

I. INTRODUCTION

This survey was undertaken as part of the requirements for the Diploma of Tropical Agriculture examination, at the Imperial College of Tropical Agriculture, in the academic year 1955/56. The team responsible for the survey consisted of four post-graduate Colonial Office Probationers, B. Buckler, M.J. Furber, H.E.G. Morgan, and R.F.A. Murfitt.

As Dr. Jolly has mentioned in his "Supervisor's Note" the main objective of the survey was that of improving the results of the Land Utilisation Survey carried out by five students at the College in the previous year.

A second important object of the survey was to provide a team of novices with experience of the theory, planning, and execution of a sample survey. Certain restrictions, inevitable in a student project were placed on the time, money, and materials allowed to the team. Restrictions as to time were mainly necessary owing to the other commitments of the team, but having to carry out the field work in the Christmas Vacation was unfortunate. Obviously the best time for any survey work in the area chosen is later on in the season when much of the cane has been cut. Restrictions on expense had the effect of excluding the use of elaborate techniques requiring the employment of labour, and restrictions on equipment confined the team to the use of the prismatic compass as the main surveying instrument.

It was not found practicable always to provide each member of the team with a separate section of the work as was done in last year's survey. Certain sections were however the nominal responsibility of one person, but free discussion and cooperation prevailed in all stages of the survey.

It should at the outset be stated that owing to the late discovery of an error in the theory upon which the survey was based many of the arguments for the methods employed are no

longer valid. Though now of little value the arguments will still be presented in order to illustrate the logical approach to planning a sample survey. Attention will be drawn to the errors as they occur.

Before entering into a description of the survey proper it may be appropriate to give a general account of the theory of sampling.

Not only does it enable estimates of large populations to be made with little trouble and expense but it also enables information to be gathered more quickly, because it involves less work than would a complete examination of the whole population. Such rapid estimates are of great value in crop forecasting. Sampling may also give greater accuracy and detail since it permits the whole resources of the investigation to be concentrated on the sample instead of being dispersed over the whole population; a characteristic invaluable in detailed managerial surveys. Another advantage of the sampling method, not strictly applicable to most surveys, is that an appraisal involving destructive tests can be carried out on a sample while leaving the majority of the population intact. Such tests are frequently necessary when examining qualities such as chemical composition.

PROPERTIES OF A SAMPLE.

The aim then is to obtain a sample which possesses all the characteristics of the population, present in the same proportion as in the main population. That is to say it should be truly representative of the population from which it is drawn. (Snodgrass 1946 A). Such an ideal is rarely achieved but various techniques can be employed to make its attainment more probable. The selection of a sample is complicated by the fact that the statistical theory upon which analysis of the sample depends is based on the law of large numbers. These laws require that the method of selection of the sample shall be such that every