Changes to Evaluation System - August 2003

Fertility and calving ease in Net Merit

By Paul VanRaden and Tony Seykora

The Net Merit formula was revised to include newly evaluated traits. Daughter pregnancy rate (DPR), a measure of cow fertility, receives 7% of total selection emphasis. Service sire calving ease (SCE) and daughter calving ease (DCE) each receive 2% of total emphasis. The 11% of emphasis for new traits required a reduced emphasis for some other traits, primarily milk volume and productive life. Economic values are those proposed in June; details can be found in Lifetime Net Merit - 2003 revision. For recent progeny tested bulls, the new Net Merit formula has a correlation of .98 with the previous formula used since August 2000 and should lead to increased genetic progress worth $5 million per year on a national basis.

The definition of conformation (type) composites for the minor breeds has changed since the June 2003 proposal. Previously, Holstein definitions were applied to all breeds. Recent research sponsored by the other breed associations has provided Functional Trait Indexes and a Functional Udder Index that predict productive life and clinical mastitis, respectively. The relative values from this research provide udder composites and feet/leg composites that are used in calculating Net Merit, but these composites are not published separately. Teat length receives substantial negative selection emphasis (shorter teats) and rear legs - side view receives more negative selection emphasis (straighter legs) in the minor breeds as compared to the Holstein composites.

Holstein cows and foreign Holstein bulls will have pedigree indexes for SCE and DCE calculated from .5 sire PTA + .25 maternal grandsire PTA + .125 maternal great grandsire PTA, etc. for all generations in the maternal line, with breed mean replacing any unknown ancestors. These pedigree indexes for calving ease are used in calculating Net Merit but are not published separately.

New variances for Ayrshire type traits

By George Wiggans and Jan Wright

New estimates of variance components were introduced for evaluation of type traits for the Ayrshire breed. Changes in variance component estimates were made for Brown Swiss, Guernsey, and Milking Shorthorn breeds in May 2003, but computational problems delayed changes for Ayrshire and Jersey breeds. New variance component estimates are also complete for the the Jersey breed, but can not be implemented until passing the Interbull test run in September. Ayrshire data is being submitted to Interbull for the first time for the September test run.
