

INTRODUCTION

Experimental work of a precise nature relating to water intake of Bos taurus/Bos indicus cross-bred animals under pasture conditions in the tropics is extremely limited. The work that has been undertaken refers mainly to pure Bos taurus or Bos indicus animals. The shift of emphasis from soilage to pasture grasses and the consequent development of grazing methods, warrants the collection of data relating to the cross-bred animal which has a big part to play in the development of livestock enterprises in the tropics.

Water intake studies on animals under pasture conditions should be coupled with measurements of dry matter intakes. This allows estimation of feed water intakes to be made. Dairy cattle at grass are subject to greater fluctuations of both dry matter quality and quantity in the tropics than in temperate climates. This may cause fluctuations in their seasonal water requirements. Though scarcity of water supplies is a widespread feature of animal husbandry in the tropics this is not usually the case with cattle under intensive systems of management. However, it is hoped that this study will provide a guide to the requirements of cross-bred stock, particularly seasonal free water requirements. Hancock and Payne (1957) have shown that it is essential to provide adequate supplies of fresh water in the tropics, and that requirements for Bos taurus under these conditions should not be based on temperate standards. Temperate standards may well be inadequate for cross-bred stock, and many studies have shown that restriction of water lowers dry matter intake with a consequent reduction in productivity.

The part played by water in the thermo-regulating

processes of cattle has brought studies of their water requirements to the fore. Thus, apart from amassing basic data relating to cross-breeds in the tropics, this study is of even wider scope and interest. Unless dairy animals are adapted to their environment they will not realise the productive efficiency required of them. Since water is known to play an indirect part in the heat tolerance of cattle, field studies of this nature may assist physcometric work and may contribute towards the elucidation of the complex relationship between climatic adaptability and water requirements.

With the advent of a cash economy to tropical agriculture, it is becoming essential for the dairy farmer to calculate his returns from both his labour and his capital. He has to adapt himself to the ideas of feed economy. The existing feeding standards are inappropriate to his conditions, as they are figures calculated in the last decade of the nineteenth century in Germany and the U.S.A. using Bos taurus steers. The figures from these few animals have been modified by trial and error so that they now provide a reasonable guide to the dairy farmer in the temperate zone. The dairy farmer in the tropics is dealing with cross-bred animals (B.indicus x B.taurus) and these animals are not highly adapted to their environment and are therefore under greater physiological stress compared with temperate breeds in the temperate zone.

The dairy industry in the tropics can look forward to an expanding market with the overall improvement in the standards of living. To be an economic enterprise the stockman will need guidance and instruction in the idea of feeding standards for his milch unit. These standards

must arise from statistical trials on tropical stock
under tropical management.