

farmers to gain maximum benefits from increased crop production. Means of transmitting technical and marketing information to the farmers must be enlarged and improved by an order of magnitude.

A long-range program for producing better seeds and plant varieties should be started immediately, as at least five years are needed before the first seeds will be available for large-scale distribution. The primary breeding efforts should be concentrated in the major education and research centers of West Pakistan, but they should be supplemented by localized breeding and field testing in the project areas to determine local adaptability. At the same time, efforts should be made within the project areas to identify and test the most promising varieties of present seeds. Ultimately, several hundred thousand acres of seed farms will be needed.

Accurate information must be gathered on farm budgets and the results of farm plans, yields from crop-cutting experiments, water applied to crops and other hydrologic data, and soil characteristics. Statistical benchmarks must be established from which progress can be measured. (see Chapter 8).

Programs of agricultural improvement have been attempted in many developing countries, and isolated successes in relatively small areas are a matter of record. No precedent exists, however, for innovation on the scale contemplated in our plan - a million acres a year for twenty-five years. Because of the lack of precedent, comparative trials should be undertaken concurrently in each of the first few project areas to test the relative social and economic effectiveness of different methods for inducing innovation. One of the major missions of the early projects should be provide sound data for the guidance of later ones.

Especially important is the transfer of technology to farmers, and the study of techniques of transfer should be given high-priority. Three methods seem particularly worthy of further study: (1) the farm-planning or budgeting approach, which has been very successful in the United States and which is the basic technique of the intensive program in India, (2) the "cooperative-academy" approach which has yielded excellent results at Comilla in East Pakistan, and (3) the use of mass communication media. The effectiveness, relative to costs in trained manpower and operating expenses, of these methods should be compared with that of other techniques such as use of demonstration farms and orthodox extension services, or simply concentration on prompt and adequate supply of the factors of production, combined with marketing incentives.

In developing the project areas, there should be a strong emphasis on increasing production from lands that have not yet been damaged by