to highlight the exciting new services and updates that are coming. In addition to the usual annual updates, Lactanet is finetuning the trait adjustments in the type composite indexes, publishing carrier probability values for two new haplotypes, expanding the functionality of the Inbreeding Calculator to better manage mating decisions, and offering genetic evaluation uploading for DairyComp users.

### Pro\$ Updates

Every year the [Pro\\$ formula](#) for the Holstein, Ayrshire, and Jersey breeds is updated with the latest economic values. As costs have continued to rise during the past year, with relatively small changes to the milk pricing levels contributing to revenues, the profit calculated for cows up to six years of age or disposal have decreased compared to the 2023 Pro\$ calculation. The scale of Pro\$ is maintained such that each Pro\$ point is

equal to an extra dollar of profit for each daughter. A decline of overall profitability therefore causes a decrease in Pro\$ for top animals in the population. Together with the April 2024 base change update, the top 100 proven sires for Pro\$ last December will see their Pro\$ decrease an average of 645, 293, and 479 dollars for the Holstein, Ayrshire, and Jersey breeds, respectively. The Pro\$ values of these top animals are lower but Pro\$ continues to allow for the selection that maximizes genetic response for daughter profitability.

## Traits Adjustments in the Type Composite Indexes

For the April 2024 genetic evaluation release, modifications will be made to the adjustments to Stature and Teat Length in the Mammary System composite, as well as to Stature and Rear Legs Side View in the Feet & Legs composite. The magnitude of change for the various trait adjustments for each breed are very minor. The one notable change is the adjustment to Rear Legs Side View (RLSV) in Holstein. The original Feet & Leg composite index in this breed required additional weighting on RLSV to achieve neutrality and away from selecting toward straight legs, however, today, the correlation is no longer present, and the adjustment is nearly eliminated. Therefore, Holsteins with more extreme RLSV proofs will see greater change in their Feet & Legs proofs.

## Annual Updates

At the time of the April release each year, there are several updates that are automatically conducted. These include the annual updates to the [genetic base](#) used for each trait in the seven breeds and updated parameters used in the [LPI formula](#), in addition to the Pro\$ update discussed above. Also, in April in more recent years, Lactanet has been updating the sire proof interpretation table for linear type traits for all breeds. These tables were created in December 2020 to aid in the

understanding of sire proofs and their relationship with the expected average daughter linear scores. The April 2024 Interpretation tables can be found [here](#).

## Inclusion of New Haplotypes

Two new haplotypes will be added to the Lactanet website this genetic evaluation release, including Early Onset Muscle Weakness Syndrome in Holsteins (HMW) and the Brown Swiss Fertility Haplotype BH14. BH14 is a lethal haplotype that causes early pregnancy loss and was first reported by Switzerland in 2022. The CDCB began reporting BH14 haplotype results in April 2023 and Lactanet is now using the CDCB results to calculate carrier probability values for non-genotyped animals as well. For this reason, BH14 Carrier Probability values will be displayed on the Lactanet website in advance of April 2024.

Early Onset Muscle Weakness Syndrome was first discovered in Holsteins in 2022, which is characterized by calves that are unable to stand within the first six weeks of life and presents itself with varying degrees of severity. It is now recognized as a genetic condition by Holstein Canada and other national associations. Based on DNA from affected calves, a gene test was developed, which is now used by AI companies to identify bulls that are carriers or free of the undesired gene. Lactanet has received over 14,000 gene test results for Muscle Weakness, and will continue to do so on an ongoing basis, which will be displayed on the website in the following format: MWF for tested non-carrier (i.e.: Free), MWC for tested carrier (heterozygous), and MWS for tested true carrier (homozygous). The same MW condition codes will be displayed on the Holstein Canada website and included in outgoing data files from Lactanet.

Like BH14, Lactanet has calculated carrier probability values for the Haplotype for Muscle Weakness (HMW), based on haplotype results first released by CDCB in December 2023, along with known gene test results

and pedigree data. There is some complexity to the carrier probabilities as “Probable Carriers” and homozygous animals are sometimes able to survive. Carrier Probability values will be displayed on the Lactanet website using asterisks similar to the Haplotype Associated with Cholesterol Deficiency (HCD) where a double asterisk (\*\*) signals the animal is expected to be affected (i.e.: homozygous) and a single asterisk (\*) indicates the animal has a possibility of being affected. In advance of the April 2024 genetic evaluation release, Muscle Weakness gene test results and carrier probability values for HMW will be available on the Lactanet website.

