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ANALYTICAL WORKING DOCUMENT # 16

ADJUSTMENTS IN AGRICULTURAL PRODUCTION TO ATTAIN MINIMUM NUTRITIONAL REQUIREMENTS CONSISTENT WITH CONSUMER INCOMES

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ADJUSTMENTS IN AGRICULTURAL PRODUCTION TO ATTAIN MINIMUM NUTRITIONAL REQUIREMENTS CONSISTENT WITH CONSUMER INCOMES

The linear programming model presented in Analytical Working Document #11 has been revised to take account of income distribution and the objective of minimizing agricultural change. The revised model is solved to determine the minimum changes in agricultural production needed to attain nutritional requirements. Also, by incorporating restrictions on income, the solution is forced to be consistent with alternative income distribution patterns.

Consumers are divided into four groups according to income. Imports and exports of agricultural products are fixed at 1968 levels. Given the distribution of income in 1968, there is no feasible solution because the lowest income group is unable to purchase enough food to attain minimum nutritional requirements. Consequently, alternative levels of income redistribution are assumed, and required changes in agricultural production from the 1968 base are obtained by repeatedly solving the model. Each solution yields the level of production of each crop and consumption of each food by each consumer group for the assumed income distribution.

The following two sections present the detailed mathematical formulation of the model and a discussion of the data and procedures for estimating the linear programming matrix. The reader not interested in these technical details can skip to the presentation of the analytical results beginning with the third section, entitled "Agricultural Change, Income Redistribution and Food Expenditure".

The Model

The equations are discussed more or less in the order in which they appear in the matrix (The entire matrix is reproduced in Appendix B).

Agricultural production is limited by available agricultural land.

$$\sum_{j=1}^{31} Y_j \leq L$$

Where, Y_j is the number of hectares of agricultural production activity j (31 activities)

L is agricultural land available for these activities (a small amount of land was subtracted from total agricultural land to account for excluded products, e.g., tobacco).

To limit the size of the matrix, restrictions on labor and various classes of land in the agricultural sector model (Analytical Working Document #4) which were not binding in that model were not incorporated into this model. Inspection of the solutions confirms that the excluded restrictions would not have been binding in the results reported here either.

Because of the nonnegativity restrictions (i.e., no variable can take on negative values) of the simplex method, it is necessary to difine separate variables for increases and decreases of production for each of the 31 commodities from the 1968 base. To do this, the following set of equations, one for each agricultural product, is included in the model.

$$Y_j - U_j + D_j = \overline{Y}_j \qquad j = 1, 2, \ldots, 31$$

Where, U_j is the increase in the number of hectares of agricultural production activity j above the 1968 level,

D_j is the decrease in the number of the hectares of agricultural production activity j from the 1968 level,

$\overline{Y}_j$ is the number of hectares devoted to agricultural production activity j in 1968.

In each solution one of three cases pertains for each commodity: (1) If production in the solution equals 1968 production, both U_j and D_j are zero, (2) if production is less than 1968 D_j is positive and U_j is zero, and (3) if production is greater than in 1968, U_j is positive and D_j is zero. Note that the U and D variables are the only variables in the objective function discussed below.

Another set of restrictions is included to set upper bounds on the U and D Variables.

$$U_i \leq \overline{U}_i \qquad i = 1, 2, \ldots, 31$$

$$D_i \leq \overline{D}_i \qquad i = 1, 2, \ldots, 31$$

Where, $\overline{U}_i$ and $\overline{D}_i$ are predetermined upper limits.

In the solutions reported here, except where noted, these restrictions were set at levels such that they were never binding. This allowed maximum flexibility in the pattern of production.

A series of balance equations relate the agricultural production and food consumption activities.

$$\sum_{j=1}^{31} a_{ij} Y_j - \sum_{k=1}^{4} \sum_{j=1}^{35} b_{ij} X_{jk} = E_i \qquad i = 1, 2, \ldots, 34$$

Where, X_{jk} is the level of food consumption activity j for consumer group k (j = 1, 2, ..., 35 and k = 1, 2, 3, 4),

a_{ij} is the amount of commodity i produced by one unit of agricultural production activity j.

b_{ij} is the amount of commodity i needed to produce one unit of food j.

E_i is exports plus non-food uses minus imports of commodity i, minus exogenous production.

These equations express the market clearing relationship: production plus imports equal food consumption plus non-food use plus exports. With one exception, there is one balance equation for each type of food, the exception being fish, for which the supply available for domestic consumption is predetermined. In the edible oil equation, production of some oilseeds, mainly cottonseed, is exogenous. Three elements in all these equations -- exports, imports and non-food use -- are predetermined. The model is solved to determine the other two -- production (in most cases) and food consumption.

