Réseau laitier canadien
Canadian Dairy Network

Type Evaluations: Why Not Use All Classifications?

In May 2006, the genetic evaluation system for type traits was changed for all dairy breeds to include only first lactation classifications and reclassifications. This change raised questions from producers about type indexes for two specific groups of cows:

- Cows that were reclassified at least once after first lactation, especially those that were reclassified several times throughout their lifetime, and
- Cows that were, for one reason or another, never classified in first lactation since they no longer receive an official domestic index for type traits.

During the past year, researchers at Canadian Dairy Network (CDN) have worked diligently to address these producer concerns and presented thorough reports at open industry meetings held in September 2006 and March 2007. In the end, no changes will be made to the current type evaluation system so why could classifications and reclassifications after first lactation not be included in genetic evaluation calculations?

The Challenge

The Canadian Multi-Breeds Classification system is a state-of-the-art package for accurately and consistently evaluating the body conformation characteristics of dairy cattle, regardless of breed. It is undoubtedly a world-leading system in terms of technology and sophistication that also provides excellent reports and associated information for the herd owner. For this reason, it is logical to make every attempt possible to include all classification data in the calculation of bull proofs and cow indexes for the various type traits.

The challenge to geneticists, however, is to develop genetic evaluation procedures that appropriately deal with the special nature of the type classification data available in Canada. More specifically, these challenges arise due to the following characteristics of the Canadian type classification system:

(1) Classification policies require all unclassified first lactation animals in the herd to be evaluated by the classifier with the only exception being those that are out of condition (i.e.: too fresh or very sick). This policy is strongly adhered to given the classifier's availability of the herd inventory based on the previous milk recording herd visit. After a cow has been classified once, there is no requirement to present her to the classifier or request that she be reclassified at subsequent herd visits. The frequency of reclassifications within each herd is mainly a function of the herd owner's philosophy towards the value of such information for breeding and/or marketing purposes. Some herd owners feel it is important to have as many cows as possible reappraised by the classifier at each herd visit and they are willing to pay the associated fees for those cows that do receive an official reclassification. The philosophy of others may be more conservative to a point where they see little or no value in paying for reclassifications, except in rare cases. This inconsistency

to recording reclassifications across herds creates a significant challenge for geneticists to incorporate them into the calculation of genetic evaluations for bulls and cows.

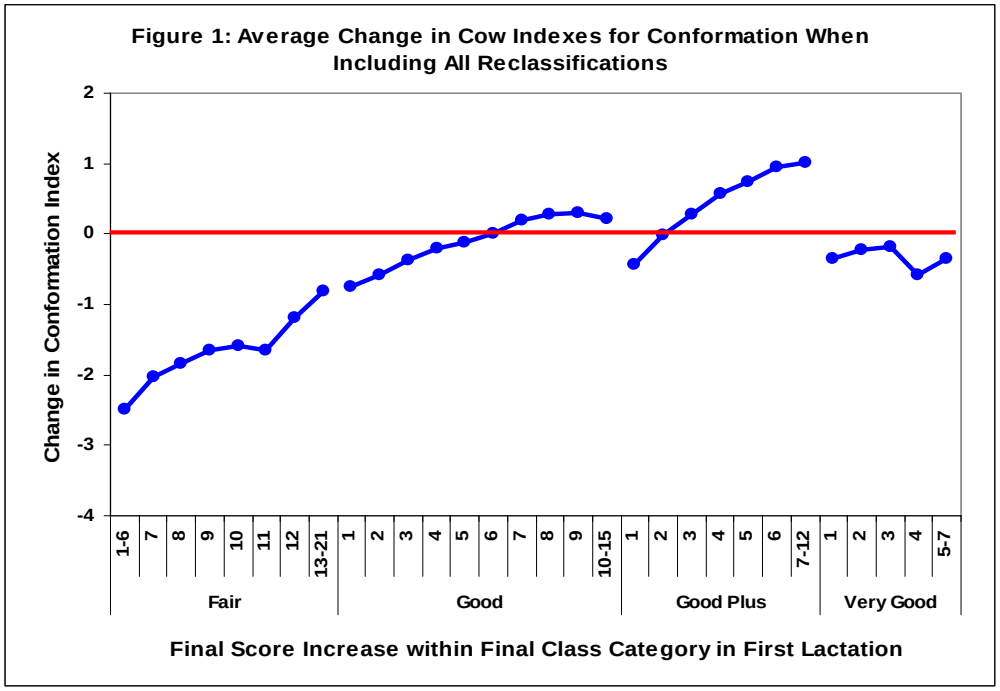
(2) The policy for awarding an official reclassification requires the cow's Final Score to increase by at least one point. Therefore, the data available for genetic evaluations includes reclassifications for cows that are presented and improve over time but excludes records for cows that were either not presented to the classifier, did not change from their previous classification or, in fact, would have decreased in Final Score. This type of selection in terms of data recording creates additional challenges for geneticists.

