

strategy of an agricultural program where the ratio of small farmers to technical assistance agents is very large. This emphasis on farmer organization has increased the number of farmers in the area who have been able to obtain credit for maize production. The questions can be asked, however: Are the requirements for becoming members of a group too difficult? Would adoption of the Project recommendations increase if such requirements were less restrictive?

Information relating to these questions was collected in 1973 in interviews with 69 farmers belonging to 35 groups distributed throughout the area. Approximately 65 percent of the farmers indicated that the only requirement for becoming a member of their group was that the candidate be an honest, responsible person who fulfilled his obligations. About 20 percent of those interviewed indicated that candidates had to deposit some piece of property with the representative of the group to guarantee that they would pay back the loan at the end of the year. This latter requirement at first appeared restrictive. However, investigation revealed that it was necessary only that the candidate, if considered to be honest and responsible, sign a contract with the group in which he agreed to repay the loan at the end of the year.

Clearly, those farmers who are judged by their neighbors to be dishonest and irresponsible are unlikely to become members of the farmer organizations. Apart from these, however, there was no clear evidence that the requirements for membership in the groups constitute a factor limiting farmer adoption of the maize recommendations.

Other Factors

Characteristics of the farmer, his family, and his land (such as level of education, size of the family, number of members of the family that work, family capital resources, farm size, quality of the land, etc.) probably influence the farmer's decision to adopt or not adopt the Project recommendations. With the information available it was not possible to determine the importance of the first four of these factors on adoption.

The 1970 survey data, however, were used to study the influence of farm size on farmer use of the maize recommendations. The amount of nitrogen used by the 50 percent of the farmers with the largest farms was compared with the amount used by the 50 percent of the farmers with the smallest farms. On the average, the farmers with the larger holdings used 41 percent more nitrogen per hectare than the farmers with the smaller holdings.

Quality of land almost certainly influences the adoption of new technology. Farmers recognize differences in the potential of lands to produce and are more likely to use expensive technology on land with high-yielding potential. It was not possible to study this factor in Puebla as information on land quality of the sampled individual holdings was not available.

Other factors which often influence the adoption of new technology are the relationships between input costs and product prices, availability of inputs, and the network of

roads in the project area.

Obviously, the more favorable the relationship between maize prices and fertilizer costs in Puebla, the more likely that farmers will adopt Project recommendations. It seems unlikely, however, that prices have been an important factor restricting farmer use of the new technology. The relative prices of maize and fertilizers have remained fairly constant during the 1968-1972 period. Approximately 4 kg of maize remained equal in value to 1 kg N; and 3 kg maize to 1 kg P_2O_5 . As noted in Chapter 3, net income from the use of fertilizers is quite favorable in most of the producing systems in the area, with this price relationship.

Fertilizers were sold in some 46 towns and villages in the area during the early years of the Project. Since 1971, most fertilizers have been distributed through the official banks and franchised dealers in six major towns. In most instances, however, farmers have been able to purchase the quantities of fertilizers they need. On occasion, however, they have had to wait several weeks for fertilizer deliveries and have not always been able to buy the materials they prefer. Difficulties in purchasing fertilizers have probably had some influence on the adoption of the maize recommendations, because: (a) farmers who were lukewarm about the use of fertilizers, have decided to use less fertilizer in the face of inconveniences in procurement, (b) those who have been unable to purchase fertilizers prior to planting have, at times, reduced their rate of seeding and thus have obtained lower returns from the fertilizers; and (c) those who have received and applied fertilizers later than recommended have sometimes been disappointed with the results.

Difficulties in transporting fertilizers and produce have probably not influenced the rate of adoption of the Project recommendations. As mentioned in Chapter 1, there is an adequate system of roads in the Puebla area.



The organizing of farmers into groups has helped to increase the number of small farmers that have been able to use project recommendations.