

## INTRODUCTION

In Trinidad the scarcity of suitable agricultural land on the plains has forced quite a number of people to cultivate the steep slopes of the Northern Range. Losses through theft are also responsible for the cultivation of these rather inaccessible places. On the slopes the more usual form of cropping is on a shifting basis where the land is cleared of bush and the vegetation is burnt prior to planting the crops. Crops are grown on the same plots till the yield becomes too low to warrant further cultivation, after which the plots are abandoned. The other extreme of hill farming is to cover the land with permanent tree crops.

It has been stated by various authorities that hill cultivations have led to a great increase in the run-off of water after rain, and is seen in the increased flooding of the Caroni River. This is true to a certain extent but it should not be forgotten that much building has been carried out recently all along the Eastern Main Road. The roofs of these houses cause immediate run-off, which is led by drains and ditches directly to the rivers before it has a chance to percolate into the soil, which must result in a rapid rise in the rivers during and after rainfall.

The hill surveys were carried out this year under the supervision of Dr. G. ap Griffith. The main purpose of these surveys is to familiarise the students concerned with the technique of survey and to provide more detailed information than has been collected hitherto as a basis for any agricultural extension work the College or the Department of Agriculture may be in a position to carry out at a later date. The survey also gives an opportunity to study the different methods employed by the small scale gardener and the quite large estate owners. Much was gained simply by talking to these people and listening to their views. Identification of the various crops was interesting and is a very useful part of the survey.

Three areas were chosen this year, namely :-

1. A hill garden area at Floradale, La Baja Road;
2. Peasant gardens and small estates in the Mount St. Benedict

area; and

3. Permanent tree crop cultivation on the Maracas and Tierra Nueva Estates on the Maracas Riverside Road.

To get an overall picture of hill agriculture all the areas were visited during the first term and after that one student concentrated on one of the areas. This report is on the third area but references are made to the other two from time to time. Area 1 was surveyed by J.S. Ure and Area 2 by R.A. Sands.

The estate area has not been surveyed before with the result that this report is mainly a general description of the area with background information and its effect on the present agricultural situation.

On the estates and also in the other areas there is no correlation between land utilisation and degree of slope. The extent of soil erosion does vary with the crop grown. Most of the erosion takes place under cocoa, with its shade, and on the exposed hill gardens.

The appendices contain the results of the soil analysis, a table of crop yields for Tierra Nueva estate, rainfall figures and a map of the area.

Scattered through the parent rock are outcrops of calcium carbonate, the presence of which causes great local variation in the pH value.

With the hot wet climate the rock weathers rapidly into soil forming material. The structure of the Range is immature and even on well wooded slopes landslips of the catastrophic type occur. After clearing and burning, in spite of the high sand content, the soil seems more resistant to erosion in these areas than would be expected under such conditions. However erosion symptoms may be ascribed to some extent by the rapid weathering of the soil forming material. Soil erosion is taking place however, as seen in the non-formation of a soil profile even in forest conditions.

Soil samples were taken from all three areas and analysed by the Soil Science & Chemistry Department. The results are given in Appendix I. Areas 1 and 2 have been sampled in previous years. From these results and from those obtained this year the following is the general picture of the soil:-