

### A CANADIAN FIELD TEST OF FINNISH AYRSHIRES : GROWTH AND REPRODUCTIVE PERFORMANCE

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An experiment was designed to obtain progeny test comparisons of *Finnish* and *Canadian Ayrshire* bulls used in Canadian herds. Eight bulls, 4 *Finnish* and 4 *Canadian*, were used in 60 cooperator herds located in the provinces of Quebec and Ontario. Among the 32 Quebec herds, 351 inseminations by *Finnish* bulls and 393 inseminations by *Canadian* bulls were performed. Percent nonreturn rates were 73 and 72 p. 100 for the *Finnish* and *Canadian* bulls respectively.

Shortly after their birth, 83 bull calves were obtained from the cooperator herds and placed on a growth trial at a research station where average daily gain to 135 kg, feed efficiency and carcass yield were measured. Progeny test results showed a growth advantage of .35 kg per day for the *Canadian* bulls and *Canadian* bulls tended to be superior for feed efficiency. Little difference in carcass yield was noted. The experiment is continuing with level of milk production, growth rate and mature size of the female progeny as the traits of major interest.

### HERITABILITY ESTIMATES FOR MILK FLOWRATE IN GERMAN RED AND WHITE CATTLE

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In Rheinland-Pfalz, a state in the West of the German Federal Republic, a routine procedure was used since 1969 to collect data on milk flow rate of heifers. The test was performed between third and fifth month of lactation, minimum milk yield required for testing was 3 kg per milking. By the so-called simple test procedure — the regular technician measured milk yield and milking time on the usual test-day-milk flow rate was determined as the average amount of milk per minute (kg/min.). Records of 14 744 heifers were used for computation of regressions and nested analyses of variance.

Regression of milk flow rate on milk yield was  $b = 0.15$ . This coefficient was used to correct milk flow to a milk yield of 8 kg per milking. Quadratic or cubic regressions did not fit the data better than linear regression. Influence of stage of lactation, *i. e.*, days in milk, was very low.

Nested analysis of variance (heifers/herds/technicians/sires) yielded a high value for heritability ( $h^2 = 0.61 \pm .08$ ). This value was supposed to be inflated because of the unfavourable structure of the data. Analysis of a selected well-structured subset of the data yielded a very low heritability estimate for milk flow rate ( $h^2 = 0.10 \pm .08$ ) and a little higher estimate for the herd-mate deviation ( $h^2 = 0.20 \pm .10$ ). Although most authors found higher estimates for milk flow rate these values are thought to be reliable for the simple test procedure. The low heritabilities shed new light on selection for this trait within cattle breeding programmes. In particular, the economic importance of milk flow rate must be reconsidered.

### DIE BEDEUTUNG DER MELKBARKEIT FÜR DIE SELEKTION

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In der vorliegenden Arbeit sind die Wirtschaftlichkeitskoeffizienten und, aufgrund der jeweiligen phänotypischen Standardeinheit die Relation zwischen Melkbarkeit und Milchmenge in verschiedenen Melksystemen geschätzt. Mithilfe einer Modellrechnung ist auch der genetische Fortschritt kalkuliert. Für die durchschnittlichen Bedingungen in Slowenien ist das standardisierte Verhältnis zwischen Milchmenge und Molkbarekeit mit 1 : 5 — 6 bestimmt. Deswegen bringt eine Indexselektion auf beide Eigenschaften eine um 5-7 p. 100 grössere wirtschaftlich-genetische Verbesserung, als die alleinige Selektion auf Milchmenge. Etwa 1/3 dieses Selektionserfolges ist für die Kosten der Melkbarkeitsprüfung aufzubringen.