Changes to Evaluation System - February 2006

Daughter pregnancy rate for foreign bulls

By Paul VanRaden

A multi-trait prediction of daughter pregnancy rate (DPR) is now substituted if no single-trait DPR evaluation is available. Previously, a parent average or pedigree index was substituted for missing DPR. For domestic bulls, daughter fertility records are used at 130 days in milk and thus predicted transmitting abilities (PTA) for DPR are available very soon after production PTA. For foreign bulls, Interbull provides PTA for production, conformation traits, productive life, somatic cell score, and calving ease, but not DPR. The multi-trait methods developed for productive life are now used for DPR, but only if PTA DPR is missing. The most highly correlated traits to predict missing DPR are productive life in a positive direction and production traits and somatic cell score with negative correlations. Dairy form could further increase the reliability of DPR predictions but will require some additional programming.

Average DPR decreased by 0.4 from -0.3 to -0.7 for the top 100 foreign bulls based on November 2005 Net Merit, while average reliability of DPR increased by 12% from 28% to 40%. Very few domestic bulls are affected by this change, but evaluations of cows with no fertility records now include multi-trait DPR instead of parent average DPR. Many embryo donor dams now have lower PTA DPR because their fertility records are not used and lower fertility is expected with high production. With some additional processing, multi-trait DPR could be computed for all domestic cows and bulls. Intial testing on the top 100 domestic bulls based on Net Merit indicates that a switch from single-trait to multi-trait DPR would decrease their average DPR by .2 and would increase their DPR reliability by 7% from 42% to 49%. Interbull is developing multi-trait across-country evaluations for fertility (Jorjani, 2005) that are expected to provide more accurate DPR rankings for foreign bulls within the next year or two. Thus, this change is a temporary solution to more accurately estimate missing DPR for foreign bulls.