

Of the 251 farmers interviewed in 1967, 191 provided information on time of applying fertilizers to maize as shown next. Most farmers applied fertilizer only once, at the time of the first cultivation.

Time of Fertilizer Application	Percentage of Farmers
At planting	2.6
At first cultivation	63.4
At second cultivation	24.1
At both 1st. and 2nd cultivations	9.9

Maize planted alone or in association is usually cultivated twice: the first cultivation 30-40 days after planting, and the second cultivation 60-70 days after planting. Farmers take into account the amount of soil moisture, probability of frost, and size of the weeds, in deciding when to make the first cultivation in early plantings of maize using residual moisture. Cultivating is postponed if a frost is thought likely. The second cultivation is made after the maize is 60 days old and when the soil is moist to a depth of at least 30 cm. Some weeds are allowed to grow in the maize and are harvested for forage as needed.

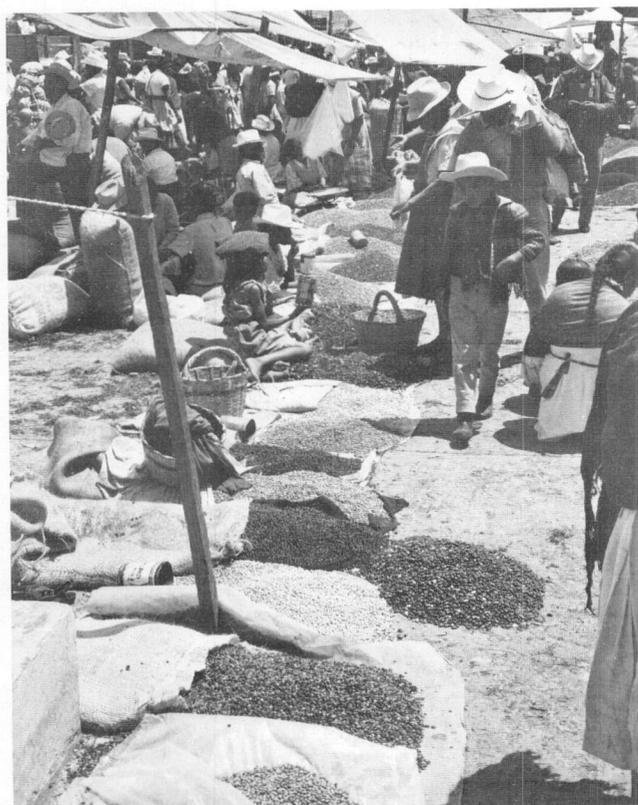
Farmers in Zone III practice a 2-year rotation of maize and bush beans. Chicken manure (5-10 tons/ha) is applied to the maize immediately before the first cultivation. Bush beans are then grown the following year without fertilization. Yields of both maize and beans are relatively high using this rotation.

It is a common practice in Zones I and V (and to a lesser extent in the rest of the area) for farmers to top the maize plants when the grain is still in the milk stage and to cure the tops in the field and preserve them as high-quality forage. The rest of the plant is cut and shocked as soon as the grain reaches physiological maturity. Later, the ear is harvested and the rest of the plant is preserved as forage of a poorer quality than that of the tops.

Farmers use few insecticides and herbicides. Forty-one percent of the farmers in 1967 knew of chemical insecticides and 22 percent had used them on some occasion, principally to control insects on beans.

AGRICULTURAL SERVICE AGENCIES

Two official credit banks, the National Agricultural Credit Bank and the National Ejidal Credit Bank, were operating in Puebla in 1967. According to survey data, 6.4 percent of the farmers received credit from the Ejidal Bank that year and 0.4 percent from the Agricultural Bank. Another 5.2 percent of the farmers obtained credit from other sources, mainly private lenders. A third official bank, the National Crop and Animal Production Bank, established a branch in Puebla in 1967.



Only 39% of the farmers sold maize in 1967. Most of this maize was sold to local buyers who picked it up at the farm home, or it was retailed in the village on market days. The maize was marketed throughout the year, to cover various costs, especially medical care.

Crop production inputs—fertilizers, improved seeds, insecticides, herbicides, etc.—were available to farmers in 1967 through merchants in the principal cities of Puebla, San Martín Texmelucan, Huejotzingo, and Cholula. In addition, there were 42 villages in which a total of 80 store keepers bought fertilizer and resold it at the local level.

According to survey data, only 38.8 percent of the farmers sold maize in 1967. This maize was marketed throughout the year, mainly to cover the costs of medical care. About 30 percent of the maize was purchased by the National Marketing Agency, CONASUPO, at the support price of \$75.20/ton. The remainder of the maize was sold to local buyers at the official price or slightly less.

A branch of the National Agricultural Insurance Agency operated in Puebla in 1967 and provided crop insurance to farmers receiving credit from the official banks. An agency of the National Agricultural Extension Service was located in the city of Puebla, with one extension agent in San Martín Texmelucan. There was no agricultural experiment station, but investigators of the National Agricultural Research Institute occasionally conducted field trials in the Project area.

The characteristics of the service agencies, their activities during 1967-1973, and factors limiting their effectiveness are discussed in Chapter 7.