

## Section 1.

### 1.1 Introduction

This is a report of a sample survey of sugar cane farmers carried out by a group of five post graduate students at the Imperial College of Tropical Agriculture. The team designed and prepared the survey and the enumeration was done by the remaining post graduate students at the College under the supervision of the team.

The main purpose of the survey was a practical exercise in sample survey technique which should if possible yield results of benefit to Trinidad agriculture.

### 1.2 Use Of Surveys In Agriculture

At the First Conference of Colonial Government Statisticians (1950) it was agreed that there is a real need for the fullest possible information on agricultural output. In most underdeveloped countries the people depend on agricultural resources. It is essential, therefore, that adequate statistics should be available for the planning and development of these resources.

It is the aim of agricultural departments throughout the underdeveloped countries to increase agricultural output by improvement of existing agricultural practices and the introduction of new methods. In these underdeveloped countries surveys in agriculture are a comparative innovation and a number of development schemes have failed due to lack of adequate background information (Stamp, 1957).

For efficient planning of any improvement or development scheme some type of agricultural or land utilisation survey should be previously undertaken, the type being determined by the information required and the resources available.

For example, before land settlement can be undertaken it is necessary to have information on existing land use, crop yields, degree of fragmentation of holdings, average family size, water supplies, susceptibility of the land to erosion, and occurrence of diseases of stock and humans. Not until all these factors are known can action be taken.

Sometimes information can be collected from already existing records. In underdeveloped countries it is found that even the most simple records are not kept and other methods of obtaining the desired information must be used. A complete survey would, in many cases, cost so much that it could not be considered. A sample survey would cost far less and could be designed to give results of sufficient

accuracy for the use to which they are to be put.

### 1.3 Choice of Survey

The team were strongly advised to undertake a survey of the sugar cane farmers selling to Caroni Ltd. The team decided to accept this advice particularly as very little accurate information is available concerning cane farmers and any information obtained would be of value. Also the Company had expressed their willingness to co-operate as far as possible on such a project and could provide a suitable ready-made frame.

Reliable information regarding the production of cane farmers is difficult to obtain. Much of the previously published information concerning the Trinidad sugar industry is based on estate experience and information relating to cane farmers is based on estimates the reliability of which is unknown. In 1948 when the Soulbury Commission prepared a report on the sugar industry in Trinidad this same lack of information was met with.

In view of this paucity of information it was decided to carry out a survey with the object of obtaining basic information about the production of cane by these farmers and the factors affecting production.

A requirement of this project was that the team should carry out a sample survey. A complete survey or census of the area surveyed would have been too costly and time consuming and beyond the resources available. Even if resources had been available a census would have been a wasteful use of them as reliable results can be obtained using a sample survey technique. If the team had been free to undertake a complete survey of cane farmers this could have been done on a smaller area.

Sample surveys are surveys carried out on properly selected samples. Although the cost of a sample survey is somewhat greater per unit the overall cost is less especially where conditions allow the sample to be a small proportion of the whole population. For a given cost the sample survey will allow greater detail per unit than a census and the information obtained will be less voluminous and less laborious to analyse. Consequently the results and recommendations will be available sooner. Sample surveys are also more flexible and can be designed to produce a

given degree of accuracy or to involve a certain cost. The balance between cost and accuracy is a measure of the efficiency of the survey.

In this survey a question and answer method was thought to be the best method of obtaining the desired amount of information in the time available. By use of simple questions and provision of suitable checks in questioning it was considered that reliable information could be obtained. It was thought that the suspicious attitude of many of the lesser educated farmers could be overcome by careful explanation of the purpose of the survey by the enumerator. In addition to question and answer the team were required to include in the questionnaire information that needed direct observation and measurement by the enumerator.

The inevitable errors which occur in a sample drawn properly at random from the population are called the random sampling errors and these can be calculated from the variability that is observed among the sampled units. Thus the degree to which the sample is representative of the whole population can be determined.

Error may also be introduced by bias in selection. Bias occurs when the method of selection results in sample units that are always affected by a similar error. For example, in a survey of households, bias would be introduced if only average households of five people were included in the sample. Errors due to bias cannot be measured consequently it is important to keep the error due to bias to a minimum. If a truly random sample is drawn it will not be biased, where possibilities of large errors due to bias exist fully objective conclusions cannot be drawn from the sample.

In an infinite population the random sampling error is inversely proportional to the square root of the number of units in the sample. Thus the random sampling error can be reduced by increasing the number of units in the sample but beyond a certain point increasing the number of units decreases the efficiency. It will usually not be worth four times the cost to halve the errors provided they were tolerably low in the smaller sized sample. Thus the size of the sample should be kept consistent with tolerably low errors.

The magnitude of the random sampling error depends not only on the number of units included in the sample but also on that part of the variability of the population which contributes to the error. Some of the population variability