Performance of Friesian and Brown Swiss Cows Raised on the University Farm in Tripoli

I. Dairy characters

ADNAN O. DARWASH[1]

ABSTRACT

The performance of Friesian and Brown Swiss cows, imported from Holland and Austria respectively, was studied. A total of 159 calvings and 141 lactations for both breeds were described. Milk production of Friesian cows was higher than that attained by the Brown Swiss throughout the five lactations. It was 4,205, 4,496, 4,827, 4,970, 4,355 Kilograms for the Friesians and 3,163, 3,466, 4,043, 4,058, 4,043 kgs for the Brown Swiss during the 1st, 2nd, 3rd, 4th and 5th lactation, respectively. The difference between production means was significant ($P < .01$) during the first two lactations. Butter Fat production was 3.25, 3.34, 3.15, 2.82, 2.59% for the Friesians and 3.45, 3.18, 3.35, 3.16, 3.43% for the Brown Swiss during the five lactations, respectively. The difference in fat production between the two breeds was not statistically significant. The duration of lactations was within the normal range of 10 months. It was 319.3, 302.8, 301.7, 287.8, 285.0 days for the Friesians and 292.6, 293.3, 310.8, 271.0, 325.5 days for the Brown Swiss cows during the five lactations, respectively. The difference in the length of lactations between breeds was not statistically significant. Age at freshening of Friesian cows was significantly lower than that of the Brown Swiss ($P < .01$). It was 25.3 months for the Friesians and 29.4 months for Brown Swiss cows.

INTRODUCTION

In an attempt to improve the productivity of indigenous cattle and to increase the supply of milk and butter fat, a number of foreign breeds has been introduced into the L.A.R. over the last fifty years (9). At present, cattle development plans are giving high preference to the importation of the Friesian breed (2). Although Friesian cattle has defined itself as the most suitable breed in a number of subtropical countries (4,8,10), however, very scant information on its performance in this country is available.

The purpose of the present paper is to study the performance of Friesian and Brown Swiss cows imported from abroad and raised on the University farm at Sidi El-Mesri in Tripoli.

[1] *Assistant Professor, Dept. of Animal production, Faculty of Agriculture, University of Tripoli.*

MATERIALS AND METHODS

Friesian and Brown Swiss heifers, pregnant four to seven months, were imported from the Netherlands and Austria, respectively. All heifers have freshened between December 1967 and April 1968. Calves were separated from their dams immediately after parturition and were bucket fed until weaning. Cows were fed, according to production, a concentrate ration containing 16 percent crude protein and a good quality hay supplemented with wheat or barley straw. Since grazing was limited to certain days during winter; green alfalfa was supplied every other day throughout the year. All cows were kept in open sheds and were brought to the milking barn twice daily. Milking was done with machines and a sample was taken once a month for milk and butter fat testing. Records were adjusted to 305 day production as suggested by Rice (13). Statistical analysis was carried out and the differences between means were tested for significance as outlined by Steel and Torrie (14).

RESULTS AND DISCUSSION

1. Milk Production

As can be seen from Table 1, the adjusted 305-day production of Friesian cows was higher than that of the Brown Swiss throughout the five lactations studied. It was 4,205, 4,496, 4,827, 4,970, 4,970, 4,355, kilograms for the Friesian cows and 3,163, 3,466, 4,043, 4,058, 4,034 kgs for the Brown Swiss during the 1st, 2nd, 3rd, 4th and 5th lactation, respectively. The difference between corresponding production means was statistically significant ($P < .01$) during the first two lactations. Milk production of Friesian cows had continued to increase during the four lactations but a slight decrease was observed during the fifth (Fig. 1). Although milk production of Friesian cows was found to be less than that reported for the same breed in temperate regions, U.S.A. (3) and Holland (1), however, it was higher than that attained in Iraq (11), Egypt (8) and Turkey (5).

The production of Brown Swiss cows during the first two lactations was rather low, but it did increase during the last three. The reported production figures for this breed were in general higher than those obtained in this study (3,7). In both groups some individuals have attained a production level similar to that of the same breeds in temperate regions. This lead to the conclusion that high milk production can be realized if superior cows were raised and if the necessary requirements for such types of cattle were considered.

2. Butter Fat Production

Butter fat test of Friesian and Brown Swiss cows was lower than that reported for the same breeds (1,3,7). It was 3.25, 3.34, 3.15, 2.82, 2.59 % for the Friesians and 3.34, 3.18, 3.35, 3.16, 3.34 % for the Brown Swiss during the 1st, 2nd, 3rd, 4th, and 5th lactation, respectively (Table 1). Although the butter fat production of the Brown Swiss was higher than that of the Friesians, however, the difference was not statistically significant. This decrease in fat test was attributed to the high environmental temperatures and to the overfeeding of concentrate rations whenever a shortage in the hay supply was encountered. It was concluded that the production of butter fat was more affected by the local conditions and managerial practices than milk production.

