

9 FARMER ADOPTION OF MAIZE RECOMMENDATIONS

INTRODUCTION

As described in Chapter 3, new recommendations on the production of maize were available at the beginning of 1968, and these recommendations were modified for subsequent years, particularly for certain parts of the area and for late dates of planting. Promotion of the use of these recommendations was begun in 1968 with 103 farmers, and was extended throughout Zones I, II, III, and IV in 1969, and to the remainder of the area in 1970.

In general surveys in 1967 and 1970, the Project evaluation team obtained information useful for estimating the extent to which the recommendations of the Puebla Project have been used by the farmers in the area. Similar information was obtained for the 5 years from 1968 to 1972 when the evaluation team estimated maize yields just prior to harvest and obtained interviews with the farmers whose fields were sampled. This chapter presents some of these data: (a) to show the degree to which farmers have used the recommendations, and (b) to compare average maize yields during 1967 to 1972. A final section discusses the influence of certain factors on farmer adoption.

LEVEL OF ADOPTION OF THE MAIZE RECOMMENDATIONS

Quantitative discussion of the level of adoption of the new maize recommendations is complicated by several factors: (a) there was an initial tendency for farmers to only partially adopt an individual production practice. For example, instead of changing from a traditional level of 30,000 plants/ha to a recommended level of 50,000, the farmer often changed to some intermediate level; (b) farmers often tended to accept some recommended practices more readily than others; that is, they might increase their rate of nitrogen fertilization before changing the way they apply it; and (c) farmers often tended to use the new technology initially on only a portion of their land.

Thus, the evaluation of the level of adoption became a matter of determining the percentages of farmers who were using the various recommended practices in different degrees at different times. Such evaluation in the Puebla area was hampered by the diversity in recommendations that had evolved over the years. By 1972, specific maize recommendations were available for 16 producing conditions. Recommended rates of nitrogen varied from 60 to 130 kg/ha for rainfed maize, rates of phosphorus from 0 to 60 kg P₂O₅/ha, and plant densities from 30,000-50,000

plants/ha. The information collected for measuring adoption rate, however, was taken from a sample of farmers selected at random from the Puebla area as a whole, or from the five geographical zones where the technical assistance agents were assigned. Thus, information was not available for individually evaluating the level of adoption of the specific maize recommendations for the 16 producing systems.

Lacking the above information, it was decided to establish arbitrary ranges in values of the several recommended practices, corresponding to high, intermediate, and low levels of adoption and apply them to the entire project area. These ranges are shown in Table 9.1. The lower limits for high levels of adoption of nitrogen, phosphorus, and plant density—80 kg/ha, 30 kg/ha, and 40,000 plants/ha, respectively—are the lowest rates of these inputs that were being recommended in the area in 1973; except in the case of nitrogen, for one producing system with a very low production potential and a second system with plantings made immediately following alfalfa; and, in the case of phosphorus, for the two producing systems in Zone V for which no phosphorus is recommended). (The limits between high and intermediate levels of adoption were established as a function of the recommendations for unlimited capital (Chapter 3). Thus, many of the farmers in intermediate category can be considered high adopters in terms of Project recommendations for limited capital.) The upper limits for the low levels of adoption correspond approximately to rates used by farmers who were making most intensive use of fertilizers in 1967. The phosphorus ranges for Zone V are different from the rest of the area because phosphorus has not been recommended for that region since 1970.

TABLE 9.1. Ranges in rates of nitrogen, phosphorus and plants per hectare corresponding to high, intermediate and low levels of adoption of the three practices.

Level of adoption	Nitrogen (kg/ha)	Phosphorus (kg/ha of P ₂ O ₅)		Plant density (thousands per ha)
		For Zones I,II,III,IV	For Zone V*	
Low	0-50	0-20	> 30	0-30
Inter.	51-80	21-30	11-30	30-40
High	> 80	> 30	0-10	> 40

* The ranges in rates of phosphorus corresponding to the three levels of adoption are reversed for Zone V, since phosphorus is not recommended for maize in that region.