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ANALYTICAL WORKING DOCUMENT # 13

ANALYSIS OF THE IMPACT OF LAND, CAPITAL AND FAMILY LABOR ON SMALL FARMS

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September 1973

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ANALYSIS OF THE IMPACT OF LAND, CAPITAL AND FAMILY LABOR ON SMALL FARMS

The purpose of this study is to analyze the impact of land, capital and family labor on small farms in Colombia. Parametric linear programming is used to determine optimum farm plans with alternative resource endowments. The model is a generalization of the one presented in Analytical Working Document #9. [1/] Also, the same data, drawn from a sample of small farms in Cundinamarca, are used.

The Linear Programming Model

The farm family controls three types of resources--land, money and family labor--which can be either employed in farm operations or in other economic activities. Other assets, such as farm tools and implements, are assumed to have no alternative use off the farm; since the cost of these inputs is apparently very small on the sample farms, it can be safely ignored in this analysis.

The role of money is central to the anlaysis. It is assumed that money needed to purchase inputs such as fertilizer, pesticides and hired labor can be obtained at a cost of two percent per month. There is an upper limit to the amount of cash which can be obtained for the farm operations. This can be thought of in two ways: (a) of a line of credit in a bank or other institution which can be drawn upon at an interest cost of two percent, or (b) the family's own cash which can either be invested

in farm operations or in other economic activities in which a return of two percent can be obtained.

Figure 1 is a simplified diagrammatic representation of the cash flows incorporated in the linear programming model. The family's land, money and /or labor can be applied to off-farm alternatives to earn rent, interest, profits and/or wages, or they can be applied to farm operations. In the latter case no direct return is obtained, rather, income is obtained by the sales of farm products and interest earned on the cash remaining from sales after hired labor, interest, and other purchased inputs have been paid for.

The model includes three sets of restrictions referring to the three resources--land, labor and money.

The first thirteen restrictions refer to the monthly utilization of land.

$$\sum_j a_{tj} X_j - L \leq 0 \qquad t=1,2,\ldots,12$$

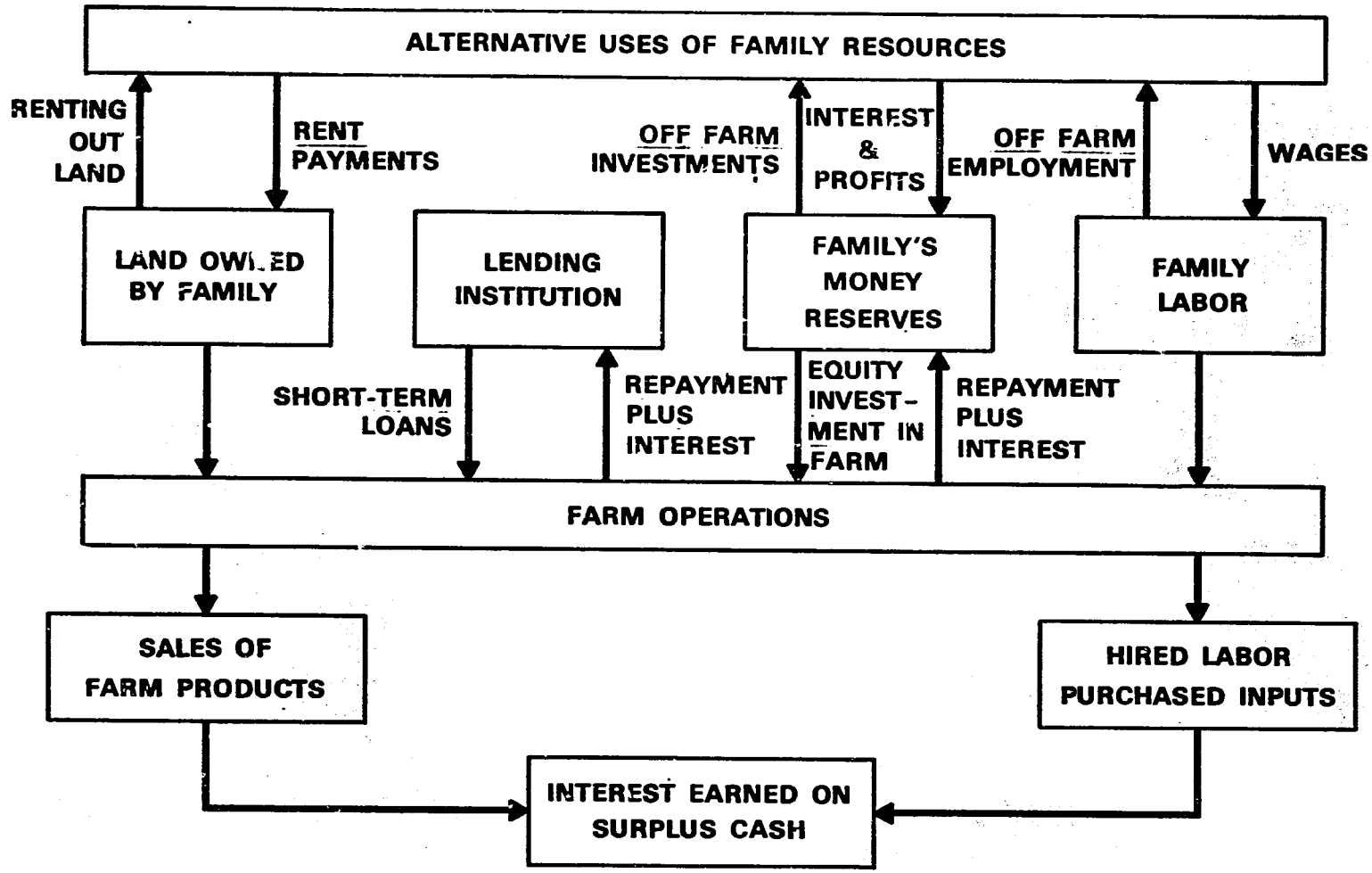
$$L \leq AL$$

where X_j is the level of production activity j (one unit is one hectare of a particular crop)

a_{tj} is the amount of land required in month t for one unit of production activity j

1/ James Doster and Richard E. Suttor, Linear Programming Analysis of the Impact of Credit on Small Farm Production, Inputs and Profits. April 1973.

Figure 1. FLOWS OF FUNDS AND FAMILY RESOURCES



L is the amount of land devoted to family farm operations

AL is available land (assumed to be owned by the farm family)

An implicit assumption is that land can only be rented out for the entire year and not month by month. Thus, L will equal the maximum amount used in farm operations during the twelve months, and land rented out will be AL-L.

It is assumed that the three crops--arveja, papa and ajo--can be grown throughout the year. Thus, the production activities, summarized in Table 1, are designed to allow a wide range of multiple cropping patterns. Because of different growing seasons--three months for arveja, six months for papa and five months for ajo--several different double and triple cropping sequences or rotations are possible, e.g., arveja followed by papa and then another crop of arveja. Also, different pieces of land may be devoted to different rotations.

There is a set of 24 monthly labor constraints. The first 12 state that the amount of labor required in a given month equals the amount of family and hired labor used.

$$\sum_j b_{tj}X_j - F_t - H_t = 0 \qquad t=1,2,\ldots,12$$

where b_{tj} is the amount of labor (in man days) required in month t for one unit of production activity j.

F_t is the amount of family labor devoted to farm operations in month t.

H_t is the amount of labor hired in month t

Table 1. Land use by Production Activities 1/

Month	Arveja #1	Arveja #2	Arveja #3	Arveja #4	Papa #1	Papa #2	Papa #3	Ajo #1	Ajo #2	Ajo #3
January	1				1			1		
February	1				1			1		
March	1				1			1		
April		1			1	1		1	1	
May		1			1	1		1	1	
June		1			1	1			1	
July			1			1	1		1	1
August			1			1	1		1	1
September			1			1	1			1
October				1			1			1
November				1			1			1
December				1			1			

1/ A one (1) indicates that one unit of the activity uses one hectare of land in the month indicated.

The other twelve restrictions put an upper limit on family labor utilization.

$$F_t \leq AF \qquad t=1,2,\ldots,12$$

where AF is available family labor, assumed to be the same each month.

The amount of family labor not used on the farm, namely AF-F, can be utilized in other economic activities such as day labor hired by other farmers in the area.

A set of 24 restrictions refer to cash flows, of which the first 12 are definitional balance equations. For the month of January, the balance equation states that net cash receipts from production activities (sales minus cost of purchased inputs) minus cost of hired labor equals either a cash deficit or surplus.

$$\sum_j c_{1j}X_j - \bar{w}\, H_1 + K_1 - S_1 = 0$$

where c_{1j} is net cash flow, i.e., income from sales minus cost of purchased inputs (other than labor) for one unit of production activity j in January.

$\bar{w}$ is the cost of hiring one man-day of labor (20 pesos per man day)

K_1 is the amount of money which must be invested in the farm operations in January either from a loan or the family's own cash

S_1 is the amount of surplus cash flow generated in January.

Note that only one of the two variables K_1 and S_1 will be at a non-zero level, i.e., either money must be invested in the farm operations or a surplus is generated.

Except for two additional terms, the balance equations for the other 11 months are the same as for January.

$$\sum_j c_{tj}X_j - \bar{w}\ H_t - (1+\bar{r})\ K_{t-1} + K_t + (1+\underline{r})\ S_{t-1} - S_t = 0$$

$$t=2,3,\ldots,12$$

where $\bar{r}$ is the monthly interest cost on money invested in farm operations (0.02 for the analysis reported here, i.e., two percent to borrow money or a two percent opportunity cost for the family's money)

$\underline{r}$ is the monthly interest earned by surplus cash generated by farm operations (0.01, which assumes a one percent return per month)

C_{tj}, K_t and S_t are analogous to c_{1j}, K_1 and S_1 for month t.

This formulation assumes that cash receipts generated during the month by family land, labor and money not employed on the farm will not be used to finance farm operations. In addition, if the family's own cash is invested, it is assumed that the two percent interest charge will be withdrawn from the farm's cash flow in the same way as if the money were borrowed. Finally, it assumes interest charges for money invested in one month must be paid the next month.

Twelve additional restrictions put an upper limit on the amount of money that can be invested in farm operations.

$$K_t \leq AK \qquad t=1,2,\ldots,12$$

where AK is available funds for investment in farm operations.

This assumes that the same line of credit or other comparable source of funds is available each month.

The net cash flow coefficients for the three crops are presented in Table 2. Negative coefficients indicate expenditures for inputs, while positive coefficients refer to sales of the produce minus any expenditures occurred in that month. Arveja required the least investment both in terms of total cash outlays and time during which money is committed, however it also provides the lowest return. Papa requires much larger purchases of inputs over a longer period of time, but value of production is much higher than arveja or ajo.

The objective for most runs of the model is maximization of profit, where profit is defined as the sum of: (1) net cash receipts from crop production, (2) minus the opportunity cost of land, (3) minus the opportunity cost of family labor, (4) minus the cost of hired labor, (5) minus interest payments, and (6) plus interest receipts. Using the symbols as defined above, profit is expressed as follows:

$$\sum_j \sum_t c_{tj} X_j - dL - \sum_t \underline{w} F_t - \sum_t \bar{w} H_t$$
$$- \sum_t \bar{r} K_t + \sum_t \underline{r} S_t$$

The two new symbols in this expression are d, the opportunity cost of land (assumed to be 1,000 pesos per hectate per year in the analysis reported here), and $\underline{w}$, the opportunity cost or wage rate of family labor (10 pesos per man-day in this analysis). The opportunity cost of family labor is one-half of the cost of hired

Table 2. Net Cash flow coefficients 1/ for Production Activities

Month	Arveja	Papa	Ajo
		(Pesos)	
First	-[illegible]8.00	-1,600.00	-1,100.00
Second	-938.40	-2,500.00	-1,400.00
Third	4,800.00	--333.33	-
Fourth	-	-	-
Fifth	-	-1,869.32	11,500.00
Sixth	-	17,333.30	-

1/ Sales (value of production) minus cost of purchased inputs (not includi hired labor) per hectare.

labor per man day ($\underline{w}$ = 10 and $\bar{w}$ = 20). The basic assumption is that the probability of a family member finding work on any particular day is one-half; thus, assuming he earns 20 pesos per day when he works, the expected or average earnings per day in which he is not working on the farm is 10 pesos.

A second objective, maximization of cash withdrawals from the farm operations, is used in one run. To do this, 12 new variables Z_t, cash withdrawals in month t, are added. The objective to be maximized is $\sum_t Z_t$. These variables enter into their respective cash balance equations with a minus one coefficient. Also, twelve restrictions, which put lower limits on monthly cash withdrawals, are added for this run. For the first eleven months these are expressed as follows:

$$-\underline{w}\, F_t + Z_t \geq 0 \qquad t=1,2,\ldots,11$$

This forces cash withdrawals to be greater than or equal to the opportunity cost of family labor each month. The reason for this is to assure a minimum amount of income, namely, the wages that could be earned if the family did no work on the farm, to cover consumption needs. The twelfth restriction, for December, is similar:

$$-dL - \underline{w}\, F_{12} + Z_{12} \geq 0$$

Assuming land rent would be received in December, cash withdrawals in December must be greater than or equal to the opportunity cost of labor and rental income forgone.

To solve the model under alternative farm situations, different land (2,4 and 10 hectares) and family labor (50,100 and 150 man-days

per month) availabilities are built into alternative right hand sides. For a particular run, one right hand side is chosen, an optimum solution obtained with available funds (AK) non-binding, and parametric techniques used to decrease the availability of funds in steps to observe the effects of progressively tighter capital situations.

The Farm Sample

To obtain meaningful data on which to base the linear programming coefficients, a sample of farms which are reasonably homogeneous in terms of soils and climatic conditions is required. From a nation wide sample of "solicitudes" prepared for farms receiving INCORA credit, solicitudes for eight farms from one municipio in the department of Cundinamarca were selected. These farms appeared to be sufficiently alike to justify constructing a model representing an average farm in that area.

Data on cost of purchased inputs and value of production were obtained from the solicitudes. The timing of operations, e.g. when fertilizers and pesticides are applied and length of the growing season, and monthly labor requirements were obtained from INCORA's "patrones" for the various crops.

From information on the solicitudes and patrones, as well as personal communication with experts familiar with agriculture in Cundinamarca, it appeared that several crops could be grown at any time during the year. Thus, the model is designed to allow a wide

range of multiple cropping patterns. Orginally, six crops were included in the model, but since three of the crops never entered optimum solutions, these were deleted in later runs, leaving three crops--arveja, papa and ajo.

Production data for the eight farms are summarized in Table 3. The first twelve rows exhibit totals for the eight farms on a crop by crop basis. Data in the first six columns are reported on the solicitudes. Net revenue is defined as value of production less cost of family and hired labor and cost of purchased inputs. Assuming an opportunity cost for land of 1,000 pesos per hectare, the imputed cost of land is subtracted to obtain a net profit figure. Although most farms had small livestock enterprises, the data for this analysis refer to only crop enterprises and the portion of the farms' land devoted to crops.

Total crop land on the eight sample farms, as indicated by tl solicitudes, is 24.60 hectares. In Table 3, the totals for all crops are divided by total crop land to obtain average per hectare figures. These figures are then multiplied by two, four and ten to obtain numbers which should be comparable with the linear programming results. As will be shown in the next section, however, cropped area per hectare of crop land and consequently value of production and net profit in Table 3 are much less than the linear programming results.