## Tool to Manage Undesirable Conditions and Haplotypes

Over time, strong genetic selection in the dairy industry has led to a higher genetic relationship between top bulls and females. This close relationship has resulted in higher inbreeding levels and the spread of undesirable genetic abnormalities. To help manage known undesirable genetic conditions and haplotypes and make better breeding decisions, Lactanet is modifying the current [Inbreeding Calculator](#) to identify potential matings that have a risk of producing a pregnancy or calf affected by these undesirable genes. The Inbreeding Calculator is a popular tool on the Lactanet and CDN websites used for over 20 years to view pedigree inbreeding levels and Parent Averages for each potential mating under consideration. A new column titled “GC”, meaning “Genetic Conditions”, is being added to the Inbreeding Calculator display to highlight genetic conditions with a carrier probability of 25% or higher for the selected mating animal. A mating risk calculation will be done across all undesirable genes to reflect the probability the resulting pregnancy or calf will be affected by at least one of the undesirable conditions or haplotypes. In the list of potential mates for the given animal, a warning sign or stop sign will be shown in the “GC” column to reflect the mating

risk:

- If the mating risk is below 1% then the “GC” column will be left blank for that specific combination of the animal and potential mate.
- ⚠ Producers should proceed with caution with the mating, as the probability of producing an affected pregnancy or calf is at least 1% but less than 6.25%.
- ❌ It is not recommended to proceed with the mating as the probability of producing an affected pregnancy or calf is 6.25% or higher.

In addition to these changes, a pop-up window with carrier probability values for the main genetic conditions and haplotypes known in the breed will also be added to each animal’s Genetic Evaluation Summary, Inbreeding Calculator and Pedigree pages on the Lactanet website. This pop-up box stemmed from a Lactanet Resolution and can be found by hovering over the animal’s name or clicking on the icon at the end of the list of genetic condition codes displayed below each animal’s name. The upgraded Inbreeding Calculator and pop-up box will help producers easily view genetic conditions and haplotypes to avoid problematic matings. The pop-up box will be available before the April 2024 genetic evaluation release and the Inbreeding Calculator changes will be launched shortly after in April. Keep an eye out for additional information!

## Genetic Evaluations in DairyComp

Effective April 2024, Canadian producers will have easy access to their genetic and genomic results right in DairyComp! A feature will be added to DairyComp that will allow users to import the data file containing 30+ genetic values from the iLOOP. The first files will be available for the official genetic evaluation release on April 2, 2024. Each DairyComp user will have the ability to select from the 30+ genetic fields including LPI, Pro\$, Production, Type, and Functional traits. It is not a complete list of genetic evaluations, but this can be expanded, and we welcome feedback.

In addition, the genomic status for every herdbook registered female in the herd will be imported allowing users to easily see if the data is a genomic evaluation (i.e.: GEBV, GPA).

The genetic evaluations uploaded to DairyComp are the most accurate for herd management and genetic selection decisions since the evaluations are based on unsupervised milk recording as well as unofficial monthly updates as new performance data gets added. The same evaluations are also used in Compass, for creating the DHI Genetic Herd Inventory reports, and shared with AI companies offering a mating program in Canada. As such, the specific values may be different compared to those displayed on the Lactanet and industry partner websites, which are updated only in April, August and December each year. After initial setup, the genetic and genomic data will be automatically uploaded to DairyComp once a month for all registered animals in the DHI herd inventory. As heifers get genotyped, their initial parent average (PA) values will automatically be updated to their genomic parent average (GPA). Contact DairyComp [customer services support](#) today to get set up!

## Summary

As genetics continues to evolve, Lactanet remains dedicated to providing updates and improvements to our genetic tools and services. The genetic evaluation release in April 2024 will include key annual updates, revisions to the type composite traits adjustments, Muscle Weakness and BH14 haplotypes, as well as new services to the Inbreeding Calculator and DairyComp!





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