

The overlapping of individual breeds in traits of growth intensity and carcass value was estimated. The amount of this overlapping is remarkable and indicates also the necessity of further differentiation within breeds, especially the developing of specialised lines for crossing.

Various combinations of crossbreeding elected on the basis of their theoretical profit functions were already verified and compared with imported *Dutch Hypors*. Only two line hybrids are included. Some of them are however used for further crossing to produce the final three line hybrids.

The hybridisation program in pig breeding is organised by the Hybridisation Commission at the Ministry of Agriculture under the heading of the director for animal production.

### Efficacité statistique des expériences d'élevage

#### COMBINATION OF INFORMATION FROM DIFFERENT SOURCES FOR ESTIMATION OF GENETIC PARAMETERS

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With some sets of data, heritability and other parameters such as genetic correlations can be estimated in more than one way. For example, when data are available on both parents and progeny heritability can be estimated both by the regression of progeny on parent and by intra-class correlation of sibs. Alternatively this information can be combined, perhaps by maximum likelihood, into a single estimate.

The use of maximum likelihood in the estimation of genetic parameters is reviewed and it is argued that it is a very appropriate method, both when data have to be combined and when they are unbalanced, even if only in the progeny generation. The efficiency of alternative designs for heritability estimation are compared, and it is found that the most efficient simple estimate is the regression of offspring on parents selected for extreme values of the trait, with maximum likelihood improving the estimation by a small amount, particularly at low heritabilities.

The effects of poor estimates of parameters on the operation of selection schemes are illustrated for the case of selection indices using individual and sib data on a single trait. In this example progress is very little reduced by errors in the estimates.

#### STATISTICAL AND ECONOMIC EFFICIENCY IN CROSS BREEDING EXPERIMENTS

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Given the costs of measuring progeny and sires for a beef breed testing program it is desirable that the most efficient experimental design in terms of number of progeny per sire and numbers of sires per breed be used. The program can have as its objective to achieve either maximum power of the test between breeds subject to fixed total cost or minimum cost subject to fixed power of the test, in both cases having a fixed level of significance (type I error) in the test. Algorithms based on the non-centrality parameter of the non-central *t* distribution are presented to derive the best design in these two situations. These algorithms can be used manually or can be programmed for computer use.

#### A METHOD TO ESTIMATE THE APPROPRIATE SELECTION INTENSITY FROM SKEWED DISTRIBUTIONS

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In the present study an attempt is made to develop a method to find the appropriate selection intensity in animal breeding when dealing with skewed distributions. Monte-Carlo simulation was applied to obtain adjusting factors ( $\hat{f}$ ;  $\hat{f}^*$ ). Mass selection is assumed.