ATTEMPTS TO APPLY THE DIRECT SIRE COMPARISON
TO THE *FLECKVIEH* POPULATION IN BADEN-WüRTTEMBERG

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Since several assumptions of the herdmate comparison, which is the current method for sire evaluation, are no longer valid, besides other improvements attempts are made to use the « direct sire comparison » as proposed by Henderson. On account of the small herd size all lactations are used and the records are adjusted for age and month of calving. The sires are grouped according to their date of birth in order to account for genetic trend. For computation of sire effects and group effects mixed-model equations are formed where the herd equations are absorbed into sire equations. Accounting for relationship among sires is possible. The equations are solved iterative and the sire proofs are computed by twice the sum of sire effect plus the corresponding group effect. For the computational procedures a Fortran program has been written.

ESTIMATION OF AGE CORRECTION FACTORS
OF THE *FLECKVIEH* POPULATION IN BADEN-WüRTTEMBERG

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In the first part, the current age correction method, employed in Baden-Württemberg is presented. By this method, it is assumed that there are no gedetical differences between lactations and that the age influence within lactation on lactation yield can be neglected.

In the second part age correction factors are calculated with three different on the models basis of 87 100 lactations from registered *Fleckvieh* cows. Model 1 conforms to the gross Comparison (GC) method, model 2 and 3 conform to the maximum likelihood (ML) method. GC factors are biased, because of selection and genetic trend. ML factors possess the properties of unbiasedness and minimum variance; they are based upon both intra-cow and inter-cow information.

The constants for lactations are presented in a table. They indicate that the bias in the Gross factors is rather small.

The age effects within first and second lactation on lactation yield are significant and cannot be neglected in the future,

The interactions between calcing seasons and lactations are not important.

They indicate however, that older cows are more severely affected by summer calving than are heifers.

THE MODIFIED CUMULATIVE DIFFERENCE

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The method adopted in Israel of estimating breeding values has been described. In sire evaluations, the first three lactations and the length of the calving interval are taken into account and the effects of the sires of the herdmates and of the dams are evaluated. Contemporary Comparisons for calf mortality, for growth rate of sons and for conformation of daughters, days open and dry, yield persistency and daughter disposal rate are computed. In cow evaluations the effects of the sires of the cow and of the herdmates are taken into account.

COMBINED INDEX FOR MILK PRODUCTION
AND GROWTH RATE AS SELECTION CRITERIA
OF PERFORMANCE TESTED AI BULLS

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The reliability of a pedigree index for milk production was checked in a comparison with the progeny test indexes of 206 bulls. The correlation was found to be 0.41, which is in acceptable agreement with the theoretically expected value.

The pedigree index for milk has also been combined with the growth rate index. The purpose of the combined index is to enable a simultaneous selection of young AI bulls to be made for these two traits.

The value of the combined index as a tool for the selection of performance-tested young bulls is dependent on the efficiency of the prior pedigree selection for milk production. The combined index was calculated on 62 performance-tested bulls. The pedigree index for milk production had, in this material, a greater influence on the value of the combined index, than had the index for growth rate. In both materials used, the bulls showed considerable variation in pedigree index values. The findings indicate that a combined index should be used for the selection of performance-tested bulls going into AI service.

A NOTE ON THE EFFECT OF HERD PRODUCTION LEVEL
AND HERD × SIRE INTERACTION
ON THE ESTIMATION OF BREEDING VALUES FOR AI BULLS

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According to several authors, the genetic variation is greater at a higher level of production than at a lower. Breeding values estimated at a higher production level may therefore differ from those estimated at a lower level. This difference may in turn affect the ranking of the sires if their daughters are distributed at various production levels. From the linear moder $Y_{ijk} = \mu + h_i + s_j + (hs)_{ij} + e_{ijk}$, where the different genetic variation is represented by the interaction term, it is possible to calculate how great the difference in herd level between two groups of daughters will have to be in order to affect the ranking. When the daughters are randomly distributed among herds, the differences in herd production level between sires are too small to affect the ranking. Under Swedish conditions this is the case within the AI studs. However, the test bulls are not used outside their own AI stud and as there are geographical differences in production levels, the fact that the genetic variation is higher at a higher production level may affect the comparison of bulls from different studs.

SOME PROBLEMS IN DETERMINATION OF BULL'S BREEDING VALUES

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This work studies the problem of the making of the rank list of the breeding bulls tested according to the productivity of the daughters for milk and milk-fat quantities. Five bulls of the black-white race were investigated and the test was made by the method CC, twenty in all, with 14. days control, while the calculation was made for 100, 200 and 305 days.

In cider to avoid incorrect calculations only cattle with at least 305 days lactation were taken into account.

The results show that at the first rank list (100 days of lactation) the positive and negative variants are being distinguished, while the same cattle retain the same places up to the end of the control i.e. 305 days of the lactation. In the other intervals of the milk quantity control the order is changed but this change is not so high for the milk-fat quantity. Therefore we think it is more reliable to make a rank list according to the total milk-fat quantity in any interval of the test. The investigations show that it would be certain even with only 100 days control, which is necessary for the test of the young bulls going to be artificially inseminated.

II. — Efficacité économique des programmes
de sélection porcine

EFFICACITÉ ÉCONOMIQUE DES PROGRAMMES DE SÉLECTION PORCINE :
INTRODUCTION

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L'efficacité économique de la sélection porcine dépend en premier lieu d'une définition adéquate de ses objectifs, qui sont multiples, et de leur importance relative. Cette définition, qui dépend des conditions économiques propres à chaque pays, est la base de l'établissement des indices de sélection.