

1 INTRODUCTION

1.1 Aim

The aim of this project was to ascertain the fertilizer regime under which the best yields of a cabbage variety would occur under tropical commercial conditions, specifically the conditions at Aranjuez, Trinidad. Soil fertility, soil structure and uptake of nutrients were to be examined as variables which would affect yield and efficient fertilizer use. Three applications of fertilizer were chosen as a means of avoiding excessive leaching losses and to allow closer examination of the effect of fertilizers on the composition of the plants.

1.2 Site

The site chosen for the experiment was Aranjuez, an area not far east of Port-of-Spain and ^{near} the Northern Range. The San Juan River borders it on the north and east; the south is bounded by swampy Crown Lands. Aranjuez is an estate which is leased in one and one half acre parcels on the average, to tenants of mainly Indian origin. It is one of the main vegetable growing areas in Trinidad. The soil was termed River Estate Loams by CHENERY, (1952) and who described it in detail as follows:

"These soils are located in a broad block covering about 4,000 acres between Barataria and Curepe. Smaller patches of a few hundred acres in all occur in the river valleys of the Central Range and at Mayaro. They developed in micaceous and/or schisty sand alluvium. The topsoil is a uniform dark yellowish brown loam to fine sandy loam about 18 inches deep. This grades into a paler yellowish

brown fine sandy loam spotted with black and orange semi-hard concretions. At about 5 feet the concretionary horizon passes into a bright yellowish brown loam lightly stained brown and orange. According to moisture conditions, slight mottling may occur below this. The sub-soil of this series has a greasy feel due to an abundance of small mica and schist particles. Desiccation is severe in the dry season but in the wet season drainage is so good that the soil can soon be worked after heavy rain. Plant nutrient status is somewhat below the standards for best crop growth. The profile is strongly to slightly acid (pH 5.0-6.2), being 30 to 70 percent saturated with calcium. Exchangeable calcium is low (3-9 m.e./100g), available potash is low (30 to 80 p.p.m.) but available phosphate is variable (10 to 60 p.p.m.).

The principal crops are mixed vegetables for the Port-of-Spain market, coconuts for drinking purposes, fodder grasses and pastures. Sugar-cane will grow if fertilized with potash but is usually low yielding. A large acreage of bamboos was planted on this soil type for paper pulp making, but the project had to be abandoned owing to high labour costs and the fact that the bamboos did not recover satisfactorily after cutting owing to lack of dry season moisture".

The socio-economic situation of Aranjuez has been described in detail by MACMILLAN in 1967.