

I. Introduction.

In Trinidad the Sweet Potato is a very important food crop, and is grown all over the island, the cultivation of the crop being largely in the hands of the peasant. But in spite of its wide distribution considerable quantities are imported annually from Barbados, Grenada and St. Vincent.

Sweet Potatoes from these islands are said to be of better quality and flavour than those grown in Trinidad. This is due in a certain extent to differences in climatic and soil conditions, but it is also due in a large extent to the fact that so many inferior varieties are grown here.

Far too many varieties are grown, many of which are uneconomic, on account of poor yields, long growing season and poor keeping and cooking qualities. Scope for improvement lies largely in selecting the best varieties and establishing their worth. For this a steady process of elimination is necessary.

Some varieties may suit some types of soil and climatic conditions better than others, and for that reason there will always be several varieties in cultivation, in different parts of the island; but the selected types should be the most economic for any given locality, and not a haphazard collection of indifferent yielders, each with several synonyms. The result would be a general production of varieties as well known to the buyer, as to the producer, which would greatly simplify marketing and storage.

It is in such processes of elimination of uneconomic varieties that the Imperial College farm, in addition to increasing its own returns, may set the lead for the rest of the island.

In this process some notice must be taken of varietal resistance, or susceptibility, to the attack of the Stem Borer, *Megasthes Grandalis* (1) The damage due to the incidence of this pest, is a very serious factor in limiting the production of Sweet Potatoes of good quality in Trinidad.

The main requirement of the varieties to be selected is that they should give a consistently good yield of good quality tubers, and the term quality must include size of tuber, although this is influenced to a large extent by the fertility and mechanical condition of the soil. Large tubers are not popular and very small tubers can only be sold as pig feed, and therefore fetch a much lower price.

The selected varieties should also give a sufficient growth of vines to cover the ground and smother all weeds. In many countries, particularly in the drier areas of the tropics, Sweet Potato vines are regarded as very valuable fodder. In Rhodesia (2) the crop is grown primarily for the production of such fodder for dairy cattle, the tubers being left in the ground and allowed to sprout repeatedly. In Trinidad, however, the vines are not widely used for this purpose. A few peasants appreciate their value as stock feed and consider that the vines have good medicinal qualities, but many believe that they are definitely harmful to cattle, cutting the milk of the cows, and, if fed in any quantity, affecting the staying power of the bullocks. This divergence of opinion may be entirely due to superstition, but it is more probably founded on fact. The vines of some varieties may have some toxic effect. Captain Metivier is, however, contemplating the trial of Sweet Potato vines as fodder at the Government Stock Farm, and the results, if successful should allay such fears.

Nevertheless the vines will never be of very great importance in Trinidad, if, as experiments indicate, cutting the vines before the tubers are ready for lifting, depreciates their yield (3 & 4). Usually a large percentage of the vines are dried up, and practically useless

as fodder by the time the tubers are lifted, in fact the drying of the vines is usually regarded, as a sign of the ripeness of the tubers.

In very wet seasons, as this year (1932), the vines remain green, but as other forms of fodder are also abundant, they are of no great value. In normal seasons, however, there is apt to be a gap in the fodder supply from the middle of January to the end of April, between the cane tops and the flush of grass. If early cutting were feasible the vines would form a very useful adjunct during this time.

However, until it can be shown that, under Trinidad conditions, early cutting of the vines does not appreciably reduce the yield of tubers, and results in other countries indicate that it will, the vines will be of little importance as fodder, except in special cases, where the crop is grown primarily for this purpose.

In general, therefore, the varieties to be selected are those that give the highest yield of tubers of reasonable size, with good cooking and storing qualities, together with sufficient growth of vine to cover the soil and keep weeds in check, and which are to the greatest extent resistant to pests and diseases, particularly to *Megastes Grandalis*, the Sweet Potato Stem Borer.

The investigation was carried out in some detail, but the unevenness of the field, and the consequent variation in yield from plot to plot rendered any definite conclusions impossible.

In 1930 W.T. Delgarno carried out a trial (7) with six comparatively well known varieties -

Jackson, a variety that has been in cultivation in Trinidad for fifteen years or more, and which is still probably the most popular variety with growers.

Black Jack, a more recent introduction, which promises to take the place of Jackson in the favour of buyers and producers alike.

Black Sam and Red Nut, two varieties very similar in quality and growing capabilities. They are both increasing in popularity. Particularly Red Nut, which was introduced from Venezuela ten years ago.

Soaly, a variety which has been grown in Trinidad for many years but is not popular with growers, as it is a very poor keeper. It does, however, produce a very heavy growth of vine.

Yellow New Jersey, a new variety imported from St. Vincent, which is very popular with growers, and is said to give very high yields.

The following table gives the results obtained.

Table showing results obtained by W.T. Delgarno. Variety Trial 1930-31

Variety.	Yield of tubers per 1/20th acre. (all in tons per acre.)	Height of Table Storage %.	Gross loss of Table Tubers. %.	Yield of tubers in tons per acre.
Black Jack.	2.61	66.5	29	1.03
Jackson	2.05	74.7	17	1.88
Red Nut	1.22	61.1	32	1.37
Black Sam	1.57	66.7	27.5	1.63
Soaly	0.29	78.3	41	2.95
Yellow New Jersey	0.93	68.0	32.5	1.31

For New Jersey, the difference in yield of tubers must be 0.513 tons per acre.