

# THE SINHALA CATTLE\*

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## Introduction

The Sinhala cattle, which form the backbone of the cattle industry in the Island, are the descendants of a primitive breed which inhabited Southern Asia, and were later replaced with larger breeds by human invaders. Ceylon being an island, these animals were isolated, and in the absence of large scale importations of cattle into the country, until comparatively recent times, the breed has remained pure. They are fairly evenly distributed throughout the island and are more commonly found in the N.W., N.C., Sabaragamuwa and parts of the Eastern Provinces. The Sinhala cattle vary in appearance considerably from province to province and even from district to district, which may mainly be due to the continuous source of good feed in certain areas, compared to seasonal abundance in others. For example in Sabaragamuwa Province which has a very well distributed rainfall the cattle tend to look bigger than in the dry zone. The Sinhala cattle in the Tamankaduwa district are bigger compared to other areas; and this has been attributed to the higher calcium content of the soil which gives them bigger skeletons. In recent times the Sinhala cattle have been exposed to attempts of cross breeding mostly with Indian breeds, and as a result, the pure forms of the breed are now confined to limited areas such as Hambantota, Embilipitiya and parts of the Sabaragamuwa province chiefly in and around the Singha Raja Adaviya.

## Breed Characteristics

The Sinhala breed is a small compact animal, quite hardy, adaptable to a wide range of climatic conditions, able to subsist on low quality feed, and highly immune to pests and diseases. The typical sinhala stands about 40" at the withers and has a comparatively well formed hump and dewlap, though smaller than in the Indian Dairy Breeds. Adult bulls weigh about 600 lbs. with a good head, short stubby horns, and is characterized by their active gait and stocky appearance. They are very good draught animals. The cows weigh about 400 lbs. yielding 60 gl./lactation, have a dewlap, but a less pronounced hump, and poorly developed udders (Plate 2). Average birth weights for heifer calves is 29 lb. and for male calves 31 lb. Under natural conditions they mature in about 48 months, which is very late compared to European breeds, but at the same time they produce a calf every year throughout their adult life. Although body colour varies a great deal, predominant and favoured colour is either pure black or pure red.

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With a view to increasing the income per acre in coconut lands the potentialities of this breed are being assessed at the Institute. In 1951, twenty cows were purchased from the Hambantota and Embilipitiya districts and with a Sinhala bull provided by the Agricultural Department a closed herd is being maintained.

The animals are tethered to palms on the estate, and in the morning the cows in lactation received three pounds of coconut poonac and two ounces of mineral mixture per head per day. The grazing available was mainly *Brachiaria brizantha* (Hochst), *B. miliiformis* (presl) and natural weed growth.

### Lactation Characteristics

#### (i) Milk yield of the Sinhala Cattle

Although it has been stated that one of the poor features of the breed is that the number of lactations ending before 200 days is as high as 25% only 6% of the lactations ended before 200 days in the Bandirippuwa herd. The average daily yield, more than the length of lactation characterises the yielding ability of the Sinhala.

#### (ii) Variation in milk yield with age of cows

Mahadevan(1953), while admitting that the trend of yields with age is rather uneven, maintains that peak production is attained by about the 4th lactation. In the Bandirippuwa herd, the data was subjected to a more rigorous analysis. The variation of yield per lactation with age doesn't show a typical pattern as such, and there appear to be considerable differences between cows in the trends of their lactation yields. With the indications of the yield per day increasing even after the 5th lactation and a definite flattening out of the curve for length of lactation (Fig. 1) a rough estimate if needed would place the point of peak production at about the 6th lactation provided the length of lactation doesn't fall below 240 days.

