

Incentives

One of the principal incentives for young professionals to participate in small farmer programs is the opportunity to use their talents for improving the welfare of this disadvantaged sector. Nonetheless, the agricultural program should provide working conditions and opportunities that enable its staff to work effectively and advance professionally, including:

- (a) Salaries and perquisites that are competitive with other employment opportunities.
- (1) Timely availability of the necessities for getting the job done (adequate operating expenses for vehicles, prompt purchase of equipment and supplies, revolving funds for the purchase of small items, prompt repair of vehicles and equipment, etc.)
- (c) Encouragement to use their own initiative and innovativeness. The staff cannot be provided with a manual of operation that covers every exigency that may arise. The team members must be encouraged to work out their own solutions when confronted with a new problem, and to follow up, when necessary, by seeking appropriate advice from the rest of the staff and advisors. Decisive problem-solving should be encouraged, with some mistakes to be expected as part of the process.
- (d) Opportunities for advancement: outstanding team members should have the opportunity to advance both in salary and responsibilities either in the same or a different program. Also, those so inclined should be assisted in continuing advanced academic training after participating for a few years in an agricultural program.

An Adequate Budget

Agricultural programs for small farmers should be adequately funded, with budgets that provide for:

- (a) Adequate staff, competitive salaries, mobility of staff, supplies and equipment, etc.
- (b) Availability of funds when needed, a measure that can be expedited by delegating the responsibility and authority for dispensing funds to the program coordinator.

PROGRAM STRATEGIES

Efficiency of the regional agricultural programs will depend on their success in properly focusing the four essential activities (research, technical assistance, evaluation, coordination) and allocating to each the appropriate amount of resources to produce the greatest marginal returns. The term focus is defined as the way a given activity employs its resources (for example, technical assistance may choose to devote widely varying degrees of effort to organizing farmers and assisting them to obtain credit). Returns are measured in units of progress toward the goals of the program (number of participating farmers, degree to

which participating farmers employ the recommendations correctly, increase in average yield, etc.). The strategy of a given program is the particular way in which the essential activities are organized and conducted, and takes into account both the amount of resources allocated for each activity and how they are used. A program may vary its strategy from year to year, and even from one season of the year to another.

Thus, a successful regional agricultural program should combine all essential elements with an efficient strategy for employing the essential activities. Experiences in the Puebla Project provide some insight into how the choice of a program strategy is influenced by the characteristics of the physical environment, stage of development of the infrastructure, political environment, size, diversity, and accessibility of the program area, and the existence of high-yielding varieties.

Influence of the Physical Environment

Intuitively, program planners can agree that the characteristics of the physical environment should be taken into account in selecting program strategies. Needs of an irrigated area, for example, are obviously different from those of a semi-arid region. Although experience is too limited to provide the expression of these relationships in quantitative terms, the experiences in Puebla and other programs can be used to suggest ways in which strategies may differ in programs conducted under several ecological conditions. Some of these suggestions are cited next.

A large part of the agriculture in Central Mexico is practiced in valleys and plains that lie between 1,500 and 2,800 m above sea level. The average annual precipitation in these areas varies from less than 500 mm to over 1,000 mm and falls largely in the period from May to October.

For illustrative purposes, these agricultural lands have been partitioned into four categories as shown in Table 14.1. Drought frequencies for maize and levels of risk for maize and forage grasses shown here were based largely on studies conducted in the Bajio region of central Mexico during the period from 1962 to 1966.

Category A in Table 14.1 includes irrigated lands and areas with favorable rainfall. Drought in maize is infrequent and the level of agronomic risk is low. A satisfactory level of precision in crop recommendations can often be obtained by extrapolating from experiences in similar areas. In other cases, one year of research in the area may be needed to provide reliable agronomic information.

Category B consists of rainfed areas receiving 750-900 mm of precipitation annually. In a 10-year period, severe drought in maize can be expected 1 to 2 years, with moderate drought in another 2 to 3 1/2 years. These drought effects produce a level of risk for the maize producer that can be expressed qualitatively as *intermediate* or *moderate* risk. The Puebla Project is located in a category B region. Depending upon the initial yield levels, it is expected that improved technology can increase average maize yields something like 100 percent in areas of this category. Pro-