4. An Analysis of the Crop Cutting Experiments

R S Deshpande

Upgrading and stabilising agricultural production at a faster pace is one of the basic conditions for agricultural development. Production of any crop is led either by extension of area or improvement in productivity or both. In India, the possibility of extending the area under any crop hardly exists except by resorting to increased cropping intensity or crop substitution. Moreover, area and productivity of different crops are the results as well as the reflection of the combined effect of many factors like agro-climatic conditions, resource endowment, technology level, techniques adopted, infrastructure, social and economic conditions. Many schemes have been devised to maximize the productivity of various crops in different agro-climatic regions. State departments, credit institutions, seed/ fertilizer/pesticide agencies, and many other partners in public and private sectors are actively engaged in enhancing the productivity of different crops in different regions and under different conditions. However, fluctuations in crop productivity continue to dog the sector and create severe distress.

Estimation of productivity of different crops is one of the important activities undertaken by the government departments in order to monitor the progress of the sector and provide insurance to the sector. Revenue, Agriculture, and Economics and Statistics departments are jointly involved in the estimation process. Researchers and many other agencies use the data so generated by the government departments. But these are usually available only in an aggregate form and are maximum at the taluka level. Satellite imageries, of late, are being used increasingly to estimate the area but productivity data have to come from the crop-cutting experiments.

Article 243-g of the Constitution of India requires the Panchayat Raj Institutions to be the decision-making bodies in various aspects of the agricultural sector, especially implementation of the schemes. Crop insurance is one of the important schemes in the agricultural sector. The debate on implementation of this scheme indicated requirement of the yield estimates at lower than the taluka level, especially at the panchayat level. The Statistical Commission recommended a minimum of eight experiments at the panchayat level, if yield estimates have to be arrived at the hobli level. Therefore, the state government felt it necessary to ascertain the distribution of experiments already conducted in the State across districts, talukas, hobalies, panchayats and villages in the State.

In the above context, a detailed analysis of the data available on the crop-cutting experiments conducted by the Government of Karnataka during 2000–2001. The main objectives of the study were to find out the number of crop-cutting experiments conducted, with the present strength of field staff, at grama panchayat, hobli, taluka and district levels. These have to be grouped by crops (variety wise), seasons and conditions (irrigated and rainfed). The project was to provide tables to the State Government in the required format and also user-friendly software to get such analysis done with ease at the district level.

A total of 52,106 experiments conducted on 26 agricultural crops in 27 districts of Karnataka State during 2000–2001 were included in the present analyses. The details provided in the prescribed schedules were: identification of the field (farmer, survey number, village, hobli, taluk, district), name of the crop, season (kharif, rabi, summer, annual), pure or mixed (proportion if mixed), seed variety (hybrid, high-yielding or local), irrigated or dry, method of sowing (broadcasting, hand sowing, drill sowing, dibbling, transplanting), fertilizer doze (name and quantity of fertilizers), percentage of crop loss due to pests, yield in kilograms per plot, name of the field worker in charge of the experiment. Invariably, at least two experiments are conducted in a given village and the data are entered in a prescribed schedule. About 1,500 schedules (3,000 experiments) were not included in the analyses since they were not made available. However, it is possible to include the details of the remaining experiments conducted during 2000–2001 with the help of user manual provided in the report.

The following details are provided in the report (hard copy) up to the grama panchayat level and all the details are provided experiment-wise up to village-wise in the CD-ROM.

1. Number of experiments conducted crop-wise of grama panchayat, hobli, taluk and district levels.

2. Number of experiments conducted season-wise and crop-wise using hybrid, high-yielding and local varieties under irrigated and rainfed conditions as pure and mixed crop at village, grama panchayat, hobli, taluk and district level. Range and coefficient of variation of yields under the above conditions are also provided.

3. Crop-wise yields in different ranges at the state level.

4. Crop-wise fertilizer nutrients used per hectare under different ranges of crop yield.

5. Yield loss (in per cent) due to pests at the taluk level.

A state-level report containing the tables across districts was prepared. In addition, reports were prepared for each of the districts giving the data in the required format along with user-friendly software to obtain such tables from future experiments.