

## I N T R O D U C T I O N

Agricultural goods are responsible for about 12% by value of Trinidad and Tobago's total exports per year. The main products involved are sugar, cocoa, coffee and citrus (University of the West Indies 1965). The world price situation as regards these commodities is not favourable for producing countries. The immediate trends of supply and price levels are typified by the fall of sugar prices on the London market, during February 1966, despite lower estimates of total world production for the year (Economist 1966). The long term trends are not favourable either, when one considers the available projections of demand and supply for the main tropical products during the period to 1970, which indicate an increase in the excess of production over consumption for the period (FAO 1962). During the same period, the importation of food commodities into Trinidad and Tobago is likely to rise quite considerably because of both a population increase and a rising standard of living. The importation bill for all food products into Trinidad and Tobago for 1958 was \$62,851,000 while the equivalent figure for 1962 was \$72,410,000 (Central Statistical Office 1958, 1963). The situation appears to be then, that while agricultural exports are unlikely to increase export earnings, imports from abroad of agricultural goods are to increase considerably. There is thus a great and immediate need for expanded domestic production of food in Trinidad and Tobago in the near and distant future. If one considers furthermore that the income elasticity of demand in the West Indies (Institute of Social and Economic Studies 1964) is higher for animal products than for vegetables and grains, it is clear that not only in the short term, but also in the long term, a continued expansion of livestock production is going to be necessary in Trinidad and Tobago. This paper is concerned basically with the role that water buffalo (Bos bubalis) may have in this pattern of increasing production.

Water buffalo were initially imported into Trinidad by the Sugar Companies for use as draught animals. The first available report is of 30

animals of the Jaffarabadi breed on a sugar estate at Tacarigua (Barrett, 1908). It is assumed that Buffaloes were initially imported between 1900 and 1905 (Maccrimmon 1955). Since then, importations have taken place in 1924 (Houghton 1960) when the Ministry of Agriculture had become worried about inbreeding, in 1938 when two bulls came in (Maccrimmon 1955), and in 1949 when 12 animals were imported, as before, from India (Customs and Excise. Trinidad and Tobago 1950). There may have been other importation but precise dates and numbers are very hard to locate. The main breeds that have come to Trinidad are the Murrah, the Jaffarabadi, the Nagpuri, the Surti and the Ravi. The Bhadwari and the Nili are also present (Faulkner 1962). Maccrimmon (1955) and Houghton (1960) both give the salient features of each breed. There has been much admixture of breeds and Bennett (1964) considers that there is a possibility of evolving a Trinidad breed. There are now about 3,000 water buffaloes in Trinidad (Faulkner 1962), which are used almost entirely for draft purposes; although there is no statistical justification for this statement, there are only three or four herds being raised primarily for beef, while the author knows of no water buffalo herd in Trinidad being kept for dairy purposes alone. The use of water buffalo for draft purposes which depends on their ability to live for a long time under conditions of very bad management and on poor quality roughage is detailed elsewhere (Houghton 1960, Faulkner 1962 and Bennett 1964) and will not be repeated once again here.

In connection with the dairying potentialities of water Buffalo in Trinidad, there are two important facts to be noted. One is that Trinidad imports about \$14 million worth of milk and milk products (Central Statistical Office. Trinidad and Tobago 1963), while only some 3 million gallons of milk are produced domestically (van Blokland 1966), which is worth \$4½ million at \$1.50 per gallon. The second is that in India 50-60% of all milk is produced by Water Buffalo (Hafez, 1952, Maule 1954, Dastur 1956) while the Buffalo is also an important milk producer in Pakistan, Malaya, Egypt and South East Europe

(Bhattacharya 1960). It is remarkable that the water buffalo, which is naturally at home in the Trinidad climate and which in other tropical countries is more productive of milk than local Bos Indicus cattle (Majid et al 1964) should not have been investigated to some extent in Trinidad, with regard to its milk producing abilities, before the present very long term settlement scheme was started. Since to do such an investigation is outside the scope of a D.T.A. project, due to the time factor, a summary of these factors concerning milk production from water buffalo which may be of relevance to Trinidad, forms the first and minor part of this report.

In considering the 'meat' potentialities of water buffalo, assurance that these should be good is not lacking (Houghton 1960, Faulkner 1962, Bennett 1964) although much evidence is. The need for increased beef production in Trinidad and Tobago cannot be denied, the importation bill for beef products for 1962 being \$4,226,176 (Central Statistical Office 1962). As already noted there is a high income elasticity of demand for cattle meat and future demand can be expected to increase considerably. It is with the meat production aspect of water buffalo that this report is mainly concerned, and the major section falls under the 'Water Buffalo as a meat animal' heading.