In the aggregate, the farmers reported crops area number of hectares of crops) approximately equal to crop land (number of hectares of land available for crops). According to the solicitudes, more than

Table 3. Summary of Sample Farm Data

Crops	Cropped Area (Hectares)	Value of Production (Pesos)	Cost of family Labor (Pesos)	Cost of Hired Labor (Pesos)	Cost of Purchased inputs (Pesos)	Net Revenue (Pesos)	Imputed Cost of land (Pesos)	Net Profit (Pesos)
Ajo	.50	6,000	200	1,000	2,500	2,300	500	1,800
Arveja	4.50	26,700	900	1,700	8,990	15,110	4,500	10,610
Arveja Dc. Bogaca	.50	3,450	200	100	1,442	1,708	500	1,208
Cebolla-Bermuda	7.64	73,440	18,600	11,000	53,584	-9,708	7,640	-17,348
Frijol Guarzo	.50	3,750	500	500	1,520	1,230	500	730
Habichuela	.10	2,240	100	100	870	1,170	100	1,070
Habichuela Aguazul	1.00	11,700	1,000	800	5,268	4,632	1,000	3,632
Remolacha	1.50	18,000	1,500	3,400	1,140	11,960	1,500	10,460
Papa	3.00	34,000	3,800	4,800	23,708	1,692	3,000	-1,308
Papa Parda	.50	6,000	500	800	4,780	-80	500	-580
Papa Patusa	1.50	17,240	1,000	3,900	11,300	1,040	1,500	-460
Papa Tocana	3.00	41,500	4,000	5,000	23,791	8,709	3,000	5,709
Total	24.24	244,020	32,300	33,100	138,893	39,763	24,240	15,523
Averages per unit of crop land 1/								
One Hectare	.99	9,919.51	1,313.00	1,345.53	5,646.06	1,617.60	985.37	631.00
Two Hectares	1.98	19,839.02	2,626.00	2,691.06	11,292.12	3,235.20	1,970.74	1,262.00
Four Hectares	3.96	39,678.04	5,252.00	5,382.12	22,584.24	3,941.48	3,941.48	2,524.00
Ten Hectares	9.90	99,195.10	13,130.00	13,455.30	56,460.60	16,176.00	9,853.70	6,310.00

1/ Total crop land on the eight farms, as indicated by the solicitudes, is 24.60 hectares.

one crop per year is grown on some land, while other crop land is apparently idle throughout the year. This apparent anomaly could be due to data inaccuracies-- under-reporting of cropped area and/or over-reporting of crop land. On the other hand, it could be due to shortcomings in the formulation of the model. This latter point will be discussed in the last section after the analytical results are presented.

Analytical Results

The results of the linear programming runs are presented in three phases: (1) the impact of changes in capital availability with land and family labor constant, (2) the impact of changes in land availability with family labor and capital constant, and (3) the impact of changes in family labor availability with land and capital constant. The discussion in this section will be limited to only a few of the 229 optimum solutions to briefly illustrate the more important relationships. However, all the solutions are summarized in the tables in Appendix A.

Figures 2 through 7 show the impact of alternative levels of capital availability on a farm with four hectares of cropland and 100 man-days of family labor available per month. Similar relationships also pertain to the other farm situations.

The impact on cropping patterns is illustrated by Figures 2 and 3. Even at very low levels of available capital, all crop land is used for at least part of the year; no land was rented out in any of

Figure 2. CROPPED AREA FOR A 4 HECTARE FARM WITH 100 MAN-DAYS OF FAMILY LABOR.

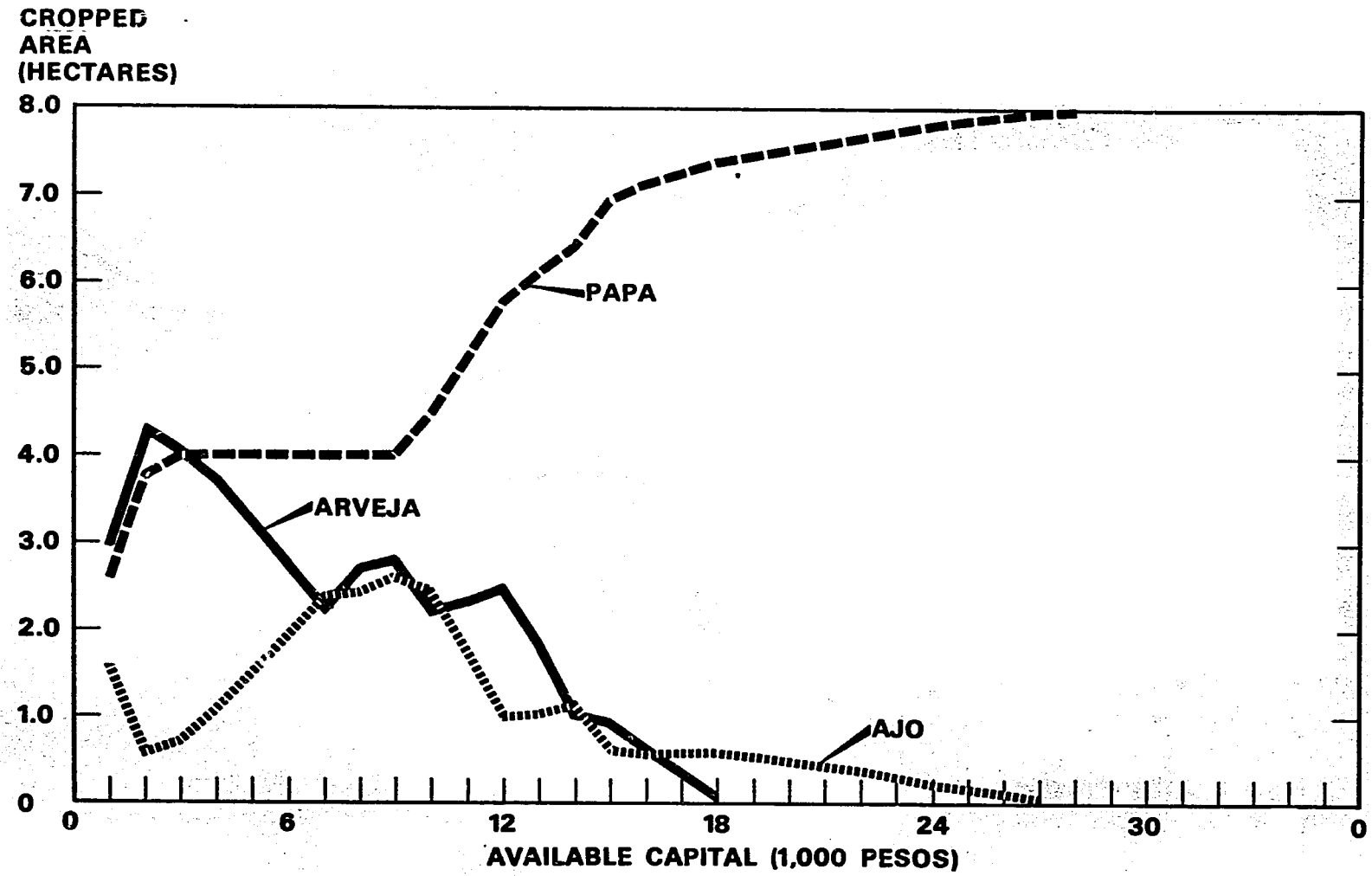


Figure 3. PICTORIAL ILLUSTRATION OF CHANGING CROPPING PATTERNS AS CAPI
INCREASES FOR A 4 HECTARE FARM WITH 100 MAN-DAYS OF FAMILY LABOR

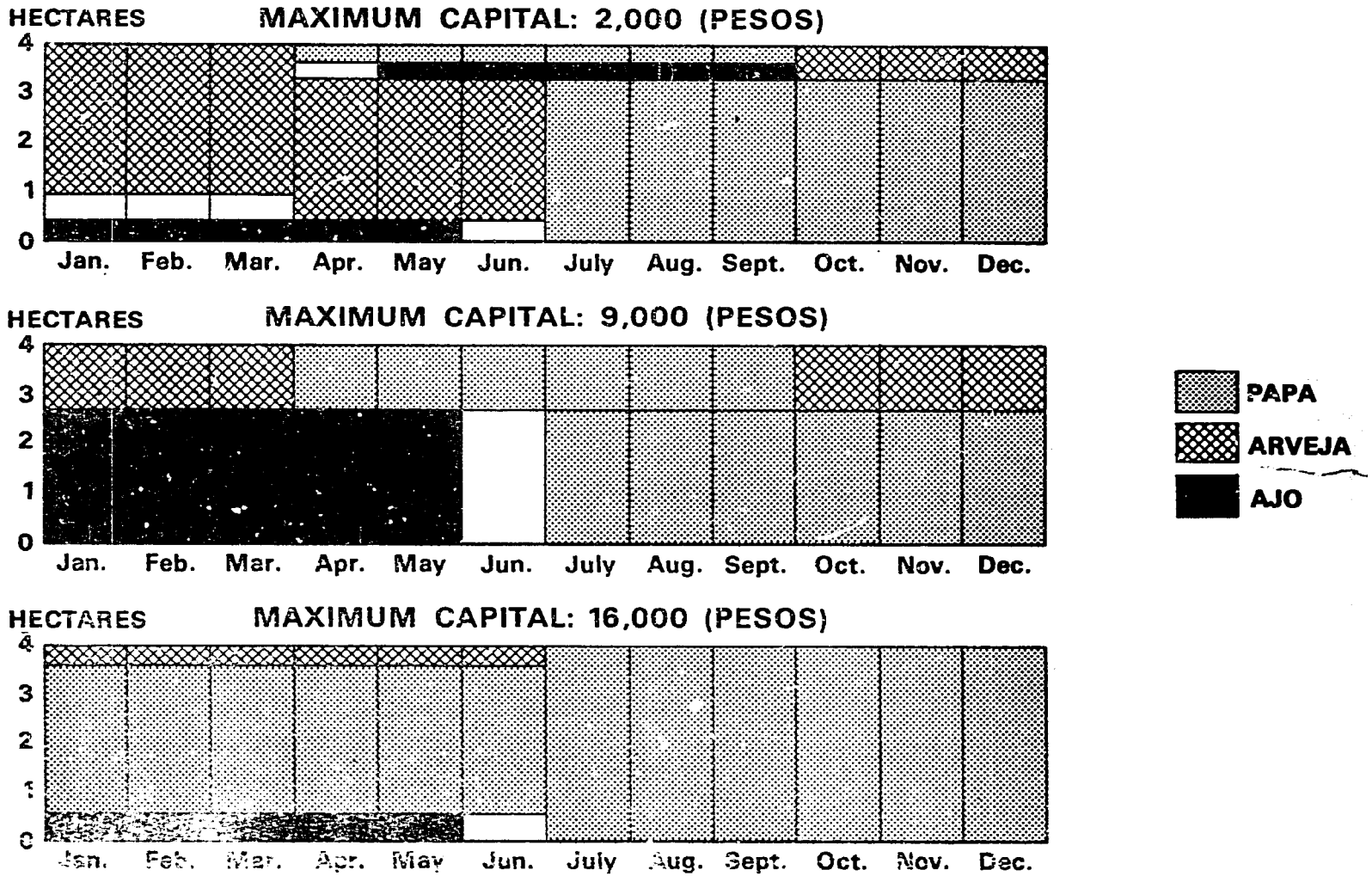
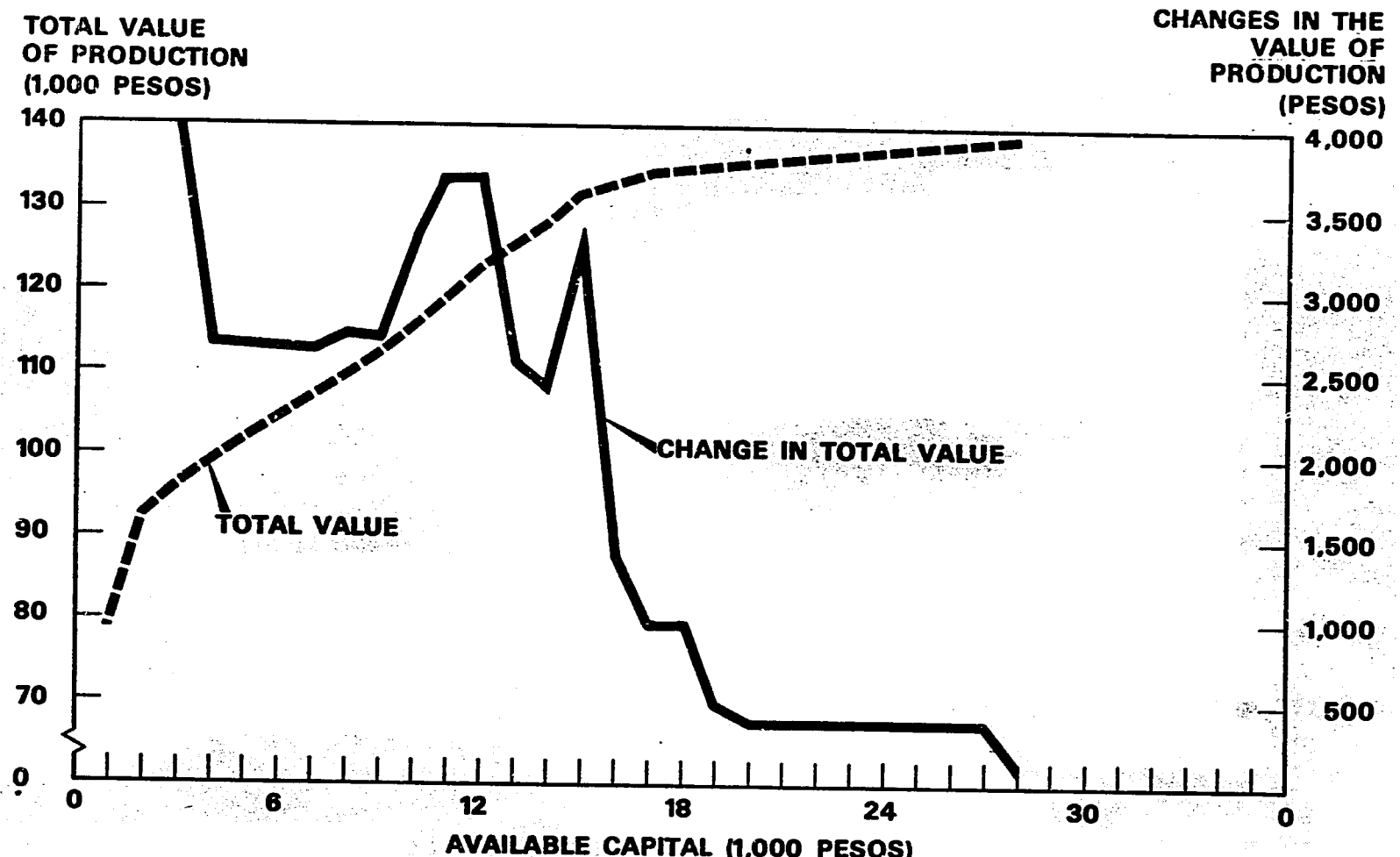


Figure 4. TOTAL VALUE OF PRODUCTION FOR A 4 HECTARE FARM WITH 100 MAN-DAYS OF FAMILY LABOR.