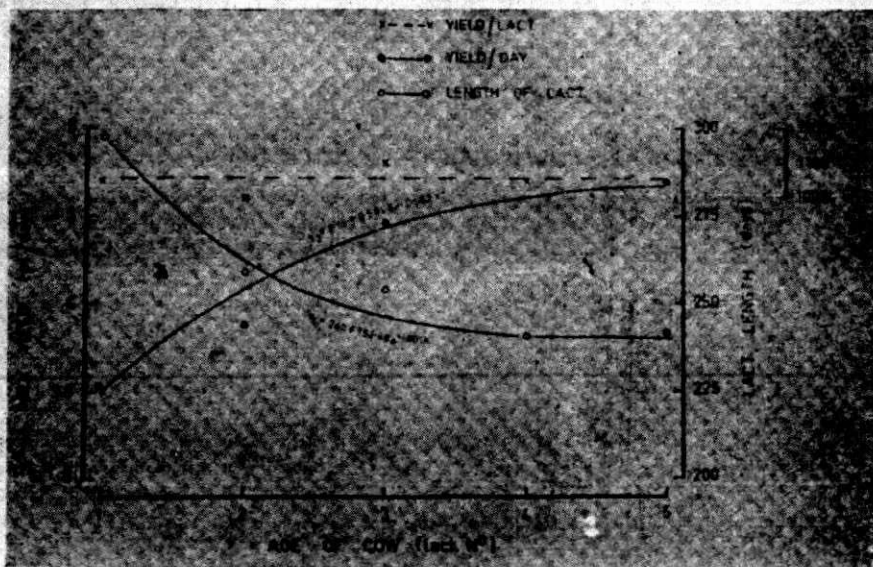


Fig. 1  
Trends in yield Characteristics of Sinhala Cows with age.

### (iii) *The Lactation curve of the Sinhala Cattle*

The mean lactation curve for Sinhala Cattle are shown in (Fig. 2). The yield per day rises from an initial level of 5 pints to reach a maximum of about 6 pints; somewhere about the 3rd or 4th week, and then drops steadily at the rate of about 0.75 pint per week. The mean lactation curve in Fig. 2 is nearly the herd average. It is to be noted that from about the 28th week onwards the animals begin to dry off, and the change in the rate of decline may be an early effect of gestation. The lactation curve differs with age, at early lactations the yield per day is relatively lower, but the ability to maintain the yield is higher and length of lactation longer. The tendency to reach a peak somewhere in the 3rd and 4th week is common to all lactations.