Table 1 Dairy characters of Friesian and Brown Swiss cows.

Breed	Lactation order	305 – day Milk Prod./Kgs.			Butter Fat %			Length of lactation/Days			Age at lactation/months		
		No. of cows	Mean ±	t.05 × $s_{\bar{x}}$	No. of cows	Mean ±	t.05 × $s_{\bar{x}}$	No. of cows	Mean ±	t.05 × $s_{\bar{x}}$	No. of cows	Mean ±	t.05 × $s_{\bar{x}}$
Friesian	1	26	4,205** ±	409.5	33	3.25 ±	0.54	26	319.3 ±	22.1	32	25.3 **	± 2.0
	2	24	4,496** ±	409.8	26	3.34 ±	0.76	24	302.8 ±	24.2	26	40.2	± 1.8
	3	21	4,827 ±	477.0	20	3.15 ±	0.18	22	301.7 ±	28.0	20	52.3 **	± 0.67
	4	15	4,970 ±	604.0	12	2.82 ±	0.33	19	287.8 ±	22.9	16	64.4	± 2.9
	5	11	4,355 ±	883.0	6	2.59 ±	0.33	12	285.0 ±	38.0	13	77.6	±4.0
Brown Swiss	1	10	3,163	518.0	14	3.45 ±	0.17	13	292.6 ±	44.77	16	29.4	± 1.88
	2	11	3,466 ±	533.0	12	3.18 ±	0.22	11	293.3 ±	31.9	12	43.5	± 3.35
	3	8	4,043 ±	805.0	9	3.35 ±	0.23	8	310.8 ±	51.0	9	57.2	± 5.30
	4	8	4,058 ±	1262.0	8	3.16 ±	0.42	8	271.0 ±	51.0	8	69.8	± 6.8
	5	7	4,043 ±	957.0	4	3.42 ±	1.0	6	329.5 ±	90.0	6	85.8	± 4.65

**Differences among corresponding means of Friesian and Brown Swiss cows were significant at ($P < .01$).

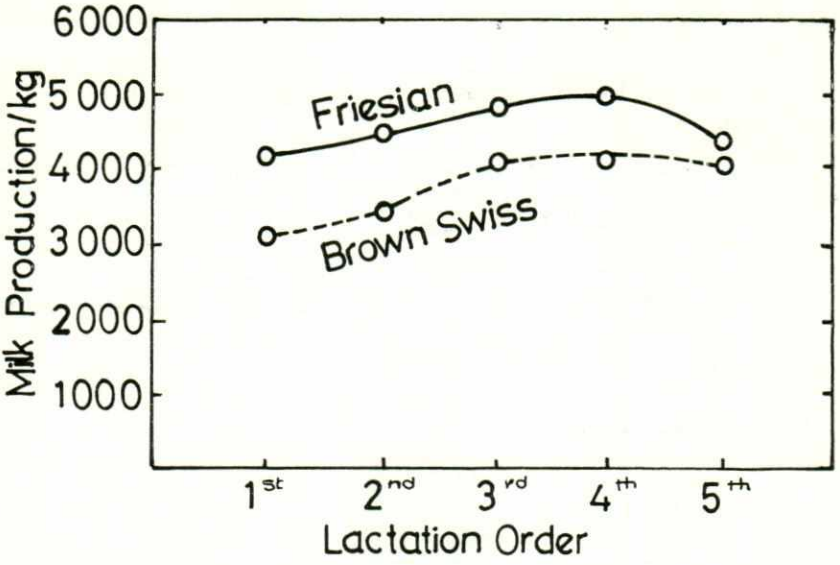

Fig. 1. Milk production (Adjusted 305-days) of Friesian and Brown Swiss cows.

