INTRODUCTION.

Though the tomato is a native of Central America its cultivation is worldwide. It is the most important vegetable in the Caribbean. This is due to a large and increasing local consumption, to a considerable trade between certain West Indian islands, mainly Cuba and Jamaica, and the U.S.A., and to an expanding production of canned tomato juice and fruit, particularly in Cuba and Jamaica. The main growing season for the tomato in the Caribbean is during the drier months of the year, October to April, and as this coincides with the winter months in the United States, it gives the West Indian farmer the opportunity to export his fruit to a profitable market.

Prior to World War II there was a small trade between the British Islands, mainly Montserrat, and Canada, the fresh fruit being carried by the Canadian National Steamship Company, which plied between Canada and the West Indies. Since World War II, Florida has built up her production of early season tomatoes, and the trade between North America and the West Indies has diminished. Cuba, Jamaica and the Bahamas still supply the United States, and Montserrat is trying to establish trade with the Eastern Caribbean territories, mainly Trinidad and British Guiana.

Tomato production in Trinidad is entirely in the hands of small farmers. There are no exact figures available, but Farrell, of the Trinidad Marketing Board, as a result of a survey of one of the main markets in Port of Spain in 1958, estimated the yearly production at six to seven million pounds, from roughly 900 acres. This, however, does not satisfy the local market, and in 1957 importations of tomato products into Trinidad were valued at - Fresh fruit $10,000 (C.I.F.): Canned fruit $35,500 (C.I.F.): Canned tomato juice $32,000 (C.I.F.) - (Import and Export Figures for Trinidad and Tobago, 1957).

As in the other islands, tomatoes in Trinidad are grown under dry season conditions. General standards of cultivation are low and yields are poor, seldom if ever averaging over 1 lb. per plant. Rombulow-Pearse (1953) carried out a survey of tomato planting by peasants in the Aranguez district, and as a result of his and other observations, a series of investigations have been carried out at the I.C.T.A. over the last six years, aiming at improving these cultivation standards and so obtaining increased yields.

The peasant method of raising seedlings for transplanting is to sow seed thickly on open nursery beds. The seedlings are never thinned until they are actually transplanted, and as a result are spindly and weak. Smith (1954) compared this method with two others, (i) growing the seedlings in three inch clay pots, and (ii) transplanting the seedlings at an early age to prepared nursery beds, on which they were placed at a 3" x 3" spacing. The pots contained a special potting compost, while the nursery beds were covered with a two inch layer of bamboo soil and were given an application of fertiliser. Results showed quite conclusively that both these methods gave increased early and total yields as opposed to the peasant method. These findings were later confirmed by Tremeer (1955) and Fenwick (1956).

Rombulow-Pearse (1953) compared transplanting on the flat, and transplanting on the ridge with the local method of transplanting on the flat followed by moulding. Results appear to indicate that either planting on the ridge, or planting on the flat followed by moulding are the best methods. No significant difference was observed between these two methods. Later Smith (1954) and Christian (1957) obtained identical results with these three treatments.

Investigations into the use of "Starter Solutions," a soluble fertiliser treatment applied to the plant at transplanting (Tremeer (1955), Fenwick (1956)), showed that by using a starter solution high in phosphorus, early and total yields were improved.

The experiments also indicated that a highly concentrated solution, applied at the rate of ¼ pint per plant, gave the best results.

Christian (1957) compared pruning and staking, with no pruning and staking, and no pruning no staking, using a staked indeterminate variety at a spacing of 3' x 1½'. He found that although there were no significant differences between yields from the different treatments, yet growing tomatoes without pruning and staking favoured earlier yields, while staking and pruning tended to increase total yields. However, costing the different treatments he found that no pruning no staking gave the greatest profit per acre. Campbell (1957, 1959) compared these three treatments, and obtained the following yields:

	No Staking No Pruning	Staking No Pruning	Pruning & Staking	
1957	18,719	17,303	10,877	) Yields converted to lbs/acre
1959	42,901	49,400	32,519	)

These experiments confirm that improvements can be made locally, and the experiments described in this paper are a continuation of these investigations on tomatoes. Their aims are to obtain an indication of fertiliser requirements of tomatoes under Trinidad conditions, in the first instance, how much fertiliser is necessary, and secondly, when it should be applied.