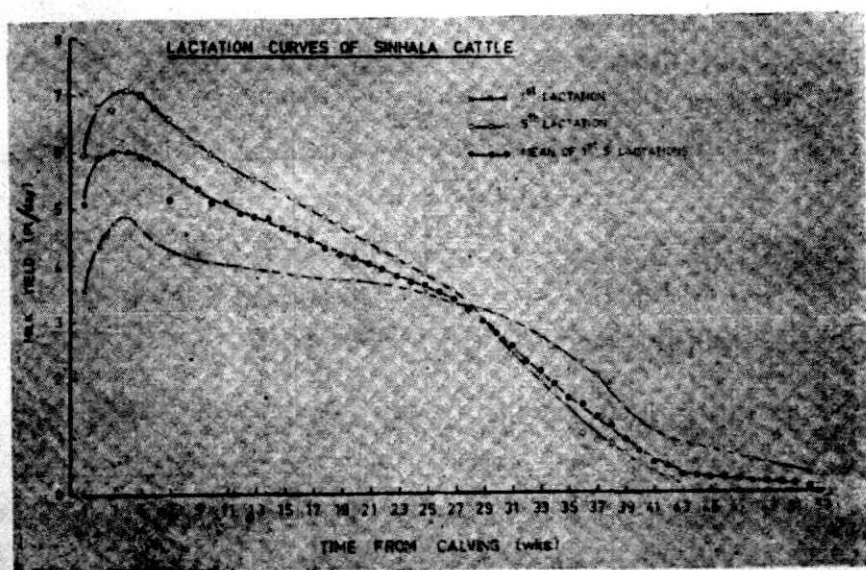


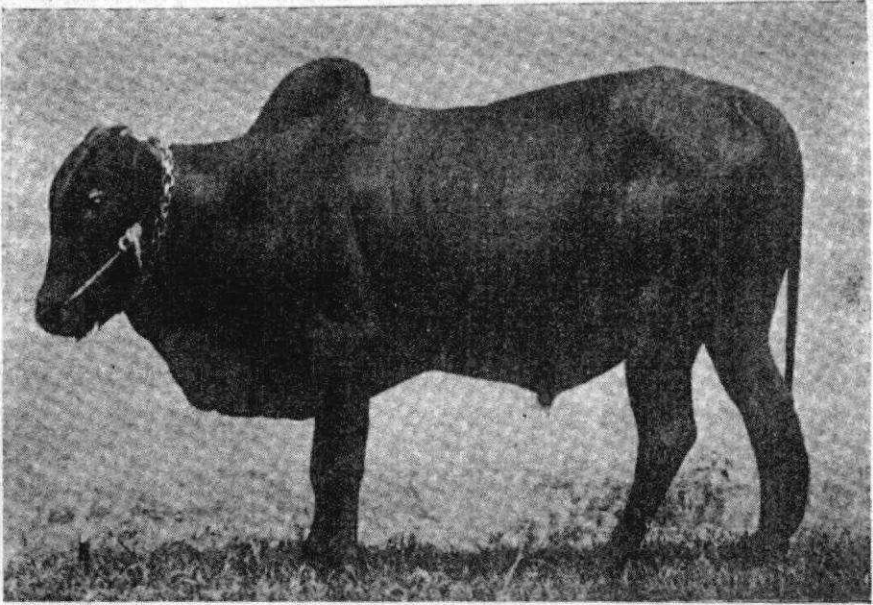
Fig. 2

Lactation curves of Sinhala Cows

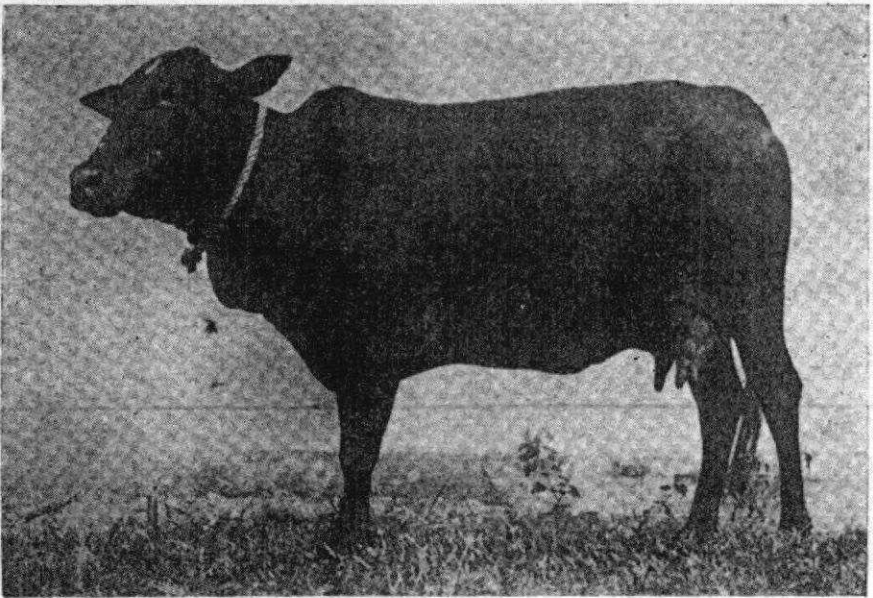
### (iv) *Lactation characteristics between generations*

The mean yield per day, length of lactation, and yield per lactation of the original cows, daughters and grand daughters have been grouped together and are shown in Table 1.