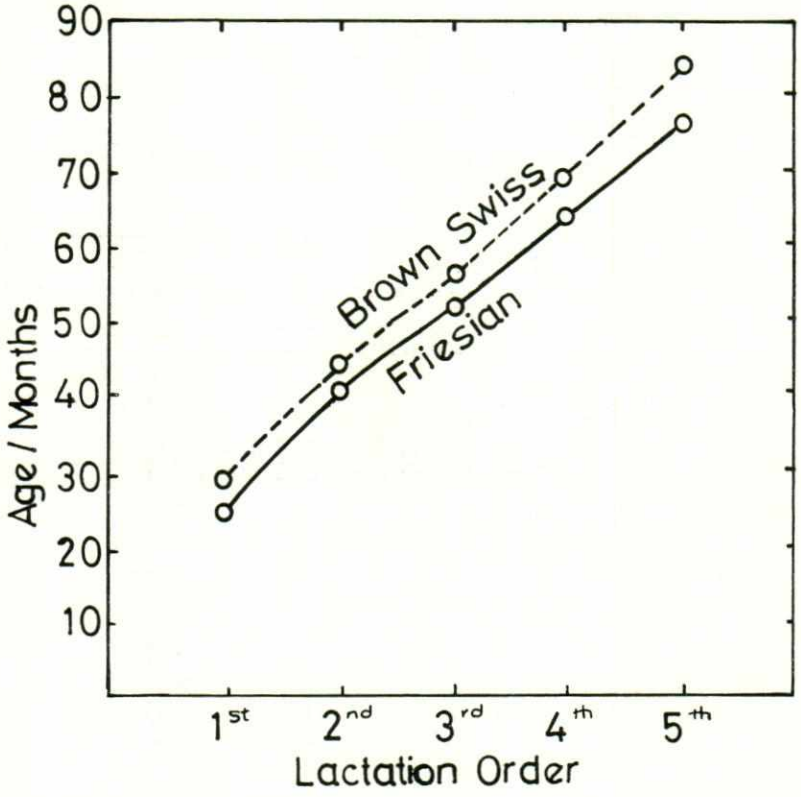

Fig. 2. Age of Friesian and Brown Swiss cows in relation to lactation order.

3. Lactation Length

The duration of lactations for both breeds was within the normal range of 10 months. It was 319.3, 302.8, 301.7, 287.8, 285.0 days for the Friesians and 292.6, 293.3, 310.8, 271.0, 329.5 days for the Brown Swiss during the five lactations, respectively (Table 1). The difference between the two breeds was not statistically significant.

4. Age at Freshening

Brown Swiss cows calved on the average three to eight months later than Friesians (Fig. 2). Age at calving was 25.3, 40.2, 52.3, 64.4, 77.6 months for the Friesians and 29.4, 43.5, 57.2, 69.8, 85.8 months for the Brown Swiss at the five lactations, respectively (Table 1). Age at freshening of Friesian cows was significantly higher ($P < .01$) than that of the Brown Swiss. Age at Freshening of Friesian cows found in this study was similar to that observed in Turkey (5).

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LITERATURE CITED

1. Anonymous. 1969. The Dairy Herd In The Netherland. Netherland Ministry of Agriculture and Fisheries, Nr. E 100 PP 61.
2. Anonymous. 1973. Some statistical data on agriculture in Libya. Libyan Ministry of Agriculture and Agrarian Reform, Planing and Follow Up Dept., Agricultural Statistic Section, PP 50.
3. Anonymous. 1974. Dairy Herd Improvement Letter, U.S.D.A., Vol. 49(6) : 1–8.
4. Abdel-Ghani, W., and S. K. Fahmy. 1966. Productivity of Friesian and its crosses in U.A.R. Agric. Res. Rev. Cairo 44(4) : 37–42.
5. Ariturk, E., R. Arpacik, and K. Altinsaat. 1968. Some production characters of Holstein-Friesian cows at the Karasu Cattle Breeding Station. Ankara Univ. Vet. Fac. Derg. 15 : 301–308.
6. Asker, A. A., K. H. Juma and S. A. Kassir. 1965. Dairy Characters of Friesian, Ayrshire, Native and cross bred cattle in Iraq. Ibid. 10 : 29.
7. Diggins, R. V., and C. E. Bundy. 1969. Dairy Production. Prentice Hall Inc. New Jersey, Third Edition. 304 PP.
8. El Itriby, A. A., and A. A. Asker, 1958. Some production characteristics of Native cattle, Friesian, Shorthorn and their crosses in Egypt. Emp. J. Exp. Agric. 26 : 314–322.
9. Faulkner, D. E. 1956. Report to the Government of Libya on the improvement of cattle. FAO Report No. 483. 48 PP.
10. Kassir, S. A., and K. H. Juma. 1968. A preliminary report on the Friesian and its crosses in Iraq. Ind. J. of Vet. Sci. 38 : 541–545.
11. Kassir, S. A., S. Al-Douri and D. J. McFetridge. 1968. Dairy herd improvement service in Iraq. Milk and Butterfat Production. Tech. Report Anim. Husb. Res. Train. Proj. Baghdad, FAO No. 17, 18 PP.

12. Ragab, M. T., and A. A. Asker. 1961. Some economic characteristics of the Friesian cattle in the Tahreer Province. Ann. Agric. Sci Cairo 4(1) : 107–114.
13. Rice, V. A., F. N. Andrews, E. J. Warwick, and J. E. Legates. 1961. Breeding and Improvement of farm animals. Sixth edition, Tata McGraw-Hill publishing Co. Ltd. Bombay, New Delhi.
14. Steel, R. G., and J. H. Torrie. 1960. Principles and procedures of statistics. McGraw-Hill Book Co. Inc. New York.