

A PRELIMINARY COMPARISON OF LATER LACTATION YIELDS
OF DIFFERENT FRIESIAN STRAINS IN POLAND

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SUMMARY

Second and third lactation records of F_1 cows from the FAO trial in Poland were used to compare dairy performance of different Friesian strains. Data included only cows that were culled after second and third lactation. In total, 2 513 second lactation records and 1 949 third lactation records were available for analysis.

Least squares analysis of variance was carried out separately for each lactation. The ranking of strains based on second and third lactation records was similar as in the first lactation. The North American Holstein, Israeli and New Zealand Friesians were superior in milk and fat production. Due to adverse environmental factors the average yield in the second and third lactation was lower than in the first.

These preliminary results present ranking based on the group of culled cows and may change when all data are available.

INTRODUCTION

Large-scale importation of North American Holstein-Friesians to Europe began in the early seventies. First reports, particularly from W. Germany and The Netherlands, indicated significant superiority of Holsteins over European Black Pieds in dairy performance. Growing exchange of semen between dairy populations prompted the FAO to initiate the international comparison of several Friesian strains. The research project "Testing of different strains of Friesian cattle," coordinated by the FAO, was designed to compare genetic values for milk and beef production of progeny of bulls from different Friesian strains in Polish commercial farms. The participating countries provided technical and scientific advice through the Technical Advisory Committee established by the FAO in 1972 and subsequently disbanded in 1984.

MATERIAL AND METHODS

Nine countries - the United States, Canada, Denmark, the United Kingdom, Sweden, the Federal Republic of Germany, The Netherlands, Israel and New Zealand - consigned frozen semen to Poland in 1974 and 1975 from samples of then unproven young bulls. Semen was delivered in two batches. The average number of semen doses per bull was 225 in the first batch and 250 in the second batch. The total number of bulls was 388 (37 to 40 per country). The semen was used to inseminate Polish Black and White cows in the State-owned commercial farms. The comparison of strains was made by the use of F_1 progeny of Polish Black and White cows inseminated with semen delivered by participating countries.

Detailed description of the experiment was presented by Stolzman et al. (1981).

Least squares analysis of variance was employed separately for each lactation and included fixed effects of herd-year-season of calving, fixed effects of strain and linear regression on age at calving.

RESULTS

Table 1 presents the least squares solutions for dairy performance expressed as a percentage of the Polish strain means. The average milk yield of about 6 500 F₁ heifers in the first lactation was 3 468 kg, fat yield was 139.0 and fat content was 4.01%. In our sample of culled cows later lactation records were lower: 3 237 kg of milk, 130.0 kg of fat and 3.95 % fat content in the second lactation and 3 350 kg of milk, 132.1 kg of fat and 3.93% fat content.

The ranking of strains in second lactation is similar to the first lactation. North American Holsteins and Israeli Friesians produced the most milk and fat, followed by the New Zealand strain. In the third lactation the differences between strains were smaller but ranking remained similar with North American and Israeli Friesians outproducing the other strains. New Zealand was ranked third, based on the first lactation fat yield, but in the second and third lactation ranked fourth.

DISCUSSION

The economic crisis and adverse weather conditions were probably the main reason for lower milk production in later lactations of F₁ cows.

Despite lower level of production, the ranking of strains remained basically the same as in the first lactation. These preliminary results are based on a group of culled cows; therefore, they do not represent the performance of all F₁ cows subsequently available for analysis.

REFERENCES

STOLZMAN, M., JASIOROWSKI, H., REKLEWSKI, Z., ZARNECKI, A. and KALINOWSKA, G. 1981. Friesian cattle in Poland-preliminary results of testing different strains. World Animal Review, 38, 9-15.

Table 1. Least squares solutions for milk and fat yield in second and third lactation of F_1 cows expressed as a percentage of the Polish strain means (bottom line)

Strain	Second lactation				Third lactation			
	Milk kg	Fat kg	Fat %	Days in milk	Milk kg	Fat kg	Fat %	Days in milk
	%	%	%	%	%	%	%	%
USA	117.7	116.3	98.6	103.4	113.8	111.6	98.3	102.3
Canada	117.1	116.6	99.5	103.0	115.3	113.2	98.5	102.7
Denmark	103.4	105.4	101.9	101.5	100.3	99.7	100.0	100.1
UK	107.6	107.9	100.3	101.0	106.2	105.6	99.8	101.7
Sweden	109.8	110.8	100.8	102.3	107.1	106.4	99.6	101.6
W.Germany	108.2	107.8	99.8	102.3	104.6	103.9	99.6	100.1
Netherlands	106.0	106.4	100.4	101.6	98.2	99.1	100.9	99.9
Israel	116.1	116.1	100.1	103.4	112.9	110.4	98.7	101.2
New Zealand	110.6	113.5	102.6	102.7	105.1	107.3	102.4	100.9
Poland	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	3047.1kg	120.0 kg	3.93%	277.4days	3067.5kg	120.8kg	3.90%	277.2days

Minimum number of observations was 144 and maximum 279 per strain