JOINT NORDIC GENETIC EVALUATION OF DAIRY CATTLE

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Abstract. Four Nordic countries: Denmark, Finland, Norway and Sweden have decided to move to a joint genetic evaluation of dairy cattle. A joint evaluation is needed to improve the accuracy of across country evaluation in a joint Nordic breeding program of which the breeding organisations in these countries have agreed.

Multiple Across Country Evaluation (MACE) has been used successfully in international evaluation for production traits, type traits, somatic cell count and mastitis. The results in other MACE studies have shown that the genetic correlation between countries is high enough for many other functional traits, too. In the future research in the Nordic project we will concentrate on Nordic linear models fitting the data from all four countries. MACE will be employed only as a preliminary analysis to investigate the genetic correlation between the countries.

In the first model for a joint evaluation on production traits we will use very similar modelling within the countries under a joint across country model that countries are using today. Combining different data from each country, tracing female pedigrees, forming unified genetic groups, correcting for the within herd and within country heterogeneous variance and including foreign bull information are the major challenges in the joint evaluation. The preliminary results of combining a test day model from one country and a 305 day lactation animal model from the other country have shown that a Nordic model on milk traits is technically possible. The results look very promising when comparing the old national model to a new joint model.

The aim of this paper is to describe the rationale behind the joint Nordic breeding program, the problems and preliminary results in a joint prediction of breeding values and discuss the advantages of joint genetic evaluation.

Keywords: across country evaluation, breeding program.