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Effect of Crossing Friesian and Janubi on Milk Production in South Iraq

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An investigation was instituted into the effect of crossing Friesian and Janubi cattle of Southern Iraq. Records of Agricultural Research Station of Baghdad, Emara and Basrah were examined for milk yield and lactation periods of two breeds and their crosses. A total number of 26 Janubi cows with their 70 lactations, 74 crossbred cows 277 lactations and 30 Friesian cows 63 lactations were examined for their performance. Results indicate that Janubi cows have a milk yield of 1100 kg. The crosses showed a great additive genes and grading for increased milk production and lactation period. The Friesian cows maintained at this station for 3 lactations excelled performance of their type in tropics and subtropics reported monthly. It is thus suggested to continue at a rather large scale the cross breeding programe in this area besides maintaining pure Friesian lines. These results prove that crossing increases milk production over 140% in the crosses over the native Janubi cows which encourage the dairymen to adopt such technique in their farms.

Upgrading of native dairy cattle by selection and crossing with Friesian has, since early 1940, been going on as an important activity in Iraq Agriculture. Friesiain stock was imported and maintained at Abu-Graib Agricultural Research Station. Crosses with the locals cows and Friesians were obtained. The local cows included. Janubi and Sharabi breeds. Asker *et al.* (1965 a and B) prepared a report on the impact of this foreign breed of dairy animals on the improvement of local cows. They observed an average milk production of 1027, 2574 and 2192 kg by the local, Friesian and their crosses (F_1) respectively over an adjusted lactation period of 305 days. They further found that the increase of Friesian blood (F_2) to 3/4 caused an adverse effect on the performance of consequent crosses. This finding was also reported by Maule (1953). From the work published by Mahadevan (1956) and Asker (1963), it appears that the Friesian could not exceed the ½ of their original potential of milk production in Ceylon and Egypt respectively. Thus the imported Friesian show a strong effect of climatic and their managemental conditions prevalent in the tropics and subtropics as compared to temperate regions.

About the performance of local Janubi cows in Iraq, one could compare it with that of Egyptians, Ceylonese, Zebu and such other native cattle reported by El-Itribi and Asker (1958), Mahadevan (1953), Joshi and Phillips (1953),

and Alim (1960). The milk production in these countries remains nearly the same. However the crosses of these native cattle with Friesian gave for improved performance. Further, from the literature available on the influence of continued increase in blood of Friesian in the crosses, the reports appear to be confusing. No such work appears to be reported from Southern part of Iraq, where distinct differences exist in climate and soil structure. In order to test the suitability of Friesian for improving Janubi cows or for serving as a major dairy animal in this area, a study was carried on the records of Baghdad, Emara and Basrah Agricultural Research stations. The aim was to study the effect of crossing Friesian and Janubi on milk yield and laction period.

Material and Methods

Records of performance of 26 Janubi cows with 70 lactations, 30 Friesian cows giving 63 lactations and 74 cross bred cows with 277 lactations were studied for certain economical characters including milk yield and lactation period. The crossing was effected by a pure bred imported Friesian bull. The crossbred cows were brought from Emara and Baghdad Stations also. The record of all lactations free of disease were analysed statistically for the effect of breeds on these two characters besides means and standard deviations. Frequency distribution of individuals in three groups were also plotted (Fig. 1, 2 and 3).

Results

Janubi cows

As evident from Table 1, 6 and 7 examination of 70 lactations of 259 days of lactation period, revealed an average milk yield of 1096 kg with a standard deviation of 332. Statistical treatment for breed comparison revealed a highly significantly low milk yield and only significantly reduced lactation period (Table 4 and 5). The results coincide with those of Asker *et al.* (1965 and b) who analysed 99 lactations of Janubi and Sharabi cows. Assuming that there is no difference in the performance of these two local cows, it can safely be taken as standard production of Janubi in Iraq.

Crossbred cows

Tables 2, 6 and 7 shows the findings of examination of 277 lactations of everage period of 285 days. Statistical analytical is given in Table 4 and 5. The average milk yield was 2639 kg with a standard deviation of 634. Figures reported by Asker *et al.* 1965 a and b on 310 lactations indicated a lower yield (2192 VS 2639). The finding of the present investigation may reflect the influence of different lactation with different managemental conditions in Southern Iraq. As the difference is of a marked degree ($P < 0.01$), the potential of bull for transmitting this character could be of major importance. More reduced number of lactations examined (277 VS 310) did not seem to create such a difference. No attention was given at this stage to the degree of blood contributed by either parents as a separate study in progress (From ½ to $\frac{15}{16}$ Friesian).

TABLE 1. Mean and standard deviation for milk production of local breed Janubi on different seasons of lactation.

Season of lactation	Number of lactation	Lactation period days	Mean milk kg	S.D.
1	26	260	1061	265
2	20	271	1208	341
3	13	251	1183	211
4	6	249	1140	147
5	5	238	933	240
Total	70	259	1096	332

TABLE 2. Mean and standard deviation for milk production of crossbred (F × G) on different seasons of lactation.

