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Roger's Record News

All-Breed Animal Model Evaluations - May 2007

An all-breed animal model for routine genetic evaluations of all US dairy cattle was implemented with the May 2007 release by AIPL (USDA). Records from cows of all breeds, including crossbreds, are now combined and analyzed together in one animal model. An all-breed approach is beneficial for several reasons.

Evaluations are calculated initially on an all-breed base and then converted to traditional within-breed genetic bases for publication. This allows for the inclusion of all relatives' data whereas previously only pedigree data of relatives within a specific breed were considered. In addition, previously only the crossbred animals identified with the breed associations were included at all. Now, all animals, registered or grade, having sire ID will be included in the evaluations. Thus, the all-breed model has resulted in a significant increase in usable daughter records for many Brown Swiss bulls.

In addition to the increase in number of daughters included, appropriate adjustment for heterosis effects can now be taken into account. It is well known that Brown Swiss first crosses (F1) perform very well, exhibiting significant heterosis. This is now adjusted for in estimating the breeding values of the parents. Apparent declines were attributable mainly to this heterosis adjustment and the additional pedigree information for crossbred animals.

All of these advantages not only apply to the daughters of bulls being evaluated, but also to the herdmates of these crossbred animals. This is very beneficial in making management group comparisons in mixed-breed herds. Previously, in a mixed herd having only a few animals of one breed, it was very difficult for those cows to receive an evaluation. With the all-breed model, these cows will receive evaluations.

The all-breed model probably impacted the Brown Swiss breed more than any other due to the significant use of Brown Swiss bulls in crossbreeding, as many first crop bulls had limited number of purebred daughters and a surprising number of crossbred daughters. The PTA changes for Active AI Brown Swiss sires were: -278 milk; -11.8 fat; -9.3 protein; -0.6 PL; 0.0 SCS; -0.2 DPR; -89 NMS. The significant changes in usable data resulted in an increase in Reliability of 1.3%, an additional increase of 32 daughters per bull, and an increase of 17 herds per bull (based on 46 active AI sires).

The main focus should always be on the **RANKING** of the bulls and not the actual number values. The new evaluations are based on more complete data and more accurate adjustments. Hence the use of the new ranking system for Brown Swiss - Progressive Performance Ranking (PPR).