

## Fédération Européenne de zootechnie

(F.E.Z.)

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HARROGATE, GRANDE-BRETAGNE

### 21<sup>e</sup> session de la Commission de génétique

## Résumés des Communications

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A Harrogate, la *Commission de Génétique* de la F.E.Z. a tenu six séances d'une demi-journée.

La première séance, conjointement avec la *Commission de Production Bovine* était consacrée aux « Décisions d'élevage à l'intérieur du troupeau ». Elle était présidée par le D<sup>r</sup> STALINSKI (Pologne).

La seconde séance, où il était question de l' « Évaluation des influences génétiques et maternelles lors des expériences d'élevage et leurs effets sur le dispositif expérimental » était présidée par J. L. FOULLEY (France).

La troisième séance était également une séance conjointe, avec la *Commission de Production ovine et caprine*, cette fois, et le thème en était « estimation de la valeur génétique des moutons ».

Autre séance conjointe avec la *Commission d'Alimentation des Animaux*, la quatrième séance traitait des « Bases génétiques et nutritionnelles de l'efficacité alimentaire ».

Quant aux séances V et VI, c'étaient des séances ouvertes avec « boîte aux suggestions ».

Comme pour les précédentes réunions annuelles de la *Commission de Génétique* de la F.E.Z., qui rappelons-le, est présidée par le D<sup>r</sup> SKJERVOLD (Norvège) avec le D<sup>r</sup> AVERDUNK pour secrétaire, les A.G.S.A. publient les résumés des interventions prévues au programme et qui leurs sont parvenus dans les délais sous forme de résumés et dans la langue choisie par l'intervenant.

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## I. — Décisions d'élevage à l'intérieur du troupeau

THEORETICAL ASPECTS OF WITHIN HERD SELECTION IN DAIRY CATTLE

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and

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A theoretical analysis is made of the optimal culling or selection policy among cows to maximize mean yield in herds which do not breed bulls, but use those nationally available by A.I. For simplicity the analysis deals mostly with an idealized case where voluntary culling

on yield is carried out only on the basis of first lactation yield. A formula is developed for computing the optimal culling rate, which is a function of the expected difference in yield between first and later lactations and of the repeatability of yield.

The mean yield of the current herd is little affected by culling. At the optimum of about 70 per cent of cows retained, the increment in yield is around 1 per cent, so it is likely to be more economic to bring fewer heifers into the herd and practise a minimum of culling. If a substantial genetic trend is incorporated and yield is to be maximized in later generations, the benefits of culling are greater and fewer animals should be retained after first lactation. The greatest benefits from culling are obtained if it is practised in mid-lactation.

#### INFLUENCE OF DIFFERENT REPLACEMENT CONCEPTS UPON PROFITABILITY OF DAIRY CATTLE

N. KÜNZI

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A model describing dairy herd dynamics and profitability is presented, using the following parameters: replacement rate, survival rate, calving interval, max. number of lactations. Age composition and performance are computed with the aid of these parameters. Gross margin is defined as: income from milk, surplus cows and calves, less costs for feeds and replacement females. Firstly, the effect of different replacement procedures on herd profitability is treated. Secondly, the economic consequences of changing parameter values is demonstrated. Considering genetic progress and appropriate estimation of breeding values for replacement females leads to increased genetic progress on the dam — daughter pathway. If large differences in genetic levels between herds or between strains exist, then replacement females with high genetic levels can be produced. This increases culling rates of old cows which results in a decreased herd life. The consequence is a forced replacement of old cows and therefore a decreasing average herd life.

#### ACTUAL SELECTION DIFFERENCES WITHIN HERD FOR NORWEGIAN RED CATTLE

E. FIMALAND

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Selection differential for the path of dam to daughter is generally small in the population of N.R.F. The selection differential increases by increasing herd production levels. The culling intensity seems to be equal for cows calving in different months.

#### THE INHERITANCE OF CONFORMATION TRAITS IN BRITISH FRIESIANS

A. E. McCLINTOCK, L. K. O'CONNOR

*Milk Marketing Board, Thames Ditton, Surrey, England*

The Milk Marketing Board of England and Wales' AI Service progeny tests approximately 130 Friesian bulls each year in co-operating milk recorded herds. In the three years 1976, 1977 and 1978 the conformation of 20,819 Friesian heifers in such herds was assessed using a 10 point scale for each character.

Nine dairy conformation traits were scored for each heifer: Head, Neck and Shoulders; Body Capacity; Top Line and Rump; Legs; Feet; Fore Udder; Rear Udder; Teat Shape; Teat Position. In addition, a beef shape score using a 1 to 5 scale was recorded for 11,205 heifers assessed in 1978.

A hierarchical analysis of variance was carried out and components of variance estimated for sires within herds, herds within areas, areas within regions, and regions within years. For each of the 10 traits, there were significant differences between sires within herds, herds within areas, and areas within regions. Some year and region within year effects were also significant.