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the optimum solutions. When available capital is very low, arveja tends to be planted early in the year; since the growing season for this crop is only three months, a quick turnover of funds is obtained, thereby enabling the farmer to plant other crops. As capital availability reaches higher levels, arveja and ajo decline in favor of papa. Ultimately, when the capital restrictions are no longer binding, the crop land is devoted entirely to two crops of papa.

Although value of production is remarkably high with only 1,000 pesos of available capital, additional capital leads to very high increases up to about 15,000 pesos (Figure 4). After that point, the marginal impact of capital falls off rapidly, but still has a fairly high impact up to 28,000 pesos. Beyond that point, additional capital is no longer a limiting resource.

The cost of purchased inputs is also remarkably high at low levels of capital availability, (Figure 5). The impact of additional capital falls off rapidly after 3,000 pesos, but returns to very high levels in the 10,000 to 14,000 pesos range. This is due to the large increases in area planted to papa in the 10,000 to 14,000 pesos range (See figure 2). In contrast, papa area is constant from 3,000 to 9,000 pesos of availabl capital.

The cost of hired labor is relatively high with 1,000 pesos of available capital (Figure 6). From that point, it falls briefly, then rises between 3,000 and 9,000 pesos of capital and finally falls to its lowest level at 12,000 pesos. The ups and downs of hired labor are

Figure 5. TOTAL COST OF PURCHASED INPUTS FOR A 4 HECTARE FARM WITH 100 MAN-DAYS OF FAMILY LABOR.

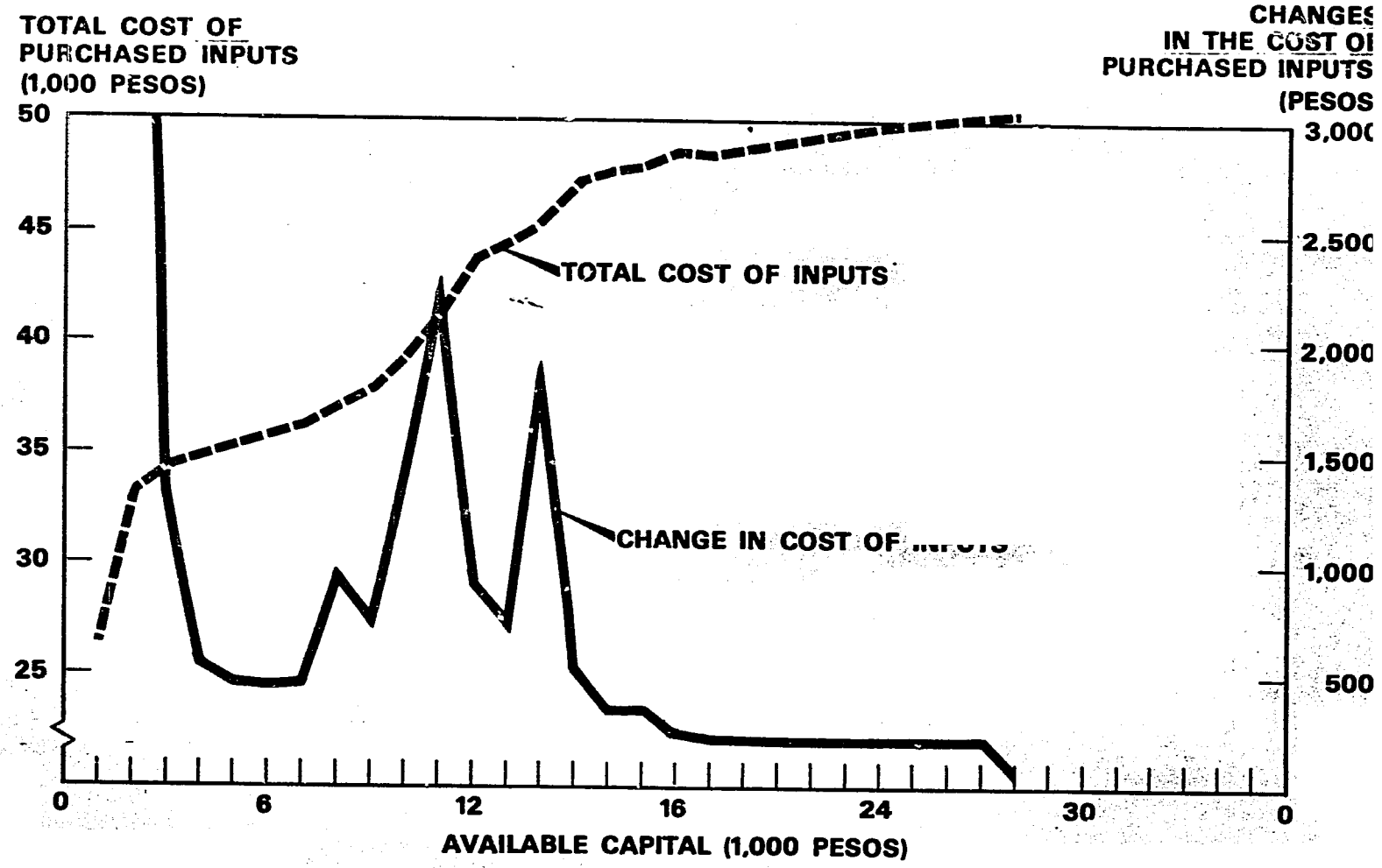
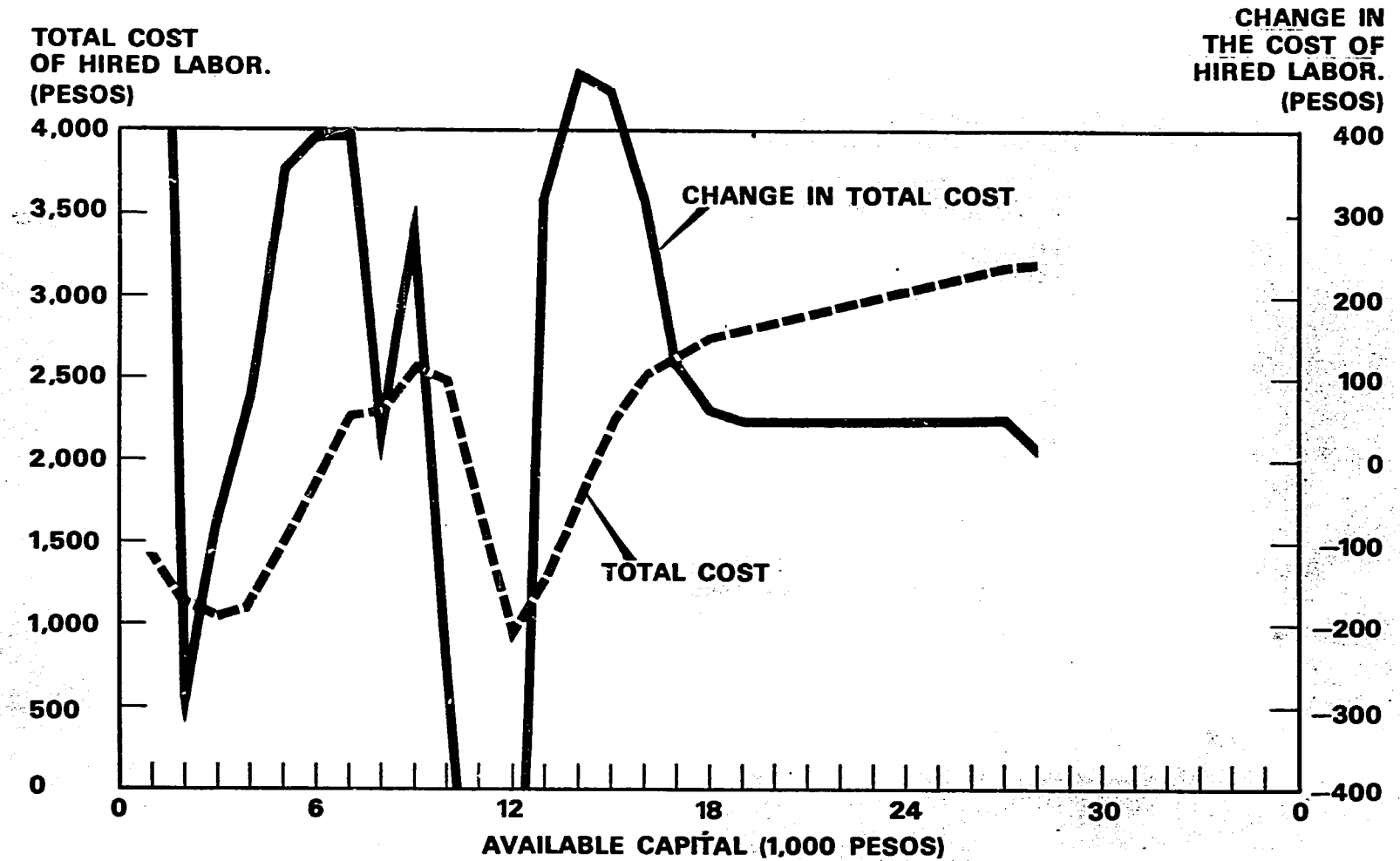


Figure 6. TOTAL COST OF HIRED LABOR FOR A 4 HECTARE FARM WITH 100 MAN-DAYS OF FAMILY LABOR.



caused by the changing crop mix, but due to the rather complex way in which individual crop requirements for labor interrelate, there is no simple trend relationship between available capital and hired labor

In contrast, the relationship between profit and available capital (Figure 7) looks almost like a textbook curve. At low levels, additional capital availability causes very large increases in profit, but as available capital increases profit increases at a diminishing rate.

The impact of alternative crop land availabilities with fixed family labor and non-binding capital restrictions is illustrated by Figure 8 and Table 4. The cost of purchased inputs is proportional to crop land. The cost of hired labor is zero for a two hectare farm, but increases rapidly to 9 percent of the value of production on a 10 hectare farm. On a two hectare farm less than half of the available family labor is utilized on the farm, while nearly 100 percent is utilized on a 10 hectare farm; a four hectare farm absorbs over three-fourths of the family's labor, while also requiring 160 man-days of hired labor to meet peak labor demands. It appears that four hectares of crop land is enough for a family to achieve a moderate standard of living without working off the farm.

Figure 9 and Table 5 illustrate the impact of different levels of available family labor with fixed crop land and non-binding capital restrictions. On a four hectare farm no hired labor is needed if 150 man-days of family labor, are available each month, however, with only 50 man-days of family labor, 552 man-days of labor must be hired during the year. The difference in profits between the two situations is 6,482 pesos per year.

Figure 7. TOTAL PROFITS FOR A FOUR HECTARE FARM WITH 100 MAN-DAYS OF FAMILY LABOR.

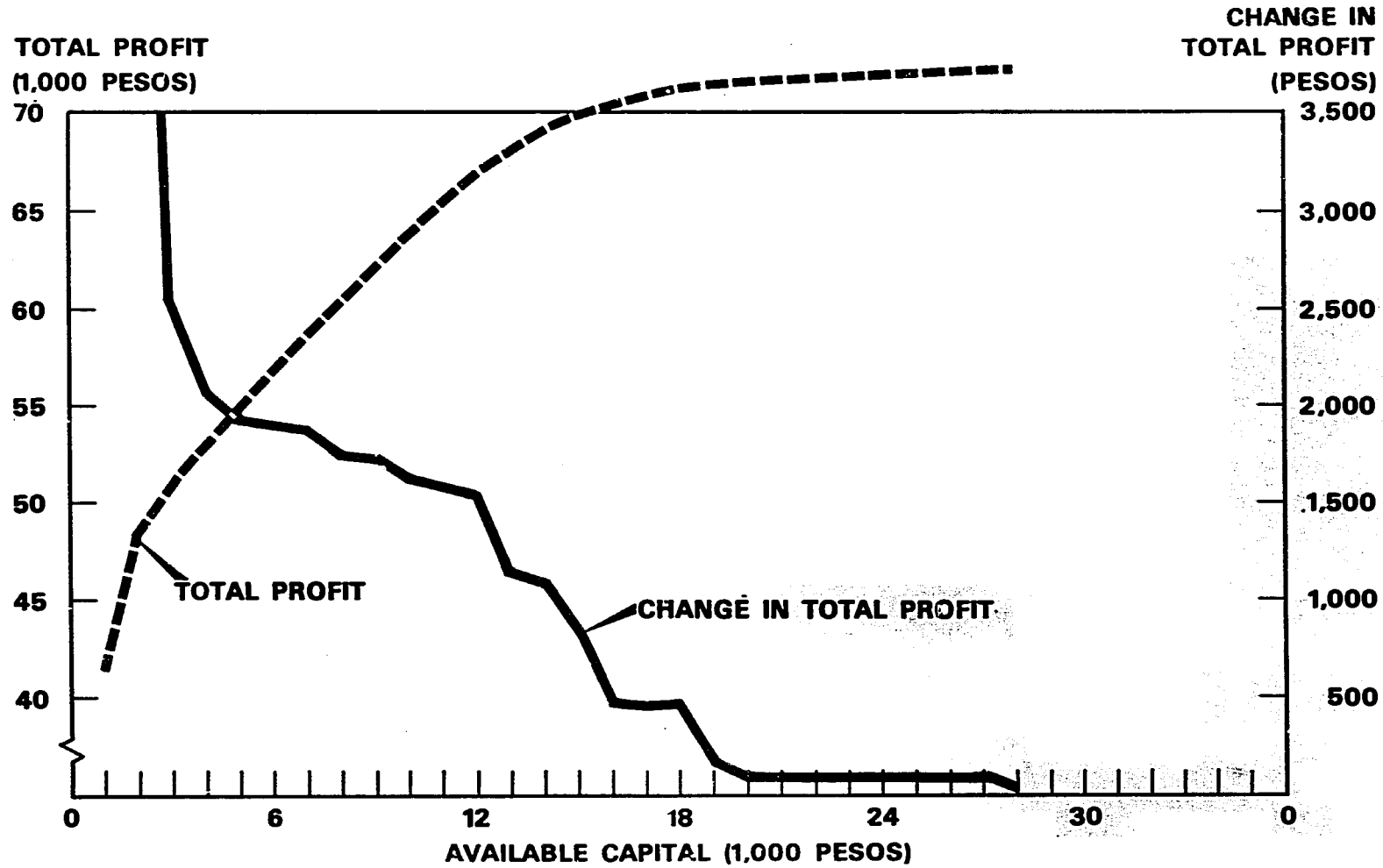


Figure 8. RELATIONSHIPS BETWEEN AVAILABLE CROP LAND, FACTOR RETURNS AND COSTS ON FARMS WITH 100 MAN-DAYS OF AVAILABLE FAMILY LABOR AND ADEQUATE CAPITAL