The daughters are superior in all characters to the original cows. The majority of the data for the grand daughters are from relatively early lactations being younger members of the herd, and as such the length of lactation would be slightly over estimated, and yield per lactation underestimated as compared to the other two generations. Giving due weight to these possibilities there is an indication that the Grand daughters will be superior to the daughters.



A typical Sinhala Bull



A typical Sinhala Cow

**TABLE 1**

**Yield Characters with generations**

<i>Yield Factors</i>		<i>Original</i>	<i>Daughters</i>	<i>G. Daughters</i>
Yield/lact(pt.)	Mean ..	843.50	1107.00	1133.80
	C.V.(%) ..	35.80	32.40	29.90
Length of lact(day)	Mean ..	243.30	253.70	280.90
	C.V.(%) ..	20.70	21.40	18.10
Yield/day(Pt.)	..	3.47	4.36	r.04

(C.V. = Coefficient of Variation)

**(v) Calving interval and Dry period**

The calving interval for this herd is very regular and compares favourably with other breeds of cattle, but is higher compared to the value of 355 days for the Sinhala herd at Karagoda-Uyangoda as reported by Mahadevan(1953). This longer calving interval is accounted for by an increase in both the length of lactation as well as the dry periods—the latter being 133 days in this herd, compared to 122 days for Karagoda-Uyangoda herd (Table 2).

**TABLE 2**

**Mean calving interval (days) of Sinhala Herd**

<i>Generations</i>	<i>Mean calving interval</i>	
	<i>days</i>	<i>C.V.(%)</i>
Original cows .. ..	376	18.6
Daughters .. ..	388	18.2

(C.V. = Coefficient of Variation)

**(vi) Age at First Service**

Although the age at first service in some of the heifers in this herd is as low as 22 months, the average age at 1st service is 23.3 months which again is too long as compared to European breeds. An interesting feature of this herd is that the yield at 1st lactation is related to age at 1st service:—there being an increase of 12.8 pints in the 1st lactation total yield for every month delay in service.

However other workers, Robertson (1950), Lecky (1951), and Mahadevan (1955), have reported very low relationships between age at first calving and yield at 1st lactation. The relationship between length of 1st lactation and age at 1st service is very low, but that between yield per day and age at 1st service is appreciably high. This shows that the contribution, the age at 1st service makes to the total yield in the 1st lactation is by increasing the yield per day, and not by any change in length of lactation.

**(vii) Productive life of Cows**

It is not possible at this stage to provide any statistical data on this parameter. But there is sufficient evidence to believe that the average length of total productive life is much higher than 5 lactations. There are

still five original cows in the herd which have completed at least 10 lactations in addition to what they may have before being purchased by the Institute. Their lactation yields do not as yet show any obvious trend leading to a decline in yield. Further 11 out of the 13 original cows which have completed at least 5 lactations show an average increase in yield of 30% in the 5th over the 1st lactation, completed at the Institute.

Thus it could be seen from the foregoing that in the Sinhala cattle the average yield per lactation and per day are low compared to other established breeds. The total yield per lactation is controlled by the yield per day rather than the length of lactation. There is no justification to accept that the total yield per lactation reaches a peak with age or has any trend. The lactation curve reached a peak value 3-4 weeks from calving and then declined rectilinearly up to the 28th week. The mean length and dry period were longer compared to other herds of this breed.

### Future possibilities of the Sinhala Breed

These data confirms Mahadevan's views that the Sinhala is not a suitable dairy breed; and the lack of an efficient dairy animal in this country is one of the main problems faced with in pasture production under coconuts. Other tropical breeds though slightly better in their yield have a ratio of yield/Body weight (Table 3) similar to the Sinhala. The better established European breeds do not perform satisfactorily in a tropical climate as shown by Mahadevan (1959). It will not be possible to replace the Sinhala cattle with an exotic breed in sufficient numbers to substantially increase the milk production of the country. Therefore some use of the Sinhala cattle will have to be made.

