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GROUP 16. SAMPLE SURVEY METHODOLOGY

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It was considered that, while some problems of conducting surveys and the subsequent analysis of data are common to all situations, special problems could arise in some circumstances. Since it was believed that the most important differences depended on the stage of development of the agricultural industry it was decided to consider separately problems of surveys undertaken in developing countries. The subjects needing to be considered included objectives of survey, size of sample, sampling frames, methods of data collection and analysis, administrative procedures for collecting and handling the data and the publication of results. The most important conclusions were:

(i) The objective of the survey should be explicitly stated by those instigating the investigation.

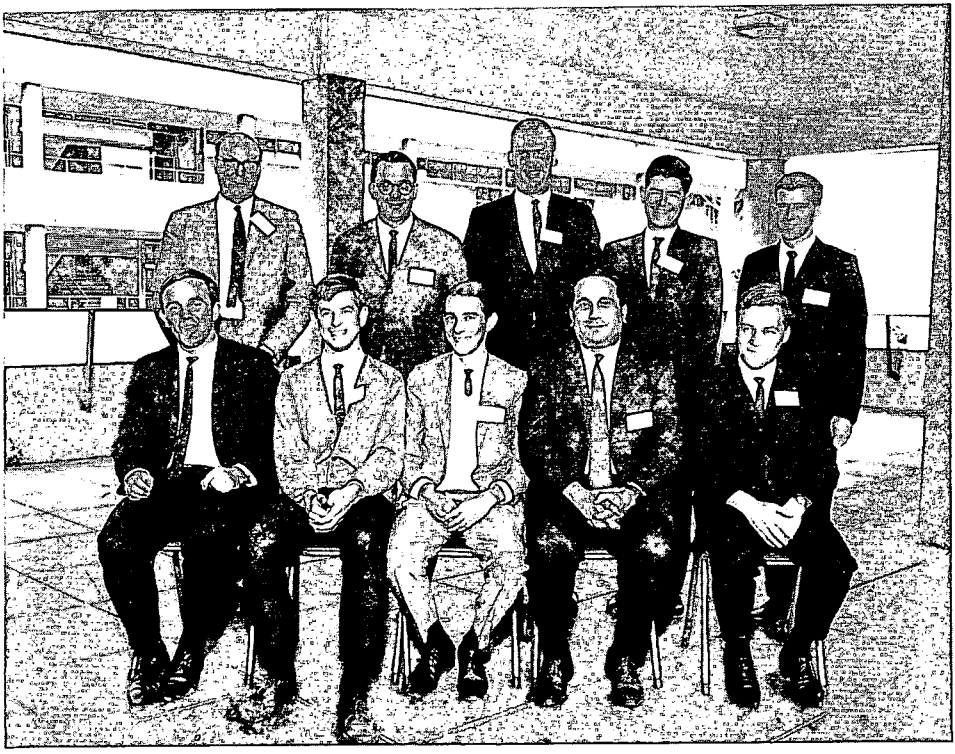
(ii) Where it was not possible (through lack of knowledge) to estimate scientifically sample size an effort should be made, *a posteriori*, to determine the precision of estimates made.

(iii) It was often necessary to rely on records of a non-random group of farmers over a period of years (continuous survey), and that research is needed on problems of inference for such non-probability samples.

(iv) The main problems in maintaining the uniformity of a continuous survey sample were due to changes in individual farm areas over time and changes in farm type, and that decisions should be taken at the outset concerning the level and type of such changes considered to be critical to the comparability of results. Changes in management could also make comparisons difficult.

(v) Since wastage from a continuous survey was inevitable the original 'sample' should be large enough to leave sufficient records for valid analysis over the period required.

(vi) Pilot studies, often useful but not always essential, were a necessity for surveys undertaken in developing agricultural economics.



GROUP 16. SAMPLE SURVEY METHODOLOGY

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Other member of group:

J. S. Holden, *Australia*

(vii) Air photographs could be useful as a sampling frame in surveys of land utilization, in the construction of cluster sampling schemes and in the drawing of block samples of land.

(viii) Apart from care in questionnaire design, built-in checks are vital at all stages of the work, e.g. duplicate form of questions on questionnaire, independent fixed checks through re-interview, scrutiny in field and office, editing procedures in computer routines, examination of extremes revealed in analysis of data, etc.

(ix) Objective yield surveys based on growth functions should be encouraged since it appears that this is the most accurate method of forecasting yields. These methods have been applied in the U.S.A. to corn, cotton, citrus and other fruit crops. Considerable statistical data are required to formulate the growth functions against which samples of the crop taken at varying ages of growth are checked.

(x) Too many survey results lose their impact because of bad presentation and lateness of publication.

(xi) Surveys in developing countries should be concerned not only with agricultural and economic aspects but also with social, medical, nutritional, and educational ones, since these factors are all interdependent to a greater degree in developing countries than in others.

It was obvious from the discussion that each sample survey is really unique in spite of the common bases and parallel problems it is bound to have with other surveys. Although it is possible to formulate some general principles concerning sampling, questionnaire design, field practices, etc., the success of any sample survey, at our present stage of development, depends as much on the ingenuity, experience and imagination of the organizer as on the application of good statistical practice. It would be helpful to others if authors of publications dealing with sample surveys could find the courage to include a commentary on the practical difficulties they found and the ways in which they dealt with them.

A joint meeting was held with the Agricultural Census Methodology group to discuss common problems and particularly courses entitled 'International Statistical Training Programs of the U.S. Bureau of the Census' provided for members of countries concerned with the 1970 World Agricultural Census. The object of the course is to provide training in conducting a census and this is achieved through

workshops using detailed constructions of mythical countries embodying all the problems likely to be encountered by investigations no matter from which country they come. The group considered that this work is important and was impressed by the considerable documentation which exists for the programmes.