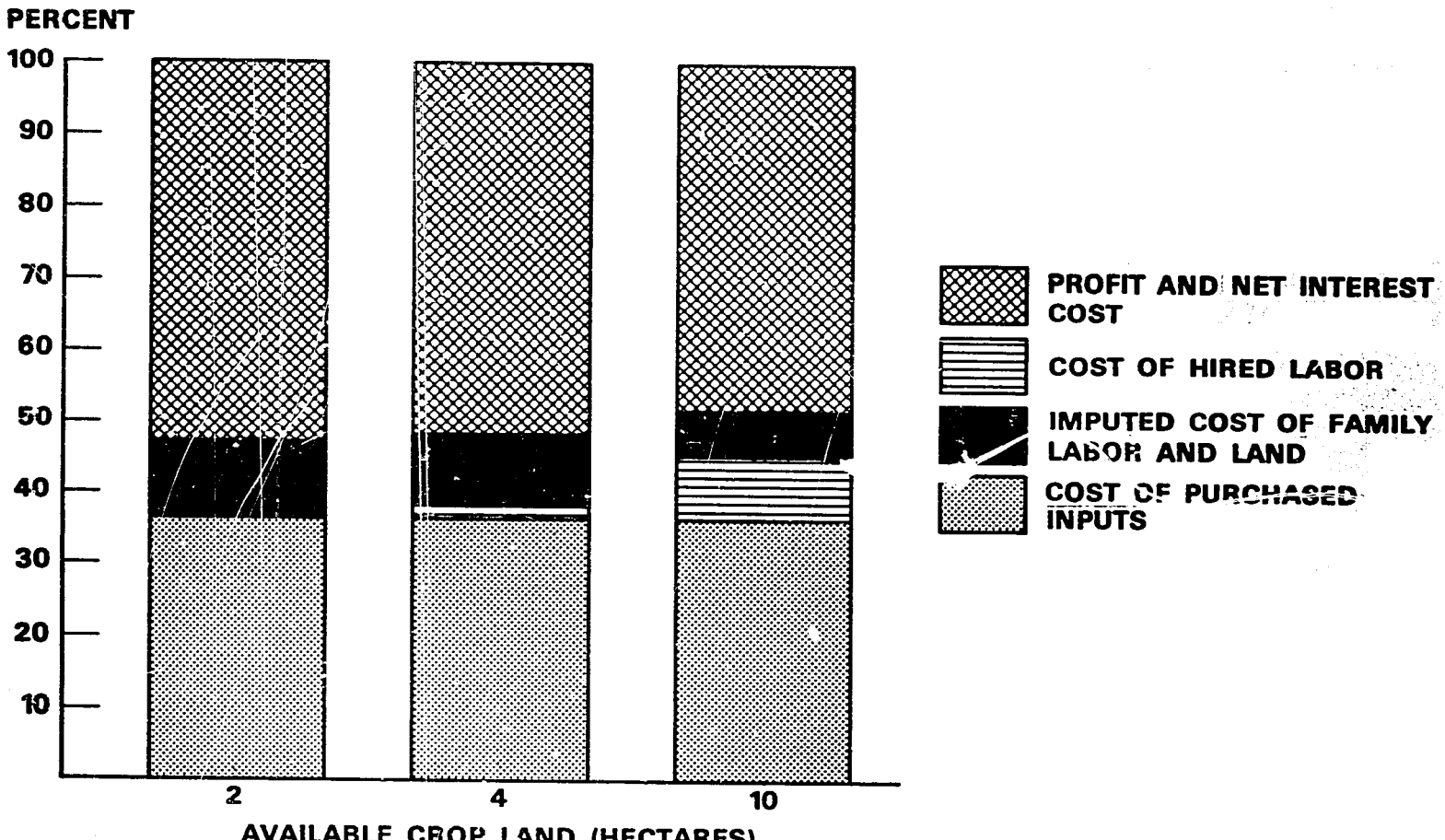


Figure 9. RELATIONSHIP BETWEEN AVAILABLE FAMILY LABOR, FACTOR RETURNS AND COSTS ON A 4 HECTARE FARM WITH ADEQUATE CAPITAL.

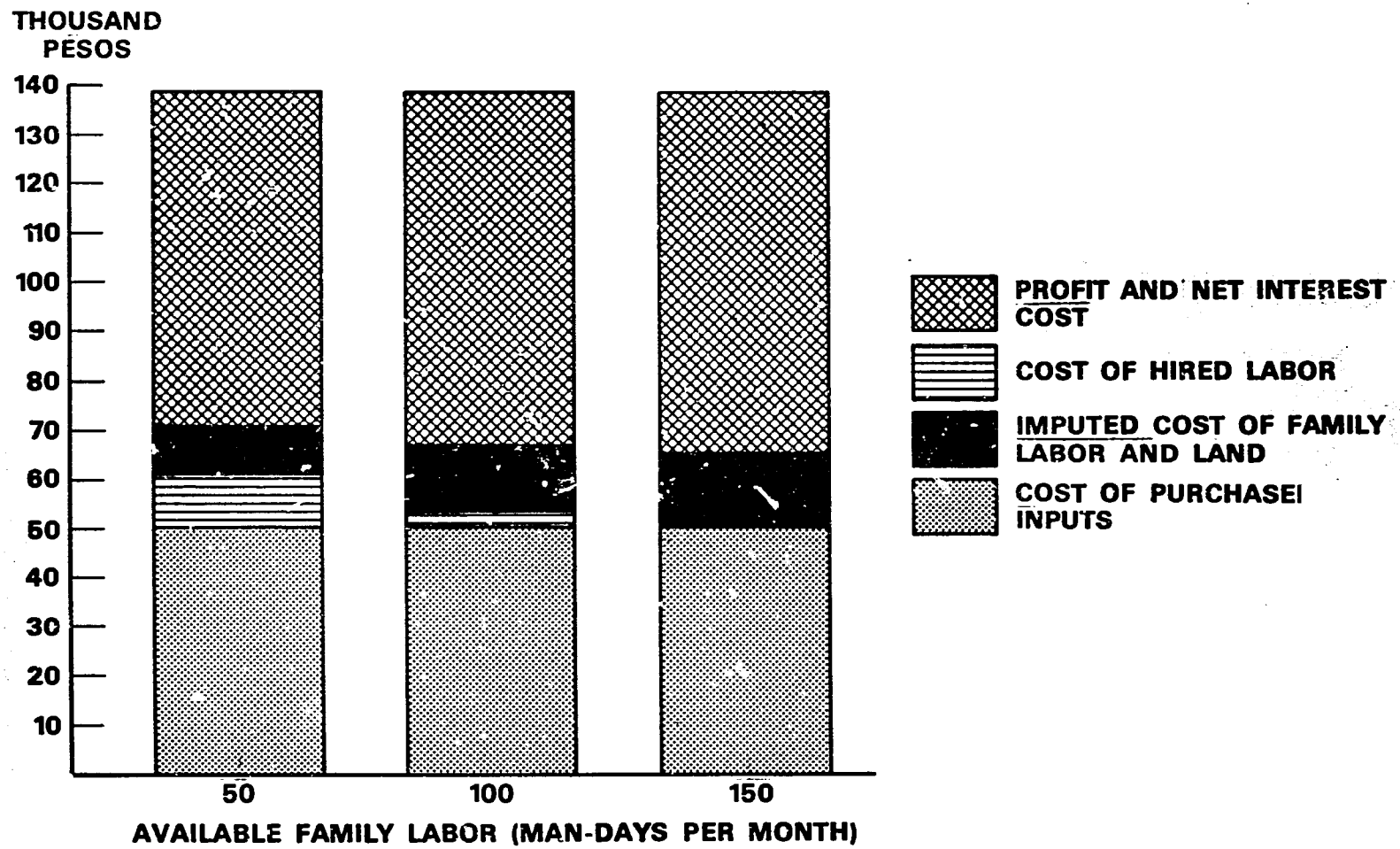


Table 4. Costs, Profits and Production in Relation to Available Land on Farms With 100 Man-days of Available Family Labor per Month and Adequate Capital

	Available Crop Land		
	2 Hectares	4 Hectares	10 Hectares
	(pesos)		
Purchased Inputs	25,210.64	50,421.28	126,053.20
Cost of Hired Labor	-	3,200.00	31,600.00
Imputed Cost of Family Labor	5,520.00	9,440.00	11,800.00
Imputed Cost of Land	2,000.00	4,000.00	10,000.00
Profit	37,063.72	72,265.54	166,754.37
Net Interest Cost	-461.04	-660.18	459.03
Value of Production	69,333.32	138,666.64	346,666.60

Source: Appendix A

Table 5. Costs, Profits and Production in Relation to Available Family Labor on Four Hectare Farm With Adequate Capital

	Available Family Labor per Month		
	50 man-days	100 man-days	150 man-days
	(Pesos)		
Purchased Inputs	50,421.28	50,421.28	50,421.28
Cost of Hired Labor	11,040.00	3,200.00	-
Imputed Cost of Family Labor	5,520.00	9,440.00	11,040.00
Imputed Cost of Land	4,000.00	4,000.00	4,000.00
Profit	67,645.20	72,265.54	74,127.45
Net Interest Cost	40.16	-660.18	-922.08
Value of Production	138,666.64	138,666.64	138,666.64

Source: Appendix A.

Conclusions

As was pointed out previously, the linear programming results indicate much higher cropped area, and consequently, much higher profits than reported by the sample farms. This is probably due to a combination of factors relating to the data, on one hand, and the model on the other.

Possible data problems include overreporting of available crop land; some of this land may be poorly suited for crops and actually is not used for that purpose. On the other hand there probably were some crops which simply were not reported, thus causing a downward bias in reported net revenue. The cost estimates for family labor indicated on the solicitudes appear to be artifically high, also causing reported net revenue to be too low.

Perhaps the major cause of excessively high profits in the linear programming solutions is an assumption of greater flexibility in cropping patterns than actually perceived by the farmer. Thus, for example, if land is required for four months for a crop of arveja rather than the three assumed in the model, or it is not profitable to plant papa in the first quarter, the profit potential is reduced. Relatively small errors in several estimated coefficients and time lags and ignorance of a multitude of individually minor, but collectively significant, constraints can easily result in serious overestimation of the feasible alternatives available to a farmer. The only remedy is more detailed, systematic and careful study of the farm situation.

Another possible problem is incorrect specification of the objective function. The two objective functions used in this study yielded fairly similar results. However, other "reasonable" objective functions could be used, e.g., minimization of money invested in farm operations subject to minimum income constraints. Going beyond these relatively simple formulations, combinations of several objectives could very well yield more accurate simulations or predictions of farmers' behavior.

Despite the simplicity of the model, the results illustrate some of the complexity in the relationships among variables in a type of small business often thought of as simple, straight forward and easy to predict. Thus, for example, the impact of additional available capital on profits is positive over a wide range of circumstances, but the magnitude of this impact varies a great deal and depends upon a number of other variables which, in turn, may take on a wide range of values. The impact of available capital on hired labor is more complicated. In some situations, increased capital availability actually leads to a decrease in hired labor, although for a majority of the optimum solutions hired labor increases to some extent with increased capital availability.

APPENDIX A

Tables A-1 thru A-7 defines the Linear Programming Results for Farms with different Hectares, and Man-days of Available Family Labor per Month.

Table A1. Linear Programming Results for a Farm With 2 Hectares of Available Land and 50 Man-days of Available Family Labor Per Month

Available Capital	Net Profit (pesos)	Cost of Purchased Inputs (pesos)	Value of Production (pesos)	Imputed Cost of Family Labor (pesos)	Total Labor (Man-days)	Cost of Hired Labor (pesos)	Net Interest Cost (pesos)	Area: Arveja (Hectare)	By: Papa (Hectare)	Crops: Ajo (Hectare)
$ 1,000	24,191.80	16,456.30	46,316.15	3,609.60	388.73	555.40	-351.13	2.138	1.887	.292
2,000	26,501.68	17,388.80	49,664.96	4,000.38	428.00	559.37	-539.60	1.847	2.000	.531
3,000	28,411.98	17,847.32	52,292.15	4,256.35	472.30	933.22	-673.82	1.358	2.000	.966
4,000	30,221.02	18,551.23	54,989.12	4,495.54	506.75	1,144.00	-822.67	1.358	2.000	1.200
5,000	31,894.99	19,633.28	58,011.46	4,693.90	531.37	1,239.57	-840.97	1.100	2.237	1.219
6,000	33,457.35	21,834.33	61,702.15	4,968.89	520.57	473.72	-787.50	1.235	2.893	.489
7,000	34,573.43	22,671.88	64,178.79	4,991.50	542.59	868.73	-649.55	0.497	3.197	.554
8,000	35,229.07	23,860.84	66,550.74	4,833.04	545.97	1,233.34	-484.89	0.295	3.571	.281
9,000	35,690.00	24,209.78	67,531.72	4,855.72	553.90	1,366.62	-444.29	0.025	3.695	.292
10,000	35,812.66	24,435.59	67,964.38	4,830.30	554.11	1,421.65	-418.47	0.000	3.675	.235
11,000	35,900.72	24,648.80	68,340.98	4,799.95	553.53	1,470.71	-394.16	0.000	3.830	.170
12,000	35,988.79	24,862.02	68,717.57	4,769.61	552.95	1,519.78	-369.84	0.000	3.894	.106
13,000	36,076.85	25,075.24	69,094.17	4,739.27	552.37	1,568.84	-345.53	0.000	3.959	.041
14,000	36,132.77	25,210.64	69,333.32	4,720.00	552.00	1,600.00	-330.09	0.000	4.000	.000

1/ Net Profit is Value of Production Minus Cost of Purchased Inputs, Imputed Cost of Family Labor, Cost of Hired Labor, Net Interest Cost and Imputed Cost of Land. The Imputed Cost of Land is 2,000 pesos.

Table A2. Linear Programming Results for a Farm with 2 Hectares of Available Crop Land and 100 Man-days of Available Family Labor

Available Capital	Net Profit	Cost of Purchased Inputs	Value of Production	Imputed Cost of Family Labor	Total Labor	Cost of Hired Labor	Net Interest Cost	Area By Crops: Arveja	Papa	Ajo
(Pesos)	(Pesos)	(Pesos)	(Pesos)	(Pesos)	(Man-days)	(Pesos)	(Pesos)	(Hectare	(Hectare)	(Hectare)
$ 1,000	24515.53	16509.68	46408.40	3885.30	388.53	000.00	-364.80	2.140	1.902	0.275
2,000	26822.79	17339.38	49634.93	4299.87	429.99	000.00	-541.26	1.748	2.000	0.571
3,000	28941.05	17859.78	52294.68	4717.96	471.80	000.00	-746.31	1.382	2.000	0.955
4,000	31044.18	18262.11	54930.48	5183.35	518.33	000.00	-841.22	0.781	2.000	1.435
5,000	32936.22	18625.07	57558.28	5487.78	566.45	353.58	-870.12	0.101	2.000	1.984
6,000	34291.20	20797.66	61234.70	5566.16	556.62	000.00	-800.82	0.225	2.648	1.238
7,000	35394.83	22979.95	64916.93	5464.73	546.47	000.00	-661.00	0.357	3.300	0.523
8,000	36132.97	23981.38	66887.84	5486.68	548.66	000.00	-570.92	0.203	3.613	0.284
9,000	36571.84	24310.92	67744.18	5544.51	554.45	000.00	-546.88	0.000	3.727	0.272
10,000	36688.90	25625.02	68122.36	5538.66	553.87	000.00	-526.45	0.000	3.792	0.207
11,000	36805.95	24739.15	68500.54	5532.85	553.28	000.00	-506.02	0.000	3.857	0.142
12,000	36923.01	24953.26	68878.72	5527.01	552.70	000.00	-485.60	0.000	3.922	0.077
13,000	37040.07	25167.38	69256.90	5521.18	552.11	000.00	-465.17	0.000	3.986	0.013
14,000	37063.72	25210.64	69333.32	5520.00	552.00	000.00	-461.04	0.000	4.000	0.000

2/ Net Profit is Value of Production Minus Cost of Purchased Inputs, Imputed Cost of Family Labor, Cost of Hired Labor, Net Interest Cost and Imputed Cost of Land. The Imputed Cost of Land is 2,000 pesos.

