AIPL Changes to Evaluation System - February 2003

Daughter Pregnancy Rate

By Paul VanRaden, Ashley Sanders, Melvin Tooker, George Wiggans, Robert Miller, and Duane Norman

Predicted transmitting abilities (PTA) were introduced for daughter pregnancy rate (DPR). Breeders should use these new evaluations to select for improved cow fertility. PTA DPR is provided for both bulls and cows, but reliabilities (REL) average only 60% for recently progeny tested bulls and 30% for recent cows. The range of PTA is small compared to observed differences in fertility because the heritability for DPR is 4%. Pregnancy rate measures the percentage of nonpregnant cows that become pregnant during each 21-day opportunity period. An announcement from December 2002 provides more detail on data, calculation, and interpretation of DPR. Further research on cow fertility is documented in several abstracts recently submitted for the 2003 American Dairy Science Association annual meeting.

The main advance since December is the inclusion of a pregnancy confirmation code in the edits. This code, which we began collecting in August 2002, allows the success or failure of the last insemination in the last lactation to be verified by veterinary diagnosis. All other lactations are verified using next calving date. Some bulls and cows evaluated for yield traits do not yet have an evaluation for DPR. PTA and parent average are missing for these animals in the February 2003 files but will be provided for all animals in May 2003. If reliability of DPR is 0, the PTA should not be displayed.

The DPR evaluations should be considered preliminary because they are not yet included in Net Merit or other indexes. Research will continue on methods to use pregnancy rate data earlier in lactation, to include DPR in multi-trait predictions of productive life (PL), and to determine an appropriate economic value for DPR. Direct selection for cow fertility using DPR should be more effective than indirect selection using PL.

Changes in type evaluations for non-Holstein breeds

By George Wiggans

For type evaluations from Interbull for traits with low reliability, the evaluation is replaced by an estimate from a correlated trait if the reliability of a correlated trait after being multiplied by the square of the correlation is higher. The reliability is set to the squared correlation times the reliability of the correlated trait. The trait for which this reliability is highest is selected. Previously this procedure was used only to fill in missing traits. The replaced values are distributed to breed associations and AI organizations and are included in the type composites used in calculating Net Merit $.

An earlier set of (co)variance components was used for the Brown Swiss type traits because the new set has not been used for an Interbull test run. Because November 2002 evaluations were calculated with the new set, those evaluations were excluded from the Interbull evaluations. The February 2003 evaluation was calculated with the old set so they would be accepted by Interbull. Evaluations from the new set will be used for to the March 2003 test run.
