MÖGLICHKEITEN DER CONTINUIRLICHEN HYBRIDISATION IN DER SCHWEINEZUCHT

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In der allgemeinen Auffassung der Tierzüchter gilt die Hybridisation im ihrer Discontinuirlichen Form als normal. Während der Züchterischen Verwirklichung des *ungarischen KA-HYB* Hybridschweines, trafen wir uns im Jahre 1967-68 mit dem Problem zuerst, dass die beständige Zuchttierenzufuhr in erster Linie nur der Kleinbetrieben ausführbar ist. Die Grossbetriebe — ab 400 Zuchtsauen und der dazugehörenden Mast — sind geneigt dazu : einen Anfang mit modernen Material zu machen, sind aber nicht geneigt jedes Jahr etwa 1/3 des Mutterbestandes neu dazukaufen.

Das ist zu kostspielig, und bringt Tiergesundbeitliche Gefahr mit sich.

Wir entwickelten daher in unserer Arbeit eine Kontinuirliche Art von Hybridisation seit dieser Zeit. Unsere Populationsgrösse/jährlich 1,3 Mill. Mastschweine/erlaubt es, die gefundenen Tendenzen als sichere erklären zu dürfen. Wir fanden in ausgedehnten Untersuchungen, dass der Kreuzungseffekt — basiert auf den allgemeinen Kombinationseffekt — zu prolongieren ist. Die « Endprodukte » waren als Mütter nicht sehlechter als ihre eigene Mütter, falls der väterliche Partner günstig war.

Erfahrungszusammenfassung :

1. Die Rekrutation des Zuchbestandes Kostet so bedeutend weniger.
2. Die Tiergesundheit im Betrieb ist nicht gefährdet durch einem ständigem Zukauf.
3. Die Adaptation zu den Betriebsverhältnissen der eigenen « Endprodukt-Jungsauen » ist günstiger.

EVALUATION OF PERFORMANCE AT SLAUGHTER OF TWENTY THREE-BREED CROSSES OF PIGS

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Two uncastrated males from each of 620 litters were fed *ad libitum* to 90 kg market weight at three stations. The pigs represented 203-breed crosses produced by mating *Yorkshire, Landrace, Lacombe, Hampshire* and *Duroc* sires to *Landrace-Yorkshire, Hampshire-Landrace, Large Black-Lacombe, Large Black-Landrace, Duroc-Lacombe* and *Duroc Yorkshire* dams. The data on feed conversion, average daily gain, age at slaughter, backfat thickness and area of loin eye muscle were analysed by least-squares.

Within breed cross of dam, the pigs sired by *Hampshire* were consistently superior in feed conversion, carcass quality and in three crosses out of five had the fastest growth rate. They were however, the oldest at 90 kg liveweight. Pigs sired by *Duroc* ranked second in carcass quality and growth rate whereas those sired by *Landrace* were significantly the slowest in growth; The pigs produced by *Hampshire-Landrace* sows were superior in carcass quality but inferior in feed conversion, and growth to those produced by the other five crosses.

HYBRIDISATION PROGRAMM IN PIG BREEDING IN CZECHOSLOVAKIA

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In 1971 the main breeding and economic principles of a federal hybridisation program were elaborated including the construction of profit functions for individual breeds and various combinations of crossbreeding. The classical pyramid structure was adapted in such a way to be fully used for the production of final hybrids. This three-tier structure enables the use of boars of outstanding quality from the nucleus to multiplier and commercial herds.

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 ($\hat{f}$; $\hat{i}^*$). Mass selection is assumed.