

MECHANISATION STUDIES ON THE SWEET POTATO CROP

General Introduction

The sweet potato (*Ipomoea batatas*) which is the only member of the family Convolvulaceae of agricultural importance, is now distributed widely throughout the world and is grown in all continents, but chiefly between the latitudes 30°N and 42°S . It is however, believed to have originated in tropical America and had long been cultivated at the time of Columbus (Burkill 1954).

The manner of growing sweet potatoes in ridges is not dissimilar to that of the Irish potato (*Solanum tuberosum*) but the crop differs agronomically in several important ways. It is common to propagate sweet potatoes from stem cuttings which have a spreading habit of growth and soon cover the ridge. The edible portions of the sweet potato plant include the tubers, which are swollen adventitious roots, and the vines, as the foliage is termed, which may be eaten as a spinach or as a greenfeed by stock. The vines tend to remain green and stringy as harvesting approaches and, as will be seen later, present a problem in the design of harvesting machinery.

Both tubers and vines show great variation in colour and shape. Stems may be red to green, trailing or twining; leaves may be uniformly green or show various degrees of red tinting and can be very diverse in shape, from deeply divided to cordate. Both the skin and flesh of the tubers vary from purple and red to yellow and white (Halcrow 1933).

Dukes (1961) quotes figures showing that the sweet potato is among the most efficient producers of energy per unit area of land in the world, being excelled only by sugarcane and maize. Sen (1949) shows that in nutritive value it is superior to the Irish potato and he feels that in this factor it may be unsurpassed by any other vegetable crop. In spite of this, with

the possible exception of the southern U.S. the crop remains largely a peasant undertaking and so figures for production under tropical conditions are not common. Poole (1955) in Hawaii writes of yields ranging from 4.8 - 11.7 tons/acre with an average of 7.7 tons/acre while Milsum and Curtler (1927) obtained yields of 4 - 5 tons/acre in Malaya. At present work is in hand at I.C.T.A. aimed at developing cultivars with yields of at least 8 tons/acre Gooding, (private communication).

That sweet potatoes are an economically important crop is beyond doubt. There is considerable inter-island trade in the West Indies and in recent years in Trinidad the level of exports has tended to rise. Nonetheless there is much room for the extension of the acreage in the island since imports exceed exports by approximately 100:1.

Table 1

Imports and Exports of Sweet Potatoes in Trinidad

<u>Year</u>	<u>Imports lbs.</u>	<u>Exports lbs.</u>
1957	7,156,820	8,786
1958 *	6,074,000	10,204
1960	5,311,485	51,039

*Figures for 1959 unavailable.

(Govt. Trinidad Central Stats. Office).

The production in the island has shown a slight tendency to rise during the 1950's.

Table 2.

Production of Sweet Potatoes in Trinidad '000lbs.

1952	20.160
1954	20,000
1955	24,900
1957	22,410

(Govt. of Trinidad Central Stats. Office)