

## A SAMPLING TECHNIQUE TO ESTIMATE THE INCIDENCE OF PESTS AND DISEASES

D. S. RANCA RAO and V. N. PANDITRAO

The need for obtaining accurate data in regard to damage of food and commercial crops due to insect pests and diseases has been felt for a long time. One of the main difficulties in getting such data was that no suitable technique for assessing the incidence had been evolved. In 1952, the Ministry for Food and Agriculture, Government of India, appointed a committee for the purpose of determining ways of estimating losses in food crops. The Committee was asked (i) to test the feasibility of assessing the extent of infestation of certain major pests and diseases in cultivators' fields by sample surveys, and (ii) to estimate the losses in yield due to infestation of varying intensity and degree.

As one of the objects was to ascertain the average incidence of pests and diseases in the cultivators' fields, the Committee decided that the work of assessment should be integrated with that of the crop estimation surveys, based on random sampling principle, in progress in the states. The committee, however, felt that linking up the infestation with the corresponding losses in yield was rather complicated, and hence, it was decided to restrict the scope of the survey to the first object only.

As far as the authors are aware, the former Bombay State was the first to undertake such a survey. The survey was carried out during 1952-53 of two crops, *kharif jowar* and cotton in the two districts of East Khandesh and Surat, in respect of stem-borer and smut on *kharif jowar*, and wilt and root-rot on cotton. The present article, summarizes the results of the survey in respect of incidence of stem-borer on *kharif jowar* in both the districts.

### *Sampling Plan*

The plan adopted for the survey was one of stratified multi-stage random sampling. The talukas formed the strata, villages the primary units, fields the secondary units, and a plot of two consecutive rows each 30 feet long was the ultimate unit of sampling. Sixty-five villages chosen for crop-cutting experiments on *kharif jowar* in East Khandesh, and 67 villages similarly chosen in Surat district were taken for this survey. These villages were distributed in different talukas approximately in proportion to the average area under the crop during the past three years. In each of the selected villages, two survey numbers were chosen out of the three selected for crop-cutting experiments. In each selected field, two plots, each consisting of two contiguous rows each 30 feet long, were located. For location of the plots, the following procedure was adopted.