Table A3. Linear Programming Results for a Farm with 4 Hectares of Available Land and 50 Man-days of Available Family Labor Per Month

Available Capital	Net Profit	Cost of Purchases Inputs	Value of Production	Imputed Cost of Family Labor	Total Labor	Cost of Hired Labor	Net Interest Cost	Area	By	Crops
								Arveja	Papa	Ajo
(pesos)	(pesos)	(pesos)	(pesos)	(pesos)	(Man-days)	(pesos)	Pesos)	(Hectare)	(Hectare)	(Hectare)
$ 1,000	37938.03	25553.66	75789.90	4490.47	699.95	5018.14	-384.35	2.775	2.508	1.652
2,000	44914.49	31382.90	90047.88	4812.20	784.42	6064.03	-583.40	4.126	3.333	1.085
3,000	47805.14	33755.64	95905.72	5036.68	819.43	6315.16	-565.09	3.854	3.879	0.883
4,000	50098.01	34665.32	99267.14	5406.90	860.51	6396.45	-722.37	3.471	4.000	1.154
5,000	52019.84	35306.52	101951.39	5697.67	897.48	6554.31	-907.10	3.346	4.000	1.440
6,000	53445.68	36847.66	105019.69	5779.20	902.42	6490.05	-1007.34	3.877	4.275	1.071
7,000	54659.32	38583.05	108131.49	5783.03	903.94	6512.81	-987.88	4.312	4.621	0.638
8,000	55863.65	39742.13	110833.62	5783.33	913.02	6693.80	-1052.34	4.919	4.771	0.394
9,000	57067.18	40911.59	113438.18	5783.33	923.90	6911.40	-1137.67	5.566	4.874	0.195
10,000	58239.81	42105.93	116102.26	5779.31	934.77	7136.72	-1159.51	5.836	5.082	0.000
11,000	59306.04	42730.87	118262.53	5778.35	948.80	7619.30	-1097.81	5.053	5.325	0.148
12,000	60327.92	43193.88	120261.18	5780.06	986.30	8165.94	-1012.89	4.178	5.525	0.386
13,000	61344.88	43920.90	122523.33	5777.27	1008.15	8608.42	- 889.06	3.453	5.795	0.478
14,000	62362.25	44689.50	124826.87	5773.76	1029.10	9034.52	-759.12	2.752	6.076	0.548
15,000	63379.62	45457.89	127130.41	5770.26	1050.06	9460.63	- 629.19	2.052	6.357	0.618
16,000	64395.86	46322.43	129529.80	5765.11	1068.95	9848.83	-485.10	1.405	6.662	0.635
17,000	64884.63	46998.47	131178.35	5633.28	1078.18	10297.88	- 347.49	1.069	6.890	0.575
18,000	65308.63	47335.44	132124.52	5639.78	1085.81	10436.72	-303.35	0.809	7.010	0.585
19,000	65732.62	47672.41	133070.69	5646.28	1093.45	10576.36	-259.20	0.849	7.130	0.596
20,000	66156.61	48009.38	134016.86	5652.78	1101.08	10716.00	-215.05	0.289	7.250	0.606
21,000	66580.60	48346.35	134963.03	5659.28	1108.71	10855.64	-170.90	0.029	7.370	0.616
22,000	66744.72	48585.44	135424.09	5660.00	1109.00	10860.06	-148.20	0.000	7.444	0.556
23,000	66876.58	48812.39	135824.94	5660.00	1108.38	10847.69	-128.15	0.000	7.513	0.487
24,000	67008.45	49039.34	136225.79	5660.00	1107.77	10835.32	-108.10	0.000	7.582	0.418
25,000	67140.31	49266.29	136626.64	5660.00	1107.15	10822.95	- 88.06	0.000	7.650	0.350
26,000	67272.18	49493.24	137027.49	5660.00	1106.53	10810.58	- 68.01	0.000	7.719	0.281
27,000	67361.01	49706.73	137404.56	5630.34	1105.95	10858.26	-43.61	0.000	7.784	0.216
28,000	67445.36	49918.81	137779.15	5597.59	1105.37	10912.20	-18.74	0.000	7.848	0.152
29,000	67529.71	50130.89	138153.75	5564.84	1104.79	10966.14	- 6.12	0.000	7.912	0.088
30,000	67614.06	50342.98	138528.34	5532.09	1104.21	11020.08	- 30.98	0.000	7.976	0.024
31,000	67645.20	50421.28	138666.64	5520.00	1104.00	11040.00	- 40.16	0.000	8.000	0.000

3/ Net Profit is Value of Production Minus Cost of Purchased Inputs; Imputed Cost of Family Labor, Cost of Hired Labor, Net Interest Cost and Imputed Cost of Land. The imputed Cost of Land is 4,000 pesos.

Table A4. Linear Programming Results for a Farm with 4 Hectares of Available Land and 100 Man-days of Available Family Labor.

Available Capital	Net Profit	Cost of Purchased Inputs	Value of Production	Imputed Cost of Family Labor	Total Labor	Cost of Hired Labor	Net Interest Cost	Area By Crops: Arveja	Papa	Ajo
(pesos)	(pesos)	(pesos)	(pesos)	(pesos)	(Man-days)	(pesos)	(pesos)	(Hectare)	(Hectare)	(Hectare)
$ 1,000	41,302.97	26,374.99	78,067.82	6,482.16	718.57	1407.12	-671.82	2.949	2.589	1.655
2,000	48,383.58	32,912.59	92,632.30	7,219.11	777.45	1,110.80	-702.27	4.276	3.773	0.583
3,000	50,947.92	34,233.78	96,625.42	7,631.39	815.14	1,040.08	-878.81	4.014	4.000	0.698
4,000	53,003.36	34,777.60	99,289.91	8,000.77	856.01	1,118.75	-1,079.20	3.695	4.000	1.063
5,000	54,924.06	35,242.56	101,938.41	8,265.09	900.04	1,470.71	-1,218.06	3.218	4.000	1.492
6,000	56,823.97	35,694.63	104,584.30	8,512.70	944.59	1,866.43	-1,347.63	2.716	4.000	1.932
7,000	58,707.65	36,151.91	107,231.24	8,758.81	988.93	2,260.97	-1,464.58	2.224	4.000	2.367
8,000	60,442.65	37,102.47	109,878.25	8,591.08	1,013.51	2,288.00	-1,645.34	2.718	4.000	2.400
9,000	62,166.44	37,842.37	112,682.52	9,186.05	1,046.52	2,558.39	-1,768.30	2.700	4.000	2.605
10,000	63,789.98	39,266.56	116,022.92	9,387.81	1,062.74	2,479.14	-1,681.94	2.179	4.473	2.437
11,000	65,376.27	41,467.61	119,713.61	9,662.70	1,051.94	1,713.29	-1,652.40	2.325	5.238	1.708
12,000	66,914.70	43,668.66	123,404.30	9,937.77	1041.15	947.43	-1,575.00	2.471	5.786	0.979
13,000	68,054.46	44,595.46	125,960.40	9,976.90	1,061.01	1,266.46	-1,437.05	1.790	6.113	0.992
14,000	69,146.87	45,343.77	128,357.57	9,982.99	1,085.17	1,737.46	-1,299.11	0.993	6.395	1.109
15,000	69,982.71	47,189.25	131,731.66	9,734.87	1,082.93	2,188.91	-1,070.75	0.909	6.959	0.587
16,000	70,458.14	47,721.68	133,101.47	9,666.08	1,091.94	2,506.69	-969.78	0.590	7.142	0.563
17,000	70,919.07	48,070.62	134,082.45	9,688.76	1,099.87	2,619.97	-929.18	0.320	7.266	0.574
18,000	71,380.01	48,419.56	135,063.43	9,711.44	1,107.81	2,733.25	-888.59	0.050	7.390	0.584
19,000	71,537.25	48,657.96	135,552.17	9,690.94	1,108.81	2,794.23	-861.25	0.000	7.466	0.534
20,000	71,625.33	48,871.17	135,928.76	9,660.59	1,108.22	2,843.29	-836.94	0.000	7.531	0.469
21,000	71,713.38	49,084.39	136,305.36	9,630.25	1,107.54	2,892.36	-812.63	0.000	7.595	0.405
22,000	71,801.44	49,297.61	136,681.96	9,599.91	1,107.06	2,941.42	-788.31	0.000	7.660	0.340
23,000	71,889.51	49,510.83	137,058.55	9,569.57	1,106.48	2,990.49	-764.00	0.000	7.724	0.276
24,000	71,977.57	49,724.0[illegible]	137,435.15	9,539.22	1,105.90	3,039.55	-739.69	0.000	7.789	0.211
25,000	72,065.63	49,937.26	137,811.74	9,508.88	1,105.32	3,088.62	-715.38	0.000	7.853	0.147
26,000	72,153.70	50,150.48	138,188.34	9,478.54	1,104.74	3,137.68	-691.06	0.000	7.918	0.082
27,000	72,241.76	50,363.70	138,564.94	9,448.19	1,104.16	3,186.75	-666.75	0.000	7.983	0.017
28,000	72,265.54	50,421.28	138,666.64	9,440.00	1,104.00	3,200.00	-660.18	0.000	8.000	0.000

4/ Net Profit is Value of Production Minus Cost of Purchased Inputs, Imputed Cost of Family Labor, Cost of Hired Labor, Net Interest Cost and Imputed Cost of Land. The Imputed Cost of Land is 4,000 pesos.

Table A5. Linear Programming Results for a Farm with 4 Hectares of Available Land and 150 Man-days of Available Family Labor.

Available Capital	Net Profit	Cost of Purchased Inputs	Value of Production	Imputed Cost of Family Labor	Total Labor	Cost of Hired Labor	Net Interest Cost	Area By Crops: Arveja	Papa	Ajo
(pesos)	(pesos)	(pesos)	(pesos)	(pesos)	(Man-days)	(pesos)	(pesos)	(Hectare)	(Hectare)	(Hectare)
$ 1,000	42082.07	26768.68	78584.37	7129.62	712.96	000.00	-654.95	2.879	2.753	1.482
2,000	49031.06	33019.39	92816.80	7770.60	777.06	000.00	-729.60	4.281	3.804	0.549
3,000	51525.82	34164.60	96611.37	8179.20	817.92	000.00	-880.97	3.875	4.000	0.754
4,000	53645.58	34678.75	99269.86	8599.74	859.97	000.00	-1082.52	3.497	4.000	1.143
5,000	55763.85	35199.16	101929.60	9017.83	901.78	000.00	-1287.57	3.131	4.000	1.527
6,000	57774.20	35441.87	104533.02	9485.14	954.72	124.04	-1223.32	2.211	4.000	2.137
7,000	59653.04	35893.94	107178.91	9732.75	999.26	519 77	-1331.84	1.709	4.000	2.577
8,000	61531.90	36346.01	109824.80	9980.35	1043.81	915.50	-1440.35	1.206	4.000	3.017
9,000	63410.75	36789.07	112470.68	10227.96	1088.36	1311.22	-1548.87	0.705	4.000	3.456
10,000	65289.60	37250.15	115116.57	10475.56	1132.90	1706.95	-1657.39	0.202	4.000	3.896
11,000	66887.75	39413.02	118787.17	10735.23	1123.37	997.01	-1618.98	0.323	4.644	3.193
12,000	68422.37	41595.31	122469.40	10995.05	1113.23	274.54	-1578.90	0.450	5.296	2.477
13,000	69725.91	43777.60	126151.63	11030.89	1103.08	000.00	-1601.71	0.578	5.948	1.762
14,000	70789.67	45959.89	129833.87	10929.47	1092.95	000.00	-1322.00	0.706	6.600	1.046
15,000	71681.27	47580.92	132702.71	10886.67	1088.67	000.00	-1167.51	0.702	7.091	0.557
16,000	72265.95	47962.76	133775.70	10973.37	1097.33	0000.00	-1141.84	0.406	7.227	0.569
17,000	72850.62	48344.59	134848.68	11060.00	1106.00	000.00	-1116.16	0.111	7.363	0.580
18,000	73143.67	48621.83	135488.36	11089.03	1108.90	000.00	-1093.76	0.000	7.455	0.544
19,000	73260.73	48835.94	135856.54	11083.20	1108.32	000.00	-1073.33	0.000	7.519	0.480
20,000	73377.79	49050.05	136244.72	11077.37	1107.74	000.00	-1052.90	0.000	7.584	0.415
21,000	73494.85	49264.18	136622.90	11071.53	1107.15	000.00	-1032.48	0.000	7.649	0.350
22,000	73511.90	49478.29	137001.08	11065.70	1106.56	000.00	-1012.05	0.000	7.714	0.285
23,000	73728.95	49692.40	137379.26	11059.86	1105.98	000.00	-991.62	0.000	7.779	0.220
24,000	73846.02	49906.52	137757.45	11054.02	1105.40	000.00	-971.19	0.000	7.844	0.155
25,000	73963.08	50120.64	138135.63	11048.20	1104.82	000.00	-950.77	0.000	7.908	0.091
26,000	74080.14	50334.75	138513.81	11042.36	1104.24	000.00	-930.34	0.000	7.973	0.026
27,000	74127.45	50621.28	138666.64	11040.00	1104.00	000.00	-922.08	0.000	8.000	0.000

3/ Net Profit is Value of Production Minus Cost of Purchased Inputs, Imputed Cost of Family Labor, Cost of Hired Labor, Net Interest Cost and Imputed Cost of Land. The imputed cost of land is 4,00 pesos.

