

The opaque maize would have had to yield 11.3 ton/ha to equal the production of lysine by this maize-bean association in 1972. An association of pole beans with an opaque maize would seem certain to yield an even higher production of lysine per hectare.

The study of the use of technology by the farmers on credit lists disclosed that farmers' yields on the average were lower than those obtained in the parcels controlled by the research agronomists. The average yield of the farmers' parcels in Zone II was 3,444 kg/ha and for the control plots within these parcels it was 4,725 kg/ha. In Zone V, the farmers' yields averaged 4,076 kg/ha versus a control yield 4,841 kg/ha. The lower yields obtained by farmers can be attributed to failure to make full use of the recommended technology. Only 28.1 percent of the farmers studied in Zone II used at least three-quarters of the recommended amounts of all three main inputs: nitrogen, phosphorus, and plants per hectare. Another 19.3 percent of the Zone II farmers applied at least three-quarters of the recommended

rates of fertilizer, but used fewer plants than recommended. In Zone V, 56.9 percent of the farmers in the study used at least three-quarters of the recommended amounts of nitrogen, phosphorus and plant density, with an additional 37.2 percent falling short only in the use of the recommended plant density.

The data obtained in the weed-control experiments refuted the hypothesis that the maize technology recommended by the Project results in greater weed infestations than traditional technology. When the more intensive weed control measures of the new technology were used, the weed population at harvest time was lower than that obtained with traditional methods, and increases in maize production were proportionately greater.

A sixth approximation of the recommended production practices was developed in early 1973. The recommendations for several producing systems in Zone II are shown in Table 3.8, illustrating the type of information on production practices available to farmers in 1973.

TABLE 3.8. The seventh approximation of the recommended production practices for several producing systems in Zone II.

Soil morphology	Producing system		Level of capital*	Fertilizer (kg/ha) to apply at:			Maize population density plants/ha	Maize variety	Bean population density plants/ha	Variety of beans or other crops
	Planting date	Crop		Planting N - P ₂ O ₅	First cultivation N	Second cultivation N				
1. Deep soils of Popocatepetl. 1.2. Free of pumice on the surface; less than 2350 m altitude.	Apr. 1- May 15	Maize	I	30-40	0	100	50,000	H-131	--	--
			II	0--	80	0	40,000	H-131	--	--
		Maize in orchards: a) 2 rows on each side of trees b) Other rows	I	30-40	0	50	40,000	H-131	--	--
			I	30-40	0	100	50,000	H-131	--	--
	Apr. 25- May 15	Maize-bean association	I	30-40	0	120	40,000	native	60,000	native
			II	30-0	0	60	30,000	native	45,000	native
		Bunch beans	I	60-60	0	0	--	--	120,000	native
	May 16- June 15	Maize and maize in orchards	I	30-40	70	0	40,000	native	--	--
	May 16- June 15	Maize-bean association	I	30-40	120	0	40,000	native	60,000	native
			II	30-30	60	0	30,000	native	45,000	native
	May 16- June 30	Bunch beans	I	60-60	0	0	--	--	120,000	native
	July 1- July 15	Bunch beans	I	30-30	0	0	--	--	90,000	native
	June 16- July 15	Oats	I	40-40	Use 90 kg of seed per hectare					Cuahtémoc
		Barley	I	30-30	Use 60 kg of seed per hectare					Apizaco
	Horse beans	I	40-40	Plant density of 60,000 pts/ha					INIA 15001	

* Recommendation I presupposes the availability to the farmer of unlimited capital for maize production; recommendation II presupposes limited capital of one-half to two-thirds that required for the more costly recommendation.