Season of lactation	Number of lactation	Lactation period days	Mean milk kg	S.D.
1	74	283	2363	567
2	70	292	2706	612
3	58	284	2715	579
4	45	281	2768	638
5	30	291	2897	746
Total	277	285	2639	634

TABLE 3. Mean and standard deviation for milk production of Friesian on different seasons of lactation.

Season of lactation	Number of lactation	Lactation period days	Mean milk kg	S.D.
1	30	303	2600	360
2	22	291	3073	666
3	11	290	3527	409
Total	63	295	2927	601

TABLE 4. Analysis of variance for milk production.

Source of variation	D.F	S.S.	M.S.	F
Between breeds	2	9173674	4586837	72**
Within breeds	10	636489	63648	
Total	12	3810158		

** Highly significant ($P<0.01$)

TABLE 5. Analysis of variance for lactation period.

Source of variation	D.F	S.S.	M.S.	F
Between breeds	2	4028	2014	24.5
Within breeds	10	819	82	
Total	12	4847		

TABLE 6. Lactation period of Janubi, crossbred and Friesian on different seasons of lactation.

Season of lactation	Lactation period (days)		
	Janubi	Crossbred (F × j)	Friesian
1	260	283	303
2	271	292	291
3	251	284	290
4	249	281	—
5	238	291	—
Total	259	285	295

TABLE 7. Milk production of Janubi, crossbred and Friesian on different seasons of lactation.

Season of lactation	Mean milk (kg)		
	Janubi	Crossbred	Friesian
1	1061	2363	2600
2	1208	2706	3073
3	1183	2715	3527
4	1140	2768	—
5	933	2897	—
Total	1096	2639	2927

Friesian cows

The average milk yield and standard deviation for each lactation was 2927 kg (Tables 3, 6 and 7) with a standard deviation of 601. The number of animals, lactations and the period of each lactation on the average were 30 cows, 63 and 295 days respectively. The findings do not agree with those of Asker *et al.* (1965 a and b). The difference of 353 kg of milk seems to be of great significance in this area. Statistical treatment (Table 4 and 5)revealed a high significantly higher milk yield and only significantly longer lactation period. It further showed a marked improvement ($P < 0.01$) in milk production and a significant increase in period of lactation of crosses over local parents. The differences between the findings of two studies *i.e.* the present and the one done on Baghdad herd might be due to less number of lactations and age of animals used in present study (63 VS 86 and 6-7 years VS 10-12 years). The records of Friesian were available up to 3 lactations. It seems possible that higher yield potential are maintained for first three lactations and declines later. Of course the better managemental practices at this station which enabled the Friesians to conserve their ability of more milk production, cannot be ignored. Uniformity in the lactation period and a continuous trend of increase milk yields are clear indications that Friesian could decidedly exceed the reported 1/2 yields given by Mahadevan (1956) and Asker (1963).

This overall picture revealed by the present investigation (Fig. 1, and 3) encourage, rather establishes the production of Janubi cows as around 1100 kg per lactation. A simultaneous appearence of additive genes and grading in the crosses of Friesian and Janubi and conservation of production ability by Friesians in this area are the striking features of the study.

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تأثير الخلط بين الفريزيان النقى والأبقار الجنوبى على انـــتاج الحليب فى العراق

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اتجه هذا البحث الى دراسة تأثير الخلط بين الفريزيان النقى والأبقـار الجنوبى فى العراق . وقد استعملت بعض سجلات انتـاج الحليب من مزارع وزارة الزراعة العراقية . قسم الانتاج الحيوانى فى مختلف أنحـاء العراق ، شاملة محطة انتاج أبو غريب والعمارة والبصرة لمعرفة كميـة انتاج الحليب وكذلك طول موسم الحليب .

وقد استخدمت ٢٦ بقرة جنوبى لها ٧٠ موســم حليب ، موزعة على الموسم الأول والثانى والثالث والرابع والخامس و ٧٤ بقرة مدرج لهـا ٢٧٧ موسم حليب موزعة على الموسم الأول والثـانى والثالث والرابـع والخامس . وكذلك ٣٠ بقرة فريزيان نقى أعطت ٦٣ موسم حليب موزعة على الموسم الاول والثانى والثالث فقط وقد ظهر أن الأبقار المدرجة أعطت زيادة فى انتاج الحليب وكذلك فى طول الموسم عن الأبقار الجنوبى .

وهذه النتائج تشجع على الاستمرار فى مثل هذه التجارب بأعداد أكبر كوسيلة لرفع كفاءة انتاج الحليب فى العراق من الأبقار الخليطة ، حيث أثبتت هذه التجربة كفاءة هذا الخلط فى رفع انتاج الحليب بنسبة تزيد عن ١٤٠٪ بالنسبة لانتاج الابقار الجنوبى . وهى نسبة تستحق كل اهتمام من منتجى الألبان .