

Chapter 8

RESEARCH AND EDUCATION

Known techniques show the steps that must be taken to increase the productivity of Pakistan's farms and fields. These have been discussed in the preceding chapters. Yet it is well to be aware that in the execution of a program as vast and complex as the one here recommended, the unexpected is almost certain to occur and the expected not to. The predictions and projections made in this report await the test of hard experience.

Although our estimates are as sound as we could make them, our work has been handicapped by the lack of reliable data on water availability and use, crop yields, farm accounts and, indeed, nearly all the essential facts. Thus all our assertions must be regarded as tentative, and aggressive efforts must be made to obtain data that can serve as a firm foundation for planning. The program here laid out will undoubtedly have to be revised in the light of those data.

But techniques known today will not serve Pakistan's needs indefinitely. As we have mentioned before, it will not be sufficient to achieve a once-over increase in agricultural productivity; Pakistan's agriculture must be put on the road to continuous growth. The key to continuous growth is continuous research, development, testing, and evaluation. This has been demonstrated repeatedly in many countries, including the United States.⁽¹⁾

Thus, both to construct a well-founded development program and to lay the foundation for a continuing growth in output a vigorous research effort is required. In this chapter we shall discuss some of the lines of research that appear to be most urgent and rewarding in conjunction with the program for increasing agricultural output. Lines of research will be discussed under

(1) See, for example, Robert M. Solow, "Technical Change and the Aggregate Production Function," Review of Economics and Statistics, 39 (August 1957), 312-320. Solow concluded that during the period 1909-49, 7/8 of the increase in output per manhour in the United States was due to technological improvements and only 1/8 to the increased use of capital. This finding is typical. A study devoted specifically to agriculture is R. A. Loomis and G. T. Barton, Productivity of Agriculture, 1870-1958, U. S. Department of Agriculture, Agricultural Research Service, Technical Bulletin No. 1238.