Table A6. Linear Programming Results for a Farm with 4 Hectares of Available Land and 100 Hours of Family Labor Per Month When Consumption is Maximized

Available Capital	Net Profit	Cost of Purchased Inputs	Value of Production	Imputed Cost of Family Labor	Total Labor	Cost of Hired Labor	Net Interest Cost	Area By Crops: Arveja	Papa	Ajo	Surplus Consumption Expenditures
(pesos)	(pesos)	(pesos)	(pesos)	(pesos)	(Man-days)	(pesos)	(pesos)	(Hectare)	(Hectare)	(Hectare)	(pesos)
$ 1,000	29,367.19	18,495.05	56,574.34	5,512.00	551.00		48.58	3.752	1.098	1.696	39,899.17
2,000	43,246.10	27,999.86	86,672.24	7,003.66	758.13	1,155.42	110.42	3.607	2.651	1.686	56,289.71
3,000	48,185.83	32,539.26	92,763.48	7,608.36	798.29	749.14	150.18	4.323	8.531	0.938	62,854.11
4,000	50,000.85	33,135.75	95,124.44	8,047.57	829.28	490.35	31.04	4.202	3.552	1.162	66,128.35
5,000	51,698.57	34,764.26	98,728.27	8,217.65	843.20	428.60	64.31	4.375	3.893	0.890	69,016.15
6,000	53,416.40	36,203.13	102,219.10	8,360.08	863.13	542.51	69.42	4.490	4.159	0.744	71,896.41
7,000	55,101.69	37,565.36	105,573.82	8,512.64	883.26	640.00	65.40	4.605	4.402	0.622	74,754.24
8,000	56,593.74	38,472.53	108,120.39	8,725.26	904.53	640.00	7.17	4.721	4.507	0.636	77,478.91
9,000	58,085.79	39,379.69	110,666.96	8,937.87	925.79	640.00	-51.06	4.837	4.613	0.651	80,203.57
10,000	59,577.85	40,286.85	113,213.53	9,150.48	947.04	640.00	-109.29	4.954	4.718	0.664	82,928.23
11,000	61,060.05	41,202.93	115,796.48	9,366.32	968.63	640.00	-130.09	4.880	4.874	0.685	85,646.27
12,000	62,500.98	42,151.78	118,513.15	9,593.98	991.40	640.00	-8.20	4.109	5.214	0.730	88,334.86
13,000	63,932.61	43,100.00	121,229.82	9,821.66	1,014.17	640.00	122.99	3.338	5.544	0.776	91,014.17
14,000	65,260.99	43,939.26	123,858.33	9,971.56	1,039.83	853.44	277.52	2.488	5.866	0.888	93,512.44
15,000	66,285.15	44,706.73	126,213.37	9,974.60	1,062.08	1,292.49	442.40	1.748	6.149	0.976	95,559.63
16,000	66,783.64	45,240.31	127,523.77	9,966.60	1,069.59	1,456.67	540.56	1.475	6.330	0.932	97,070.11
17,000	67,215.22	45,555.49	128,526.82	9,968.96	1,079.61	1,654.24	622.54	1.145	6.448	0.979	98,524.05
18,000	67,646.81	45,870.66	129,529.86	9,971.33	1,089.62	1,849.81	704.52	0.814	6.566	1.026	99,978.00
19,000	68,078.39	46,185.84	130,532.91	9,973.69	1,099.64	2,045.39	786.49	0.483	6.684	1.073	101,431.95
20,000	68,509.97	46,501.00	131,535.96	9,976.05	1,109.65	2,240.96	868.47	0.152	6.802	1.121	102,885.89
21,000	69,052.00	47,484.26	133,479.13	9,857.96	1,112.00	2,524.14	1,005.40	0.000	7.110	0.889	104,329.87
22,000	69,419.37	48,402.96	135,101.77	9,727.22	1,109.50	2,735.55	1,122.22	0.000	7.388	0.611	105,586.45
23,000	69,492.08	48,622.83	135,490.11	9,695.94	1,108.90	2,786.14	1,165.40	0.000	7.455	0.544	106,647.87
24,000	69,564.79	48,842.70	135,878.46	9,664.65	1,108.30	2,836.74	1,208.57	0.000	7.522	0.447	107,709.29
25,000	69,637.50	49,062.56	136,266.80	9,633.36	1,107.70	2,887.33	1,251.75	0.000	7.588	0.411	108,770.71
26,000	69,710.21	49,282.43	136,655.15	9,602.06	1,107.10	2,937.93	1,294.92	0.000	7.655	0.344	109,832.13
27,000	69,782.92	49,502.30	137,043.50	9,570.78	1,106.50	2,988.53	1,338.09	0.000	7.721	0.278	110,893.54
28,000	69,855.63	49,722.17	137,431.84	9,539.49	1,105.91	3,039.12	1,381.27	0.000	7.788	0.211	111,954.96
29,000	69,928.34	49,942.04	137,820.18	9,508.20	1,105.31	3,089.72	1,424.44	0.000	7.854	0.145	113,016.38
30,000	70,001.04	50,161.91	138,208.53	9,476.41	1,104.71	3,140.31	1,467.61	0.000	7.921	0.078	114,077.80
31,000	70,073.76	50,381.78	138,596.87	9,445.62	1,104.10	3,190.91	1,510.78	0.000	7.988	0.001	115,139.21
32,000	70,070.41	50,421.28	138,666.64	9,440.00	1,104.00	3,200.00	1,534.94	0.000	8.000	0.000	116,150.25
33,000	70,050.41	50,421.28	138,666.64	9,440.00	1,104.00	3,200.00	1,554.94	0.000	8.000	0.000	117,150.25
34,000	70,030.41	50,421.28	138,666.64	9,440.00	1,104.00	3,200.00	1,574.94	0.000	8.000	0.000	118,150.25

$ 35,000	70,010.41	50,421.28	138,666.64	9,440.00	1,104.00	3,200.00	1,594.94	0.000	8.000	119,150.25
36,000	69,990.41	50,421.28	138,666.64	9,440.00	1,104.00	3,200.00	1,594.94	0.000	8.000	120,140.25
37,000	69,970.41	50,421.28	138,666.64	9,440.00	1,104.00	3,200.00	1,634.94	0.000	8.000	121,150.25

6/ Net profit is value of production minus cost of purchased inputs, imputed cost of family labor, cost of hired labor, net interest cost and imputed cost imputed cost of land. The imputed cost of land is 4,000 pesos.

Table A7. Linear Programming Results for 2 Farm with 10 Hectares of Available Land and 100 Man-days of Available Family Labor Per Month

Available Capital	Net Profit	Cost of Purchased Inputs	Value of Production	Imputed Cost of Family Labor	Total Labor	Cost of Hired Labor	Net Interest Cost	Area By Crops: Arveja	Papa	Ajo
(pesos)	(pesos)	(pesos)	(pesos)	(pesos)	(Man-days)	(pesos)	(pesos)	(Hectare)	(Hectare)	(Hectare)
$ 1,000	53037.12	39892.93	114021.21	7329.87	993.66	5213.53	-899.86	13.801	2.023	1.105
2,000	80399.98	57110.65	165930.35	8963.40	1482.91	11731.45	-1005.46	11.803	4.620	2.539
3,000	96122.92	65700.53	195160.88	9705.07	1807.30	16735.82	-935.23	7.337	6.350	4.336
4,000	103364.37	71528.39	209832.57	9989.35	1902.66	18074.49	-1179.51	9.219	6.973	3.889
5,000	109513.98	77348.49	223113.73	10262.18	1962.94	18734.43	-1229.41	10.376	7.987	3.032
6,000	113235.43	81138.70	231276.51	10496.52	1989.34	18793.70	-1219.66	10.358	8.924	2.336
7,000	115900.63	82755.92	235937.07	10822.04	2029.68	18949.43	-1286.41	9.911	9.269	2.409
8,000	118516.77	84360.30	240573.32	11147.19	2070.01	19105.81	-1314.18	9.466	9.609	2.485
9,000	121101.33	85958.13	245196.20	11460.29	2110.32	19285.80	-1328.05	9.023	9.947	2.563
10,000	123198.24	86671.15	248169.43	11761.12	2150.97	19497.05	-1518.42	8.692	10.000	2.879
11,000	124766.33	88225.13	251310.82	11884.44	2157.17	19374.59	-1678.81	9.269	10.259	2.522
12,000	126071.71	90020.11	254596.36	11910.83	2155.49	19288.09	-1690.48	9.632	10.689	2.008
13,000	127296.32	91203.53	257216.12	11915.81	2166.09	19490.14	-1788.58	10.273	10.799	1.802
14,000	128505.12	93024.22	260529.64	11916.67	2163.89	19444.39	-1723.08	10.625	11.242	1.275
15,000	129712.96	94844.91	263843.16	11916.67	2161.68	19400.36	-1657.48	10.976	11.686	0.749
16,000	130917.49	96165.20	266611.93	11916.67	2169.53	19557.37	-1707.95	11.555	11.867	0.474
17,000	132121.01	97334.66	269216.49	11916.67	2180.42	19774.97	-1793.18	12.202	11.970	0.275
18,000	133315.19	98504.11	271821.06	11916.67	2191.30	19992.58	-1869.15	12.849	12.073	0.077
19,000	134506.23	99431.67	274162.28	11898.52	2207.04	20343.66	-2017.80	13.606	12.049	0.000
20,000	135695.87	100207.10	276337.89	11888.42	2225.83	20739.78	-2193.28	14.432	11.946	0.000
21,000	136870.78	100982.52	278513.50	11878.43	2244.63	21135.66	-2353.90	15.258	11.843	0.000
22,000	138039.44	101757.95	280689.11	11868.51	2263.42	21531.43	-2508.22	16.084	11.739	0.000
23,000	139191.63	102568.89	282939.98	11858.72	2202.05	21923.57	-2602.82	16.481	11.759	0.000
24,000	140304.52	103464.55	285370.44	11849.26	2300.28	22307.04	-2554.94	15.852	12.074	0.000
25,000	141399.05	104360.21	287800.90	11853.97	2318.51	22690.21	-2488.55	15.224	12.388	0.000
26,000	142481.94	105255.88	290231.35	11830.77	2336.74	23073.18	-2410.41	14.595	12.702	0.000
27,000	143564.84	106151.54	292661.81	11821.57	2354.96	23546.15	-2332.28	13.967	13.017	0.000
28,000	144646.41	107047.21	295092.27	11839.03	2373.19	23785.78	-2226.16	13.338	13.330	0.000
29,000	145697.81	107942.87	297522.73	11867.42	2391.42	24093.57	-2078.95	12.710	13.645	0.000
30,000	146749.12	108838.54	299953.19	11895.82	2409.65	24401.36	-1931.64	12.081	13.959	0.000
31,000	147792.06	109645.98	302295.60	11916.67	2429.77	24762.05	-1796.97	11.402	14.250	0.048
32,000	148811.85	110209.42	304394.48	11916.67	2455.12	25269.07	-1697.25	10.585	14.477	0.231
33,000	149831.64	110772.86	306493.37	11916.67	2480.47	25776.08	-1597.53	9.767	14.704	0.413
34,000	150851.43	111336.30	308592.26	11916.67	2505.82	26283.10	-1497.81	8.949	14.930	0.595
35,000	151871.23	111899.74	310691.15	11916.67	2531.17	26790.12	-1398.09	8.132	15.157	0.777

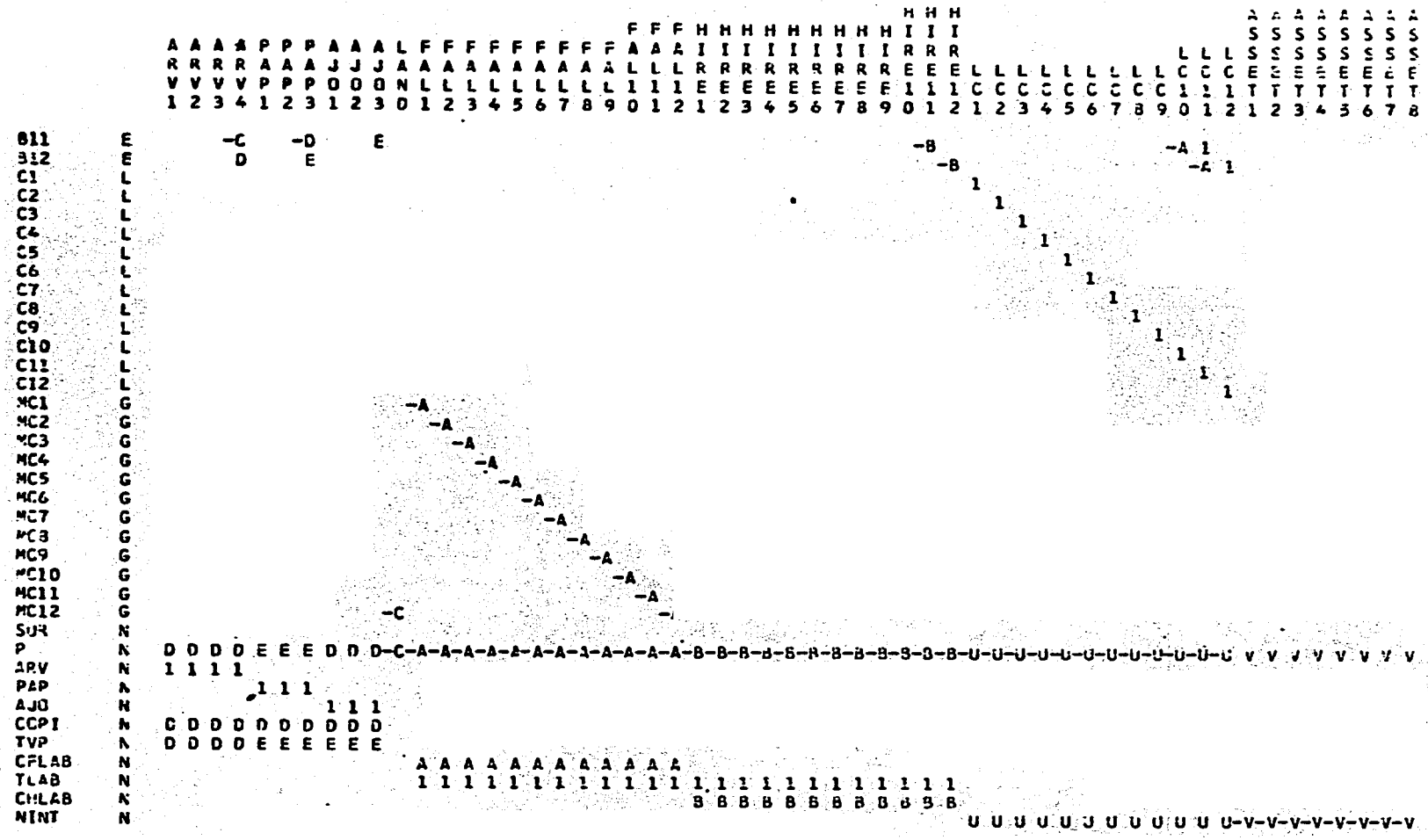
36,000	152891.02	112463.19	312790.04	11916.67	2556.52	27297.14	-1298.37	7.314	15.384	.959
37,000	153910.81	113026.63	314888.93	11916.67	2581.87	27804.16	-1198.65	6.496	15.610	1.141
38,000	154930.60	113590.07	316987.82	11916.67	2607.23	28311.17	-1098.93	5.679	15.837	1.324
39,000	155950.39	114153.51	319086.71	11916.67	2632.58	28818.19	-999.21	4.861	16.064	1.506
40,000	156969.23	114797.65	321266.14	11915.29	2656.20	29293.37	-887.60	4.090	16.312	1.644
41,000	157982.74	115893.67	323896.55	11906.18	2670.13	29590.24	-709.39	3.575	16.679	1.534
42,000	158639.40	116691.37	325833.54	11820.41	2680.82	29975.58	-562.71	3.184	16.947	1.461
43,000	159063.39	117028.34	326779.71	11826.91	2668.45	30115.22	-518.56	2.924	17.067	1.471
44,000	159487.38	117365.31	327725.88	11833.41	2696.08	30254.86	-474.42	2.663	17.187	1.481
45,000	159911.37	117702.28	328672.06	11839.91	2703.72	30394.50	-430.27	2.404	17.307	1.491
46,000	160335.36	118039.25	329618.23	11846.41	2711.35	30534.14	-386.12	2.144	17.427	1.502
47,000	160759.35	118376.22	330564.40	11852.91	2718.98	30673.78	-341.97	1.884	17.546	1.512
48,000	161183.35	118713.18	331510.57	11859.41	2726.61	30813.42	-297.82	1.624	17.666	1.522
49,000	161607.34	119050.16	332456.74	11865.91	2734.24	30953.06	-253.68	1.364	17.786	1.532
50,000	162031.33	119387.13	333402.91	11872.41	2741.88	31092.70	-209.53	1.104	17.906	1.542
51,000	162455.32	119724.10	334349.09	11878.91	2749.51	31232.34	-165.38	0.844	18.026	1.552
52,000	162879.31	120061.07	335295.26	11885.41	2757.14	31371.98	-121.23	0.584	18.146	1.563
53,000	163303.31	120398.04	336241.43	11891.91	2764.77	31511.62	-77.08	0.324	18.266	1.573
54,000	163727.30	120735.00	337187.60	11898.41	2772.40	31651.26	-32.93	0.064	18.385	1.583
55,000	163930.51	120988.82	337721.64	11900.00	2773.80	31676.02	- 7.00	0.000	18.467	1.533
56,000	164062.37	121215.77	338122.49	11900.00	2773.18	31663.65	13.04	0.000	18.535	1.465
57,000	164194.24	121442.72	338523.34	11900.00	2772.56	31651.28	33.09	0.000	18.604	1.396
58,000	164326.10	121669.67	338924.18	11900.00	2771.95	31638.91	53.14	0.000	18.673	1.327
59,000	164457.97	121896.62	339325.03	11900.00	2771.33	31626.54	73.18	0.000	18.742	1.259
60,000	164589.84	122123.57	339725.88	11900.00	2770.71	31614.17	93.23	0.000	18.810	1.190
61,000	164721.70	122350.52	340126.73	11900.00	2770.09	31601.80	113.27	0.000	18.879	1.121
62,000	164853.57	122577.47	340527.58	11900.00	2769.47	31589.43	133.32	0.000	18.948	1.052
63,000	164985.43	122804.42	340928.43	11900.00	2768.85	31577.06	153.36	0.000	19.016	0.984
64,000	165117.30	123031.37	341329.28	11900.00	2768.23	31564.69	173.41	0.000	19.085	0.915
65,000	165249.16	123258.32	341730.13	11900.00	2767.62	31552.33	193.45	0.000	19.154	0.846
66,000	165381.03	123485.27	342130.98	11900.00	2766.98	31539.96	213.50	0.000	19.222	0.778
67,000	165512.89	123712.21	342531.83	11900.00	2766.38	31527.59	233.55	0.000	19.291	0.708
68,000	165644.76	123939.16	342932.68	11900.00	2765.76	31515.22	253.60	0.000	19.360	0.640
69,000	165776.62	124166.11	343333.53	11900.00	2765.14	31502.85	273.64	0.000	19.429	0.571
70,000	165908.49	124393.06	343734.38	11900.00	2764.52	31490.48	293.68	0.000	19.497	0.503
71,000	166040.35	124620.01	344135.23	11900.00	2763.91	31478.11	313.73	0.000	19.566	0.434
72,000	166172.22	124846.96	344536.08	11900.00	2763.29	31465.74	333.77	0.000	19.635	0.365
73,000	166304.08	125073.91	344936.93	11900.00	2762.67	31453.37	353.82	0.000	19.703	0.297
74,000	166435.95	125300.86	345337.78	11900.00	2762.05	31441.00	373.86	0.000	19.772	0.228
75,000	166542.23	125519.80	345724.49	11882.37	2761.45	31464.34	396.50	0.000	19.839	0.162
76,000	166626.58	125731.89	346099.08	11849.62	2760.88	31518.28	421.37	0.000	19.903	0.097
77,000	166710.93	125943.97	346473.68	11816.87	2760.30	31572.22	446.28	0.000	19.967	0.033
78,000	166754.37	126053.20	346666.60	11800.00	2760.00	31600.00	459.03	0.000	20.000	0.000