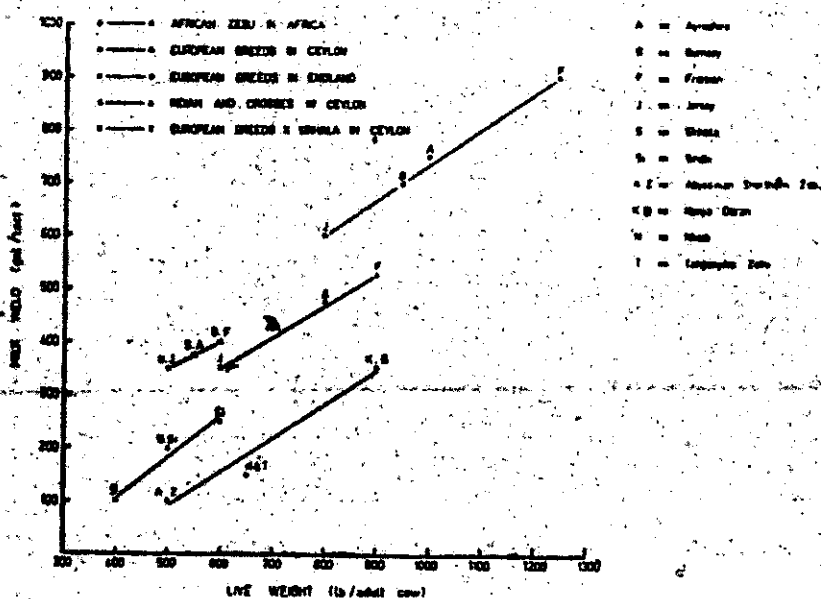


Fig. 3

The alternative then appears to be to cross breed the Sinhala to an exotic breed. Here the selection of the exotic parent and the desirable proportion of the two parents in the "new breed" are important considerations. The first inclination would be to cross to another tropical breed but

TABLE 3

<i>African</i>		<i>Indian</i>		<i>European in England</i>		<i>European in Ceylon</i>		<i>Indian crosses</i>		<i>Sinhala × European crosses</i>		
<i>Breed</i>	<i>Y/B</i>	<i>Breed</i>	<i>Y/B</i>	<i>Breed</i>	<i>Y/B</i>	<i>Breed</i>	<i>Y/B</i>	<i>Breed</i>	<i>Y/B</i>	<i>Breed</i>	<i>Y/B</i>	
Keniya Boran	0.39	Sinhala	0.25	Freisian	0.72	Freisian	0.58	Sinhala × Sindhi	—	.40	Sinhala × Freisian	0.66
Nkedi	0.23	Sindhi	0.40	Ayrshire	0.75	Ayrshire	0.59				Sinh. × Ayr.	0.68
Nyssa Zebu	0.23			Jersey	0.74	Jersey	0.58				Sinh. × Jer.	0.70
Abyss.Sh.H.	0.20											
Mean	0.26		0.34		0.74		0.58		0.40			.68

Ratio of milk yield per lactation in gals. (Y) to body weight of adult cow (B) of some popular dairy breeds and their crosses. The data of milk yield and body weight were obtained from various sources.

the results were not satisfactory as shown by the performance of the Sinhala × Scindhi whose body weight and milk yield are a mean of the two parents and the yield/Body weight ratio similar to the parents.

Crosses with European breeds such as the Jersey and Ayrshire appear to be satisfactory. The progeny are able to withstand the tropical climate and have a very high yield/body weight ratio indicating high efficiency. While both the Sinhala × Scindhi and Sinhala × Jersey crosses weigh 500 lb. the former yields only 250 gal./lact. compared to the latter 350 gal. (Fig 3.)

The next problem would be the determination of the proportion of exotic blood that should comprise the "New Breed". Here the degree of upgrading with Ayrshire and Friesian may be limited on account of climatic factors. On the other hand with the availability of a tropicalised Jersey the potentialities are very good.

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