

Conclusions

A common ranking of dairy bulls for production traits using a linear model analysis of de-regressed national proofs, has been proven feasible across several EC countries. Evaluations from USA were included to improve connectedness of the data. Results have indicated consistency between the international evaluation system and the national evaluation systems in the participating countries.

When proofs of imported bulls were excluded from the data, some results were affected. In general, exporting countries were favoured by the presence of proofs based on imported semen. Possibly due to higher semen prices associated with imported bulls, their proof in the importing country may be based on biased records. Sources of bias could be: a) preferential mating to elite cows, b) preferential treatment of daughters, c) selective usage of bulls in high variance herds, d) heterosis. Although a), c), and d) may be, theoretically, accounted for in the national evaluation, preferential treatment of daughters remains a serious problem. Results from this pilot study showed evidence of this bias. The fact that conversions between countries may be calculated based on such biased proofs should raise several concerns.

When EC bull rankings are obtained from linear model analysis of national proofs and utilize all known relationships among bulls, only data from the country of first sampling can be considered and potentially biased information based on imported semen can be excluded. This would give an improvement over the currently used conversions, on a fair comparison of bulls among different countries.

European Community bull rankings by methods described in this report depend largely on separate national evaluation systems in participating countries. These systems are expected to account as much as possible for potential sources of bias; it is also assumed that all evaluation models consider similar effects. With the introduction and wide implementation of the individual animal model, consistency across national evaluation systems has improved.

Results from this study indicated differences among participating countries in estimation of yearly change in average bull evaluation using EC proofs and pedigree indices based on sire and maternal grand-sire. This could reflect differences in maternal grand-dam selection among countries. Another explanation, however, might be inconsistencies in genetic progress estimation in some national evaluation systems; in such case validation of genetic progress estimation should be addressed at the national evaluation level using the methods described by Bonaiti (1993). Biased results in any country would affect international comparisons either with the conversion or the linear model method. Continuation of efforts to harmonize genetic evaluation procedures in various countries is needed.

On the assumption that national proofs are unbiased in the country of first sampling and that there is no genotype by environment interaction among EC countries, dairy bull rankings using the international linear model can be readily obtained and provide useful selection tools across Europe.