1/ Net Profit is value of Production minus cost of purchased inputs, imputed cost of family labor, cost of hired labor, net interest cost and imputed cost of land. The imputed cost of land is 10,000 pesos.

APPENDIX B

Picture" of the Linear Programming Matrix . Finally, the print out of the matrix is presented.

		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	ALAND	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
A1	L	1					1			1			-1																																				
A2	L	1					1			1			-1																																				
A3	L	1					1			1			-1																																				
A4	L		1				1	1		1	1		-1																																				
A5	L		1				1	1		1	1		-1																																				
A6	L		1				1	1			1		-1																																				
A7	L			1				1	1		1	1	-1																																				
A8	L			1				1	1		1	1	-1																																				
A9	L			1				1	1			1	-1																																				
A10	L				1				1			1	-1																																				
A11	L				1				1			1	-1																																				
A12	L				1				1				-1																																				
ALAND	L												1																																				
L1	E	A					B			B				-1													-1																							
L2	E	B					B			B					-1													-1																						
L3	E	B					B			B						-1													-1																				
L4	E		A				A	B		A	B						-1													-1																			
L5	E		B				A	B		B	B							-1													-1																		
L6	E		B				B	B			B								-1													-1																	
L7	E			A				A	B		A	B								-1													-1																
L8	E			B				A	B		B	B									-1													-1															
L9	E			B				B	B			B										-1													-1														
L10	E				A				A			A											-1													-1													
L11	E				B				A			B												-1													-1												
L12	E				B				B																-1													-1											
F1	L																1																																
F2	L																	1																																
F3	L																		1																															
F4	L																			1																														
F5	L																				1																													
F6	L																					1																												
F7	L																						1																											
F8	L																							1																										
F9	L																								1																									
F10	L																									1																								
F11	L																										1																							
F12	L																											1																						
E1	E	-C					-D			-D																			-B											1									-1	
E2	E	-C					-D			-D																				-B										-A	1								A-1	
E3	E	D					-C																								-B											-A	1							A-1	
E4	E		-C					-D																								-B											-A	1						A-1	
E5	E		-C				-D	-D		E	-D																						-B											-A	1					A-1	
E6	E		D				E	-C			-D																							-B											-A	1				A-1	
E7	E			-C				-D			-D																								-B											-A	1			A-1	
E8	E			-C			-D	-D		E	-D																									-B											-A	1		A-1	
E9	E			D			E	-C																													-B											-A	1	A	
E10	E				-C																																	-B											-A	1	


B11 E
B12 E
C1 L
C2 L
C3 L
C4 L
C5 L
C6 L
C7 L
C8 L
C9 L
C10 L
C11 L
C12 L
MC1 G
MC2 G
MC3 G
MC4 G
MC5 G
MC6 G
MC7 G
MC8 G
MC9 G
MC10 G
MC11 G
MC12 G
SUR N
P N
ARV N
PAP N
AJO N
CCPI N
TVP N
CFLAB N
TLAB N
CHLAB N
NINT N

		ASSET 90	SSET 101	SSET 112	S 51	S 52	S 53	S 54	S 55	S 56	S 57	S 58	S 59	SR 50	SR 110	SR 120	2R 100	2R 110	4R 50	4R 100	4R 110	10R 50	10R 100	10R 110	20R 50	20R 100	20R 110	ALPHA
A1	L																											
A2	L																											
A3	L																											
A4	L																											
A5	L																											
A6	L																											
A7	L																											
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A9	L																											
A10	L																											
A11	L																											
A12	L																											
ALANC	L																											
L1	E																											
L2	E																											
L3	E																											
L4	E																											
L5	E																											
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F12	L																											
B1	E																											
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B9	E																											
B10	E																											

A1	L																											
A2	L																											
A3	L																											
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A7	L																											
A8	L																											
A9	L																											
A10	L																											
A11	L																											
A12	L																											
ALANC	L																A	A	A	A	A	A	A	A	B	B	B	
L1	E																											
L2	E																											
L3	E																											
L4	E																											
L5	E																											
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L7	E																											
L8	E																											
L9	E																											
L10	E																											
L11	E																											
L12	E																											
F1	L																B	B	C	B	B	C	B	B	C	B	B	C
F2	L																B	B	C	B	B	C	B	B	C	B	B	C
F3	L																B	B	C	B	B	C	B	B	C	B	B	C
F4	L																B	B	C	B	B	C	B	B	C	B	B	C
F5	L																B	B	C	B	B	C	B	B	C	B	B	C
F6	L																B	B	C	B	B	C	B	B	C	B	B	C
F7	L																B	B	C	B	B	C	B	B	C	B	B	C
F8	L																B	B	C	B	B	C	B	B	C	B	B	C
F9	L																B	B	C	B	B	C	B	B	C	B	B	C
F10	L																B	B	C	B	B	C	B	B	C	B	B	C
F11	L																B	B	C	B	B	C	B	B	C	B	B	C
F12	L																B	B	C	B	B	C	B	B	C	B	B	C
B1	E					-1																						
B2	E						-1																					
B3	E							-1																				
B4	E								-1																			
B5	E									-1																		
B6	E										-1																	
B7	E											-1																
B8	E												-1															
B9	E													-1														
B10	E														-1													

		A3SET19	S3SET10	S3SET11	S3SET12	SS21	SS22	SS23	SS24	SS25	SS26	SS27	SS28	SS29	SS210	SS211	SS212	2RR150	2RR200	4RR450	4RR500	4RR550	1OR100	1OR110	1OR105	2OR100	2OR105	CAPCH
[illegible]	E		3	-1												-1												
[illegible]	E			3	-1												+1											
C1	L																	E	E	E	E	E	E	E	E	F	F	F-C
C2	L																	E	E	E	E	E	E	E	E	F	F	F-C
C3	L																	E	E	E	E	E	E	E	E	F	F	F-C
C4	L																	E	E	E	E	E	E	E	E	F	F	F-C
C5	L																	E	E	E	E	E	E	E	E	F	F	F-C
C6	L																	E	E	E	E	E	E	E	E	F	F	F-C
C7	L																	E	E	E	E	E	E	E	E	F	F	F-C
C8	L																	E	E	E	E	E	E	E	E	F	F	F-C
C9	L																	E	E	E	E	E	E	E	E	F	F	F-C
C10	L																	E	E	E	E	E	E	E	E	F	F	F-C
C11	L																	E	E	E	E	E	E	E	E	F	F	F-C
C12	L																	E	E	E	E	E	E	E	E	F	F	F-C
MC1	G					1																						
MC2	G						1																					
MC3	G							1																				
MC4	G								1																			
MC5	G									1																		
MC6	G										1																	
MC7	G											1																
MC8	G												1															
MC9	G													1														
MC10	G														1													
MC11	G															1												
MC12	G																1											
SCP	P					1	1	1	1	1	1	1	1	1	1	1	1											
P	P	V	V	V	V																							
[illegible]	P																											
[illegible]	N																											
[illegible]	N																											
CCPI	N																											
TVP	N																											
CFL48	N																											
TL48	N																											
CHL48	N																											
[illegible]	N	-V	-V	-V	-V																							

SUMMARY OF MATRIX

SYMBOL	RANGE			COUNT (INCL.RHS)
Z	LESS THAN		.000001	
Y	.000001	THRU	.000009	
X	.000010		.000099	
W	.000100		.000999	
V	.001000		.009999	24
U	.010000		.099999	24
T	.100000		.999999	
1	1.000000		1.000000	200
A	1.000001		10.000000	80
B	10.000001		100.000000	167
C	100.000001		1,000.000000	73
D	1,000.000001		10,000.000000	40
E	10,000.000001		100,000.000000	123
F	100,000.000001		1,000,000.000000	36
G	GREATER THAN		1,000,000.000000	

Best Available Document

VARICAP

	ARV1	ARV2	ARV3	ARV4	PAP1	PAP2	PAP3	AJC1	1....1
A1	1.00000	.	.	.	1.00000	.	.	1.00000	A1
A2	1.00000	.	.	.	1.00000	.	.	1.00000	A2
A3	1.00000	.	.	.	1.00000	.	.	1.00000	A3
A4	.	1.00000	.	.	1.00000	1.00000	.	1.00000	A4
A5	.	1.00000	.	.	1.00000	1.00000	.	1.00000	A5
A6	.	1.00000	.	.	1.00000	1.00000	.	.	A6
A7	.	.	1.00000	.	.	1.00000	1.00000	.	A7
A8	.	.	1.00000	.	.	1.00000	1.00000	.	A8
A9	.	.	1.00000	.	.	1.00000	1.00000	.	A9
A10	.	.	.	1.00000	.	.	1.00000	.	A10
A11	.	.	.	1.00000	.	.	1.00000	.	A11
A12	.	.	.	1.00000	.	.	1.00000	.	A12
L1	5.00000	.	.	.	35.00000	.	.	32.00000	L1
L2	15.00000	.	.	.	24.00000	.	.	25.00000	L2
L3	20.00000	.	.	.	25.00000	.	.	20.00000	L3
L4	.	5.00000	.	.	10.00000	35.00000	.	10.00000	L4
L5	.	15.00000	.	.	9.00000	24.00000	.	60.00000	L5
L6	.	20.00000	.	.	35.00000	25.00000	.	.	L6
L7	.	.	5.00000	.	.	10.00000	35.00000	.	L7
L8	.	.	15.00000	.	.	9.00000	24.00000	.	L8
L9	.	.	20.00000	.	.	35.00000	25.00000	.	L9
L10	.	.	.	5.00000	.	.	10.00000	.	L10
L11	.	.	.	15.00000	.	.	9.00000	.	L11
L12	.	.	.	20.00000	.	.	35.00000	.	L12
B1	788.00000-	.	.	.	1600.0000-	.	.	1100.0000-	B1
B2	938.40000-	.	.	.	2500.0000-	.	.	1400.0000-	B2
B3	4800.0000	.	.	.	333.33000-	.	.	.	B3
B4	.	788.00000-	.	.	.	1600.0000-	.	.	B4
B5	.	938.40000-	.	.	1869.3200-	2500.0000-	.	11500.000	B5
B6	.	4800.0000	.	.	17333.300	333.33000-	.	.	B6
B7	.	.	788.00000-	.	.	.	1600.0000-	.	B7
B8	.	.	938.40000-	.	.	1869.3200-	2500.0000-	.	B8
B9	.	.	4800.0000	.	.	17333.300	333.33000-	.	B9
B10	.	.	.	788.00000-	.	.	.	.	B10
B11	.	.	.	938.40000-	.	.	1869.3200-	.	B11
B12	.	.	.	4800.0000	.	.	17333.300	.	B12
P	3073.6000	3073.6000	3073.6000	3073.6000	11030.670	11030.670	11030.670	9000.0000	P
APV	1.00000	1.00000	1.00000	1.00000	.	.	.	.	APV
PAP	.	.	.	.	1.00000	1.00000	1.00000	.	PAP
AJC	.	.	.	.	.	.	.	1.00000	AJC
CCPI	1726.4000	1726.4000	1726.4000	1726.4000	6302.6600	6302.6600	6302.6600	3000.0000	CCPI
TVP	4800.0000	4800.0000	4800.0000	4800.0000	17333.330	17333.330	17333.330	11500.000	TVP

