

## MILK AND FAT YIELDS OF JERSEY AND FRIESIAN COWS GRAZING TROPICAL GRASS—LEGUME PASTURES

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### ABSTRACT

*Milk and fat yields, lactation lengths and weight gains during lactation are summarized for 108 Jersey and 129 Friesian lactations in the Kairi Research Station herd from 1963 to 1970. Cows were not supplemented and grazed dryland Panicum maximum var. trichoglume—Glycine wightii var. Tinaroo pastures at stocking rates from 1.0 to 1.3 cows ha<sup>-1</sup>.*

*Jersey and Friesian cows averaged 9.06 and 12.54 kg milk and 0.42 and 0.42 kg fat cow<sup>-1</sup> day<sup>-1</sup> of lactation respectively. Lactation lengths were 272 and 331 days and mean weight gains during lactation 7.0 and 43.0 kg cow<sup>-1</sup> for Jersey and Friesian cows respectively.*

### INTRODUCTION

Interest in developing tropical dairying industries is increasing, though recent investigations have indicated this development may be limited by relatively low milk yields per cow from cows grazing tropical pastures (Stobbs 1971). However there are very few documented cases of milk yields over complete lactations from Jersey and Friesian cows in tropical dairying areas. This note records milk and fat yields of unsupplemented Jersey and Friesian cows in an environment favourable for growing improved tropical pastures.

### MATERIALS AND METHODS

#### *Location*

Observations were recorded on Kairi Research Station, situated 17°14'S, 145°34'E and 700 m altitude. Average rainfall is 1,248 mm with 830 mm falling in the months January to April inclusive. Maximum and minimum temperatures range from 28.8/18.0°C in December to 20.8/10.6°C in July, frosts being rarely recorded.

#### *Pastures*

Pastures were green panic-glycine (*Panicum maximum* var. trichoglume—*Glycine wightii* var. Tinaroo) grazed at stocking rates from 1.0 to 1.3 cows ha<sup>-1</sup>. Small areas of volunteer kikuyu (*Pennisetum clandestinum*) and guinea grass (*Panicum maximum*) provided limited grazing.

#### *Animals*

Over the years 1963-70 inclusive, 108 Jersey and 129 Friesian lactations were recorded from unsupplemented cows in the Kairi Research Station herd. A total of 32 Jersey and 44 Friesian cows were involved, and data for all unsupplemented lactations were used in the analysis. Twelve Friesian cows were fed silage and hay during the dry seasons of the years 1967-69 inclusive, but because this treatment had no significant effect on milk yield at the stocking rate used (1.3 cows ha<sup>-1</sup>), data from these cows have been included.

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*Measurements*

Milk yield was recorded daily, fat per cent weekly and body weight was recorded pre- and post-calving and at drying off.

TABLE 1  
*Milk and fat yields (kg cow<sup>-1</sup> lactation<sup>-1</sup>) of cows by years*

Year	(n)	Jersey		(n)	Friesian	
		Milk	Fat		Milk	Fat
1963-64	24	2,683	131	12	4,325	151
1964-65	28	2,659	123	10	3,974	138
1965-66	26	2,306	107	13	4,215	141
1967-68	10	2,329	112	30	4,257	147
1968-69	11	1,831	87	37	4,039	131
1969-70	9	2,201	97	27	4,147	140
MEAN	108	2,480	114	129	4,100	137
S.E.		±548	±24		±692	±25

*Analysis*

Data were separated into groups according to year, season of calving and breeds. Because of low numbers and unknown age of a number of Friesian cows no attempt was made to separate cows on lactation number. Comparisons of means were carried out assuming samples were drawn from populations of similar variance and tests of significance were made using least significant differences.

## RESULTS AND DISCUSSION

Distribution of cow numbers, together with milk and fat yields in different years, are shown in Table 1. Although mean fat yields varied appreciably between years, levels of production for Jersey cows compare favourably to those reported by Colman and Holder (1968) for Jersey cows grazing nitrogen fertilized kikuyu grass. Also milk yields, at 9.1 and 12.5 kg cow<sup>-1</sup> day<sup>-1</sup> for Jersey and Friesian cows respectively, compare favourably to those reported from other tropical dairying areas (Stobbs 1971).

No consistent relationship could be established between season of calving and milk or fat yields (Table 2). This may be because of the low stocking rates during this period as subsequent work at this station has demonstrated 1.3 cows ha<sup>-1</sup> to be a lenient stocking rate. Friesians had longer lactations than did Jerseys and gained more live weight from postcalving to drying off.

Although milk production recorded here is low compared to that recorded from cows grazing pasture in temperate areas, it is considerably above mean yields on many Queensland dairy farms (Anon. 1973). Thus it should be possible to increase substantially Queensland dairy production through gains in management and utilization of improved tropical pastures.

## ACKNOWLEDGEMENTS

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TABLE 2  
Lactation characteristics of cows relative to season of calving

Characteristic	SEASON OF CALVING				S.E.	MEAN
	January-March	April-July	August-October	November-December		
Jersey (n)	24	—	26	58		108
Milk yield (kg lactation <sup>-1</sup> )	2,453a	—	2,457a	2,502a	256	2,480
Fat yield (kg lactation <sup>-1</sup> )	112a	—	113a	116a	11	114
Lactation length (days)	258a	—	292a	269a	21	272
Pre-calving weight (kg)	432a	—	400b	392b	15	403
Post-calving weight (kg)	389a	—	356b	356b	14	363
Drying off weight (kg)	392a	—	349b	371ab	12	370
Friesian (n)	36	16	44	33		129
Milk yield (kg lactation <sup>-1</sup> )	4,191a	3,825a	4,281a	3,844a	401	4,100
Fat yield (kg lactation <sup>-1</sup> )	141a	123a	146a	127a	14	137
Lactation length (days)	340a	330a	338a	313a	25	331
Pre-calving weight (kg)	564a	580a	585a	573a	31	575
Post-calving weight (kg)	502a	513a	519a	510a	30	511
Drying off weight (kg)	551a	574a	552a	557a	23	544

a, b = within breeds numbers with different alphabetical letters are significantly different at P = 0.05.

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