

I. — Appréciation de la valeur héréditaire des femelles

PROBLEMS IN COW EVALUATION AND CURRENT USE OF COW INDEX REPORT OF A WORKING GROUP ON COW EVALUATION

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A survey has been made by the study group of present utilization of cow indexes that are considered important for efficient cow selection. Among other problems the following are considered most important and should therefore receive greater attention in index constructions and related research:

- The aggregate genotype should be properly and equally defined for both cows and bulls when calculating the index weightings for different sources of information.
- The effects of expressing yield in absolute vs. relative terms at various yield levels.
- Methods of evaluating the genetic merit of the individual herds and considering the genetic trend of the population.
- Comparing the effects of different methods of adjustment for environmental factors including construction of herd average.
- The effects of environmental correlations between the cow and her dam.
- Ways of testing the efficiency of different cow index constructions.

COW EVALUATION IN NORTH AMERICA

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To date, cow evaluation, both genetic and phenotypic, has primarily been for milk and fat yield. For these traits, the estimation procedure is quite sophisticated. While there is considerable variation among DHI computing centers, many dairymen on test receive routine estimates of the producing ability and the transmitting ability of their cows. The degree to which this information is used appears to be highly dependent upon the effectiveness of the extension education program in the particular state. The cow index calculated by U.S.D.A. has become the major criteria of selection for dams of young bulls.

Estimates of breeding values of cows for other traits are nearly nonexistent. As the economic importance of other traits is determined, procedures for obtaining data and for estimating breeding values will need to be developed.

Presently, culling guides are mainly based on current lactation production or on production on current test day. Little emphasis has been placed on projection of net returns.

ON THE THEORY OF DAIRY COW EVALUATION

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Two problems arising in dairy cow evaluation are discussed. The first deals with the appropriate definition of the genetic-economic value of a cow. In many cases the marginal gain of one unit of milk yield in the first part of the lactation is much lower than in latter parts, and the heritabilities of the different part yields are different. Under such conditions the application of