VARICAP

	AJ02	AJ03	LAND	FAL1	FAL2	FAL3	FAL4	FAL5	2....1
A1	.	.	1.00000-	.	.	.	.	.	A1
A2	.	.	1.00000-	.	.	.	.	.	A2
A3	.	.	1.00000-	.	.	.	.	.	A3
A4	1.00000	.	1.00000-	.	.	.	.	.	A4
A5	1.00000	.	1.00000-	.	.	.	.	.	A5
A6	1.00000	.	1.00000-	.	.	.	.	.	A6
A7	1.00000	1.00000	1.00000-	.	.	.	.	.	A7
A8	1.00000	1.00000	1.00000-	.	.	.	.	.	A8
A9	.	1.00000	1.00000-	.	.	.	.	.	A9
A10	.	1.00000	1.00000-	.	.	.	.	.	A10
A11	.	1.00000	1.00000-	.	.	.	.	.	A11
A12	.	.	1.00000-	.	.	.	.	.	A12
ALAND	.	.	1.00000	.	.	.	.	.	ALAND
L1	.	.	.	1.00000-	.	.	.	.	L1
L2	.	.	.	.	1.00000-	.	.	.	L2
L3	.	.	.	.	.	1.00000-	.	.	L3
L4	32.00000	.	.	.	.	.	1.00000-	.	L4
L5	25.00000	.	.	.	.	.	.	1.00000-	L5
L6	20.00000	.	.	.	.	.	.	.	L6
L7	10.00000	32.00000	.	.	.	.	.	.	L7
L8	60.00000	25.00000	.	.	.	.	.	.	L8
L9	.	20.00000	.	.	.	.	.	.	L9
L10	.	10.00000	.	.	.	.	.	.	L10
L11	.	60.00000	.	.	.	.	.	.	L11
F1	.	.	.	1.00000	.	.	.	.	F1
F2	.	.	.	.	1.00000	.	.	.	F2
F3	.	.	.	.	.	1.00000	.	.	F3
F4	.	.	.	.	.	.	1.00000	.	F4
F5	.	.	.	.	.	.	.	1.00000	F5
B5	1100.0000-	.	.	.	.	.	.	.	B5
B6	1400.0000-	.	.	.	.	.	.	.	B6
B7	.	1100.0000-	.	.	.	.	.	.	B7
B8	11500.000	1400.0000-	.	.	.	.	.	.	B8
B11	.	11500.000	.	.	.	.	.	.	B11
MC1	.	.	.	10.00000-	.	.	.	.	MC1
MC2	.	.	.	.	10.00000-	.	.	.	MC2
MC3	.	.	.	.	.	10.00000-	.	.	MC3
MC4	.	.	.	.	.	.	10.00000-	.	MC4
MC5	.	.	.	.	.	.	.	10.00000-	MC5
MC12	.	.	1000.0000-	.	.	.	.	.	MC12
P	9000.0000	9000.0000	1000.0000-	10.00000-	10.00000-	10.00000-	10.00000-	10.00000-	P
AJO	1.00000	1.00000	.	.	.	.	.	.	AJO
COPI	3000.0000	3000.0000	.	.	.	.	.	.	COPI
TVP	11500.000	11500.000	.	.	.	.	.	.	TVP
CFLAB	.	.	.	10.00000	10.00000	10.00000	10.00000	10.00000	CFLAB
TLAB	.	.	.	1.00000	1.00000	1.00000	1.00000	1.00000	TLAB

VARICAP

	FAL6	FAL7	FAL8	FAL9	FAL10	FAL11	FAL12	HIRE1	3....1
L1	.	.	.	.	.	.	.	1.00000-	L1
L6	1.00000-	.	.	.	.	.	.	.	L6
L7	.	1.00000-	.	.	.	.	.	.	L7
L8	.	.	1.00000-	.	.	.	.	.	L8
L9	.	.	.	1.00000-	.	.	.	.	L9
L10	.	.	.	.	1.00000-	.	.	.	L10
L11	.	.	.	.	.	1.00000-	.	.	L11
L12	.	.	.	.	.	.	1.00000-	.	L12
F6	1.00000	.	.	.	.	.	.	.	F6
F7	.	1.00000	.	.	.	.	.	.	F7
F8	.	.	1.00000	.	.	.	.	.	F8
F9	.	.	.	1.00000	.	.	.	.	F9
F10	.	.	.	.	1.00000	.	.	.	F10
F11	.	.	.	.	.	1.00000	.	.	F11
F12	.	.	.	.	.	.	1.00000	.	F12
B1	.	.	.	.	.	.	.	20.00000-	B1
MC6	10.00000-	.	.	.	.	.	.	.	MC6
MC7	.	10.00000-	.	.	.	.	.	.	MC7
MC8	.	.	10.00000-	.	.	.	.	.	MC8
MC9	.	.	.	10.00000-	.	.	.	.	MC9
MC10	.	.	.	.	10.00000-	.	.	.	MC10
MC11	.	.	.	.	.	10.00000-	.	.	MC11
MC12	.	.	.	.	.	.	10.00000-	.	MC12
P	10.00000-	10.00000-	10.00000-	10.00000-	10.00000-	10.00000-	10.00000-	20.00000-	P
CFLAB	10.00000	10.00000	10.00000	10.00000	10.00000	10.00000	10.00000	.	CFLAB
TLAB	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	TLAB
CHLAB	.	.	.	.	.	.	.	20.00000	CHLAB

VARICAP

	HIRE2	HIRE3	HIRE4	HIRE5	HIRE6	HIRE7	HIRE8	HIRE9	4....1
L2	1.00000-	.	.	.	.	.	.	.	L2
L3	.	1.00000-	.	.	.	.	.	.	L3
L4	.	.	1.00000-	.	.	.	.	.	L4
L5	.	.	.	1.00000-	.	.	.	.	L5
L6	.	.	.	.	1.00000-	.	.	.	L6
L7	.	.	.	.	.	1.00000-	.	.	L7
L8	.	.	.	.	.	.	1.00000-	.	L8
L9	.	.	.	.	.	.	.	1.00000-	L9
B2	20.00000-	.	.	.	.	.	.	.	B2
B3	.	20.00000-	.	.	.	.	.	.	B3
B4	.	.	20.00000-	.	.	.	.	.	B4
B5	.	.	.	20.00000-	.	.	.	.	B5
B6	.	.	.	.	20.00000-	.	.	.	B6
B7	.	.	.	.	.	20.00000-	.	.	B7
B8	.	.	.	.	.	.	20.00000-	.	B8
B9	.	.	.	.	.	.	.	20.00000-	B9
P	20.00000-	20.00000-	20.00000-	20.00000-	20.00000-	20.00000-	20.00000-	20.00000-	P
TLAB	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	TLAB
CHLAB	20.00000	20.00000	20.00000	20.00000	20.00000	20.00000	20.00000	20.00000	CHLAB

VARICAP

	HIRE10	HIRE11	HIRE12	LC1	LC2	LC3	LC4	LC5	5....1
L10	1.00000-	.	.	.	.	.	.	.	L10
L11	.	1.00000-	.	.	.	.	.	.	L11
L12	.	.	1.00000-	.	.	.	.	.	L12
B1	.	.	.	1.00000	.	.	.	.	B1
B2	.	.	.	1.02000-	1.00000	.	.	.	B2
B3	.	.	.	.	1.02000-	1.00000	.	.	B3
B4	.	.	.	.	.	1.02000-	1.00000	.	B4
B5	.	.	.	.	.	.	1.02000-	1.00000	B5
B6	.	.	.	.	.	.	.	1.02000-	B6
B10	20.00000-	.	.	.	.	.	.	.	B10
B11	.	20.00000-	.	.	.	.	.	.	B11
B12	.	.	20.00000-	.	.	.	.	.	B12
C1	.	.	.	1.00000	.	.	.	.	C1
C2	.	.	.	.	1.00000	.	.	.	C2
C3	.	.	.	.	.	1.00000	.	.	C3
C4	.	.	.	.	.	.	1.00000	.	C4
C5	.	.	.	.	.	.	.	1.00000	C5
P	20.00000-	20.00000-	20.00000-	.02000-	.02000-	.02000-	.02000-	.02000-	P
TLAB	1.00000	1.00000	1.00000	.	.	.	.	.	TLAB
CHLAB	20.00000	20.00000	20.00000	.	.	.	.	.	CHLAB
NINT	.	.	.	.02000	.02000	.02000	.02000	.02000	NINT

VARICAP

	LC6	LC7	LC8	LC9	LC10	LC11	LC12	ASSET1	.....
B1	.	.	.	.	.	.	.	1.00000-	B1
B2	.	.	.	.	.	.	.	1.01000	B2
B6	1.00000	.	.	.	.	.	.	.	B6
B7	1.02000-	1.00000	.	.	.	.	.	.	B7
B8	.	1.02000-	1.00000	.	.	.	.	.	B8
B9	.	.	1.02000-	1.00000	.	.	.	.	B9
B10	.	.	.	1.02000-	1.00000	.	.	.	B10
B11	.	.	.	.	1.02000-	1.00000	.	.	B11
B12	.	.	.	.	.	1.02000-	1.00000	.	B12
C6	1.00000	.	.	.	.	.	.	.	C6
C7	.	1.00000	.	.	.	.	.	.	C7
C8	.	.	1.00000	.	.	.	.	.	C8
C9	.	.	.	1.00000	.	.	.	.	C9
C10	.	.	.	.	1.00000	.	.	.	C10
C11	.	.	.	.	.	1.00000	.	.	C11
C12	.	.	.	.	.	.	1.00000	.	C12
P	.02000-	.02000-	.02000-	.02000-	.02000-	.02000-	.02000-	.01000	P
NINT	.02000	.02000	.02000	.02000	.02000	.02000	.02000	.01000-	NINT

VARICAP

	ASSET2	ASSET3	ASSET4	ASSET5	ASSET6	ASSET7	ASSET8	ASSET9	7....1
B2	1.00000-	.	.	.	.	.	.	.	B2
B3	1.01000	1.00000-	.	.	.	.	.	.	B3
B4	.	1.01000	1.00000-	.	.	.	.	.	B4
B5	.	.	1.01000	1.00000-	.	.	.	.	B5
B6	.	.	.	1.01000	1.00000-	.	.	.	B6
B7	.	.	.	.	1.01000	1.00000-	.	.	B7
B8	.	.	.	.	.	1.01000	1.00000-	.	B8
B9	.	.	.	.	.	.	1.01000	1.00000-	B9
B10	.	.	.	.	.	.	.	1.01000	B10
P	.01000	.01000	.01000	.01000	.01000	.01000	.01000	.01000	P
NINT	.01000-	.01000-	.01000-	.01000-	.01000-	.01000-	.01000-	.01000-	NINT

VARICAP

	ASSET10	ASSET11	ASSET12	S1	S2	S3	S4	S5	6....1
B1	.	.	.	1.00000-	.	.	.	.	.
B2	.	.	.	.	1.00000-	.	.	.	B1
B3	.	.	.	.	.	1.00000-	.	.	B2
B4	.	.	.	.	.	.	1.00000-	.	B3
B5	.	.	.	.	.	.	.	1.00000-	B4
B10	1.00000-	.	.	.	.	.	.	.	B5
B11	1.01000	1.00000-	.	.	.	.	.	.	B10
B12	.	1.01000	1.00000-	.	.	.	.	.	B11
MC1	.	.	.	.	.	.	.	.	B12
MC2	.	.	.	1.00000	.	.	.	.	MC1
MC3	.	.	.	.	1.00000	.	.	.	MC2
MC4	.	.	.	.	.	1.00000	.	.	MC3
MC5	.	.	.	.	.	.	1.00000	.	MC4
SUR	.	.	.	.	.	.	.	1.00000	MC5
P	.01000	.01000	.01000	1.00000	1.00000	1.00000	1.00000	1.00000	SUR
NINT	.01000-	.01000-	.01000-	.	.	.	.	.	P
				.	.	.	.	.	NINT

VARICAP

	S6	S7	S8	S9	S10	S11	S12	2850	9....1
ALAMD	.	.	.	.	.	.	.	2.00000	ALAMD
F1	.	.	.	.	.	.	.	50.00000	F1
F2	.	.	.	.	.	.	.	50.00000	F2
F3	.	.	.	.	.	.	.	50.00000	F3
F4	.	.	.	.	.	.	.	50.00000	F4
F5	.	.	.	.	.	.	.	50.00000	F5
F6	.	.	.	.	.	.	.	50.00000	F6
F7	.	.	.	.	.	.	.	50.00000	F7
F8	.	.	.	.	.	.	.	50.00000	F8
F9	.	.	.	.	.	.	.	50.00000	F9
F10	.	.	.	.	.	.	.	50.00000	F10
F11	.	.	.	.	.	.	.	50.00000	F11
F12	.	.	.	.	.	.	.	50.00000	F12
B6	1.00000-	.	.	.	.	.	.	.	B6
B7	.	1.00000-	.	.	.	.	.	.	B7
B8	.	.	1.00000-	.	.	.	.	.	B8
B9	.	.	.	1.00000-	.	.	.	.	B9
B10	.	.	.	.	1.00000-	.	.	.	B10
B11	.	.	.	.	.	1.00000-	.	.	B11
B12	.	.	.	.	.	.	1.00000-	.	B12
C1	.	.	.	.	.	.	.	19000.000	C1
C2	.	.	.	.	.	.	.	19000.000	C2
C3	.	.	.	.	.	.	.	19000.000	C3
C4	.	.	.	.	.	.	.	19000.000	C4
C5	.	.	.	.	.	.	.	19000.000	C5
C6	.	.	.	.	.	.	.	19000.000	C6
C7	.	.	.	.	.	.	.	19000.000	C7
C8	.	.	.	.	.	.	.	19000.000	C8
C9	.	.	.	.	.	.	.	19000.000	C9
C10	.	.	.	.	.	.	.	19000.000	C10
C11	.	.	.	.	.	.	.	19000.000	C11
C12	.	.	.	.	.	.	.	19000.000	C12
MC6	1.00000	.	.	.	.	.	.	.	MC6
MC7	.	1.00000	.	.	.	.	.	.	MC7
MC8	.	.	1.00000	.	.	.	.	.	MC8
MC9	.	.	.	1.00000	.	.	.	.	MC9
MC10	.	.	.	.	1.00000	.	.	.	MC10
MC11	.	.	.	.	.	1.00000	.	.	MC11
MC12	.	.	.	.	.	.	1.00000	.	MC12
SUR	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	.	SUR

VARICAP

	2R100	2R150	4R50	4R100	4R150	10R50	10R100	10R150	10....1
ALAND	2.00000	2.00000	4.00000	4.00000	4.00000	10.00000	10.00000	10.00000	ALAND
F1	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F1
F2	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F2
F3	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F3
F4	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F4
F5	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F5
F6	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F6
F7	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F7
F8	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F8
F9	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F9
F10	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F10
F11	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F11
F12	100.00000	150.00000	50.00000	100.00000	150.00000	50.00000	100.00000	150.00000	F12
C1	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C1
C2	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C2
C3	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C3
C4	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C4
C5	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C5
C6	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C6
C7	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C7
C8	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C8
C9	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C9
C10	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C10
C11	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C11
C12	19000.000	19000.000	37000.000	37000.000	37000.000	91000.000	79000.000	91000.000	C12

	20R50	20R100	20R150	CAPCHG	
ALAND	20.00000	20.00000	20.00000	.	ALAND
F1	50.00000	100.00000	150.00000	.	F1
F2	50.00000	100.00000	150.00000	.	F2
F3	50.00000	100.00000	150.00000	.	F3
F4	50.00000	100.00000	150.00000	.	F4
F5	50.00000	100.00000	150.00000	.	F5
F6	50.00000	100.00000	150.00000	.	F6
F7	50.00000	100.00000	150.00000	.	F7
F8	50.00000	100.00000	150.00000	.	F8
F9	50.00000	100.00000	150.00000	.	F9
F10	50.00000	100.00000	150.00000	.	F10
F11	50.00000	100.00000	150.00000	.	F11
F12	50.00000	100.00000	150.00000	.	F12
C1	182000.00	182000.00	182000.00	1000.0000-	C1
C2	182000.00	182000.00	182000.00	1000.0000-	C2
C3	182000.00	182000.00	182000.00	1000.0000-	C3
C4	182000.00	182000.00	182000.00	1000.0000-	C4
C5	182000.00	182000.00	182000.00	1000.0000-	C5
C6	182000.00	182000.00	182000.00	1000.0000-	C6
C7	182000.00	182000.00	182000.00	1000.0000-	C7
C8	182000.00	182000.00	182000.00	1000.0000-	C8
C9	182000.00	182000.00	182000.00	1000.0000-	C9
C10	182000.00	182000.00	182000.00	1000.0000-	C10
C11	182000.00	182000.00	182000.00	1000.0000-	C11
C12	182000.00	182000.00	182000.00	1000.0000-	C12