

PREFACE

The Cattle Industry in Trinidad

In developing countries an enlarging population and an expanding economy go hand in hand with a rise in the standard of living and this is reflected in many cases by a change in local eating habits. These new consumption patterns nearly always include an increase in the proportion of imported expensive proteinaceous foods and such a trend is exhibited in Trinidad today. Faulkner (1962) ably illustrates the situation by noting that dairy and beef products account for nearly 25% of the total food import bill.

With a climate so nearly adapted to herbage production for a greater part of the year a marked increase in the National herd has been advocated by Wilson (1958) and many other local agriculturalists. The Economic Planning Division envisage an increase in 100,000 acres of pasturage and such an expansion might well be expected to provide keep for 50,000 - 100,000 more cattle above the existing figure of about 50,000 beasts. Nearly 25% however, of the present population is found by Faulkner to be kept on holdings of under one acre and 50% of the National herd today exists on holdings of only slighter higher acreages. It is therefore sensible to assume that from this nucleus a large part of the material for the expansion of the increased National herd must come.

Improved young stock would probably be born to local inseminated dams, so as to fulfil the anticipated demands. Supplies from proven grade and imported cows would hardly be sufficient and far too costly. Up to the present time though, very little selection

has been practised amongst the Island's dairy stock and thus the size of the potential pool of favourable characters is almost unknown. The circumstances which permit the expression of certain production traits are seldom encountered and the widespread distribution of local stock makes the size of the task depressingly large.

In Nigeria Robertson (1953) indicates that an annual genetic improvement of milk yield in intensively selected local stock amounts to only about 1% of yearly yield figures. Despite the high proportion of Holstein blood in Trinidad, the largely heterozygous population cannot be expected to be improved at a rate much higher than this. Because of this inherently slow process of genetical improvement better feeding programmes would seem to be a more suitable approach at present for the farmer and the National industry itself in their quest for improved production in a short space of time, coupled with as rigorous a selection as the country can afford.

Logically, improved nutritional standards of an animal must commence at the foetal stage of life but because of the limited time and material available the present study will concern itself with the evaluation of three calf rearing regimes from birth to thirteen weeks. This observation period is woefully short, but some consolation is afforded by Weiner (1958) who suggests that size differences caused by different calf feeding regimes become well enough established by four months to persist in varying degrees until the fourth year of life. In Trinidad it is highly probable that much of the cause underlying low milking capacity and live-weight production is due to early environmental conditions which

are at such low levels that their residual affects may be much longer. The absence of precise information on calf rearing in the tropics is widespread. This study attempts to make good part of this deficiency.

Though Hammond (1935) states that little conclusive evidence is available for determining the permanence of stunting due to low nutritional levels in domestic animals he suggests that ultimate form and body weight in such cases depend on:-

1. The stage of growth at which the animal is subject to a poor level of feeding.
2. The severity of the low level.
3. The length of time when such a low level is operating.

In Trinidad there is little doubt that low level of feeding extends over long periods of time and at all stages of growth. Perhaps the most obvious example of this is the characteristic juvenile conformation of grade Zebu bulls seen on local roadsides and traces, which corresponds closely to that of the underfed bulls of Fredericksen (1929) and Hansson (1933). Not only is overall size reduced but the small heart girth, chest and head hardly reflect the masculine attributes of a normally grown bull.

In Britain Brookes (1956) has shown that an early reduction in feeding level prolongs the attainment of maturity and alters body conformation, but he failed to find any case of stunting in his low plane animals. Though commercial low plane diets vary enormously they are hardly ever low enough to endanger body growth and bone structure and thus Crichton (1959) feeding only 70% of Ragsdale's (1934) standards still finds a reasonable