(3) Cows that have not yet calved for the third time are restricted to a maximum Final Score of 89 points, meaning they cannot achieve the status of "Excellent". After the third calving, however, the classification scale is extended to scores in the mid-90s, which is a third factor that somewhat complicates the use of reclassifications in the calculation of genetic evaluations for type traits. On other hand, cows originally scored "Very Good" in first lactation have less room to increase in Final score compared to cows with lower first lactation classifications.

Later Lactation Reclassifications

CDN researchers applied several ideas and methods for using all classifications to calculate type evaluations for bulls and cows and the most recent results were presented at an industry meeting held in late March 2007. Figure 1 shows the impact of this revised methodology on the official cow type indexes, which are currently based on only first lactation classifications and reclassifications. For cows scoring "Fair" or "Very Good" in first lactation, Figure 1 shows that the inclusion of all reclassifications in genetic evaluations consistently dropped the average Conformation index, regardless of how much their Final Score increased throughout their lifetime. This trend was also observed for cows that were scored "Good" in first lactation but did not increase more than five points for Final Score in their lifetime. On average, "Good Plus" cows in first lactation did increase their Conformation index with the inclusion of reclassifications in the genetic evaluation.

Feedback from producers and industry personnel indicated that these changes in official cow indexes were not as expected when reclassifications are added. Cows that continue to improve with age, and are reclassified accordingly, are expected by producers to increase their Conformation index. Theoretically, the expectation is that similar proportions of animals will increase as decrease with the inclusion of reclassification data, if the genetic evaluation system uses this additional information correctly. Since this expected result was not observed in the CDN research, it has been decided to not include all reclassifications in the calculation of genetic evaluations for type traits in Canada.



Cows Not Classified in First Lactation

A second group of cows examined in the CDN research were those that were never classified in first lactation but were, however, scored in a later lactation. This situation arises when cows that have completed their first lactation are purchased from unclassified herds or are imported into Canada from the United States. Cows in herds that enrol on type classification for the first time or that do not type classify in every round may also fall into this category, without a first lactation classification. Currently, later lactation classifications are not used for genetic evaluation so these cows do not receive official domestic indexes for type traits.

When the research at CDN examined the possibility of adding each cow's first classification even if it was after the completion of their first lactation, the resulting impact on published cow indexes also raised questions from producers and the industry. Here, again, it was concluded that the proposed procedures for including these classifications in the genetic evaluation calculations could not overcome the challenges associated with the special nature of this data.

Summary

Research has been ongoing at CDN to develop procedures that would allow for the inclusion of classifications and reclassifications after first lactation for genetic evaluation of bulls and cows. Due to the different strategies among herds for identifying animals to be reclassified, as well as the requirement that reclassification records must increase in Final Score, it has not been possible to correctly incorporate this additional source of classification data into the type evaluation system. While further research in this area is expected to be pursued, bull proofs and cow indexes for type traits in Canada will continue to be based on all first lactation classifications.

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