INTRODUCTION.

A survey of existing land usage is the essential preliminary to the agricultural development of an area. The basic statistics of present agriculture are necessary to guide the planning and implementation of policy in an area (Douglas & Tennant 1952). The level of prospective food supply and hence the human carrying capacity of the area can be calculated from land utilization data. The acreage under cash crops is also obtained. The pattern of land utilization is often governed by soil so the utilization survey helps the soil surveyor. When the data of utilization, soil and climate have been obtained the agricultural potentialities of the area can soon be judged. The cost of surveying the whole of such areas is prohibitive, even if the staff were available, hence it is usual to employ a sample method of surveying.

Sampling may be defined as the selection of part of an aggregate of material to represent the whole aggregate. This procedure has to be adopted when:-

1) The population is too large to handle economically.
2) Measurements are too expensive to carry out on a large population. This happens with a new drug or vaccine which is expensive to produce. The performance of the new product is gauged by the reaction of a sample of the population.
3) Information is wanted quickly. Pre-harvest crop estimates are wanted quickly so that the method of dealing with the harvested crop can be planned.
4) The population is constantly changing. A full economic survey merely gives average figures over the period of the survey, but a sample survey gives precise information at a given time, which is more useful.

5). .../

5) The process of obtaining data leads to the destruction of the material concerned. This happens in chemical analysis.

The application of sampling is therefore universal and has many other uses beside land utilization surveys. The land utilization survey described in this dissertation is therefore an exercise in sampling as well as surveying techniques.

A sample survey has other advantages over a complete census:-

a) Less time and expense.

b) Number of staff required is smaller so closer supervision is obtained and the enumeration should therefore be more accurate.

c) It can be designed to give more detailed information. The peasant surveys carried out by the College, though statistically acceptable sampling methods were not used, show the wealth of information which can be obtained.

d) The reduced volume of material to be handled give a higher quality of abstraction and analysis.

e) At the close of the work the statistician can state that the results are correct within an error $\pm$ x% but no such statement can be made in the case of a full census.

The intensity of sampling is usually decided by the labour, materials and finance at the disposal of the survey organiser and the use which is to be made of the survey data. If critical calculations are being made from the survey data then the estimates have to be obtained with low sampling errors. As the accuracy of a survey increases so usually does the cost. Other... /

Other factors influencing the intensity of sampling are the stage of development of the area, its size, topographical features, natural vegetation and agricultural crops.

The main object of this survey was to find the best sampling methods and surveying techniques for an area like the Western Plain of Trinidad. Due to the limited time available certain restrictions were imposed by the Supervisor. The area was restricted to the part of the Colony that was most easily accessible and a frame which involved finding and interviewing people could not be used. As last year, the simplest equipment and standard maps were used, no outside labour was used at all.

Last year's technique of mapping certain sample areas proved satisfactory for the bush stratum since the area showed little variation. The cane arable stratum proved to be very variable and was the main cause of the high standard errors of last year's crop estimates. It was therefore decided at the outset that this year's efforts should be concentrated at lowering the standard errors of the cane arable stratum crop estimates. The means by which it was hoped to improve the accuracy of the survey are described in Chapter iv.

The survey team consisted of four post-graduate Students under the guidance of Dr. A. L. Jolly, the project tutor, who took the chair at meetings held at the planning stage. The survey was planned during term-time and most of the field work was carried out in the Christmas vacation. At the planning stage each person was, as far as possible, responsible for a certain task being carried out. In the field each member in turn supervised the survey of certain lines. When the results were calculated, each member was responsible for the calculation of certain crops. Hence every member of the team has acted as supervisor in the field and has become acquainted with the methods of calculation of the results.