

INTRODUCTION

European breeds of livestock were evolved to suit temperate climates. Selection since has been towards animals still more productive under changed management in Europe today.

Where Bos taurus has been introduced into other countries modifications in selection have been necessary to suit the different local conditions. The degree of selective modification necessary is closely related to the difference in conditions pertaining in that country and the country of origin of the breed. Thus, the extensive dairy cow population of New Zealand is predominantly of the Jersey breed. Since conditions in New Zealand are not grossly dissimilar to those found in the Southern British Isles, the degree of modification has not been very marked. There is, however, a distinctive New Zealand type Jersey.

In New South Wales, conditions showed more fundamental differences. The hotter, drier climate and poorer grazing conditions resulted in a degree of modification to the original Dairy Shorthorns which has resulted in the evolution of a new breed known as the Australian Illawarra blood Shorthorn.

When European cattle were subjected to even greater extremes of environmental change, it is not surprising that their highly specialized selection to a European environment resulted in lower production under tropical conditions. These difficulties were still further complicated by the new diseases which were encountered. In many cases the major problem was to keep the animals alive and reasonably healthy. Accordingly, efforts to establish more highly producing strains were severely hindered. The great progress

now being made in controlling the major epizootic diseases in livestock has enabled considerably more attention to be focused on the problem of higher producing stock in the tropics. These efforts have coincided with a period of rapid economic development in most tropical countries which is resulting in a greatly increased standard of living and a growing demand for more and better livestock products.

To effect the necessary improvements many local factors have to be taken into account. In those areas where conditions may be classed as "marginal" with Fiji cited as an example, selection for production in well managed European dairy farms has resulted in the unconscious selection of heat tolerant strains of several British breeds.

Fiji has fewer recorded cattle diseases than almost any country in the world. Few complications have arisen from this factor and wider selection has been possible for factors directly related to productivity.

However, even in Fiji, conditions must be classed as only just marginal. Transfer of stock to poorer managed farms results in a considerable drop in production of these selected animals. On these poorer managed properties there is almost always an admixture of various levels of Zebu blood and these cross-breeds usually outproduce their purebred British type herd mates. On the other hand the extremely unpredictable results with cross-bred Zebu animals under better conditions precludes their extensive use on well managed farms. It is not claimed that the Bos indicus species has no place on better dairy farms in Fiji, but until a relatively standardized cross-bred is produced greater emphasis will be placed on selection of heat resistant strains of Bos taurus stock.

Although Fiji and Trinidad are both situated in the humid tropics with Fiji eighteen degrees south of the Equator

and Trinidad ten degrees north, it would appear that conditions in Trinidad are submarginal for milk production from Bos taurus stock. For this reason it is generally claimed that in Trinidad an admixture of Zebu blood of between one quarter and one eighth has been found to give greater milk production than the pure European breeds. The difficulty has been the stabilization of such cross-bred animals. Much progress has been made in the West Indies and elsewhere in evolving new breeds such as the Jamaica Hope but the work is not yet complete.

In comparing cattle breeding and selection policies in Fiji and the West Indies it is interesting to consider the extent to which the immediate origin of the British breeds introduced into each territory has influenced the possible scope of selection. The animals originally introduced into the West Indies nearly all came direct from Britain where they had been selected along the same lines for many generations. Those introduced into Fiji all came directly from Australia or New Zealand where they had been bred for several generations in environments which differed only slightly from Britain. This probably enabled them to adapt themselves more readily, as a degree of transitional selection and adaptation had already taken place.

In any system of animal improvement in the tropics, selection is generally carried out under the best management systems in use in that country. Genotypes selected under such conditions will still require a degree of modification to suit the relatively larger numbers of animals kept under poorer systems of stock management.