Associated with each food consumption activity are the amounts of various nutrients provided by the specified quantity of food. For each of the 15 nutrients for each consumer group there is a minimum nutrient restriction.

$$\sum_{j=1}^{35} n_{ij} \; X_{jk} \geq N_{ik} \qquad \begin{array}{l} i = 1, 2, \ldots, 15 \\ k = 1, 2, 3, 4 \end{array}$$

where, n_{ij} is the amount of nutrient i in one unit of food j.

N_{ik} is the minimum requirement of nutrient i for consumer group k.

These restrictions force the consumption of each nutrient by each consumer group to be greater than or equal to the group's minimum requirement. Two additional restrictions place upper limits on consumption one in terms of calories and the other for the quantity or bulk of solid foods.

Finally, there is a set of nine restrictions relating food costs and expenditures. The first four simply define the total cost of food for each consumer group.

$$\sum_{j=1}^{35} p_j \; X_{jk} - C_k = 0 \qquad k = 1, 2, 3, 4$$

C_k is total cost of food consumed by consumer group k.

The next four restrictions relate cost to consumer food expenditures.

$$C_k - d_k R \leq \overline{C}_k \qquad k = 1, 2, 3, 4$$

where, R is the amount of income redistributed from the highest income group to the other three groups.

d_k is the change in food expenditures by group k resulting from a redistribution of one unit of income. (d_4 is negative since the redistribution process reduces the income of group 4)

$\overline{C}_k$ is food expenditure by consumer group k in the base year, 1968.

These restrictions insure that the expenditure on food is less than or equal to actual food expenditure in the base year plus the change in possible food expenditures resulting from the redistribution of income. The ninth and last restriction of this set places an upper limit on income redistribution.

$$R \leq R^*$$

where, R^* is the predetermined limit on the activity R.

The model is first solved with a value of R^* that allows maximum redistribution of income, i.e., equal per capita incomes for each group. Then, by means of parametric techniques, R^* is gradually reduced, causing greater inequality, until infeasibility is reached. Thus, a solution is obtained for each level of income redistribution.

The objective for all results reported here is the minimization of the change in agricultural value added.

$$\text{Minimize:} \quad \sum_{j=1}^{31} v_j \quad (U_j + D_j)$$

where, v_j is value added per hectare of agricultural product j.

This formulation gives equal weight to each peso change in value added for each crop, whether it be an increase or decrease from the actual 1968 levels. As described in a following section, this formulation results in extreme solutions in which most products are produced at their 1968 levels while production of a few products are more than doubled and production for domestic consumption of other products is completely eliminated. Extreme solutions could be avoided by approximating a non-linear objective function assigning progressively larger weights to larger changes in value added, however, this would considerably increase the size of the matrix and computing costs.

Data Requirements

Considering the vast amount of data used in constructing the linear programming matrix, it is not practical to discuss in detail all aspects of the estimation of the matrix coefficients in this document. Therefore, this section is concerned mainly with the food cost and consumer income aspects which are not discussed in other documents. Additional tables used in estimating some of the coefficients appear in

Appendix A. The interested reader is also referred to Analytical Working Document #4 for agricultural land, value added, and yield information and Analytical Working Document #11 for information on nutrient requirements. Most of the nutrition data for the latter document were taken directly from a study of minimum cost diets by the Instituto de Investigaciones Technologicas.[1/]

Agricultural production and food consumption estimates appear in Table 1. Domestic availability of agricultural products is obtained by subtracting exports and adding imports to domestic production. These estimates are then converted to food quantities. Finally, by multiplying prices and quantities, estimates of the retail value of the various foods are obtained.

The total retail cost of food from Table 1 must be allocated among consumer groups. Unfortunately, information on food expenditure by income classes is rather meager. A survey of the city of Cali was used for the distribution of per capita income and food expenditures (see Table 2). These figures were then multiplied by population to obtain the corresponding estimates for Colombia.

1/ Instituto de Investigaciones Technologicas, Diseño de Dietas de Costo Minimo, Bogota, Colombia, September 1972.

TABLE 1 - AGRICULTURAL PRODUCTION AND LAND USE AND FOOD CONSUMPTION, COLOMBIA, 1968

Product	Domestic Production 3/	Land Area 3/	Exports Minus Imports 3/	Domestic Availability	Conversion Factor	Food Consumption	Retail Food Price 4/	Value of Food
	(1,000 MT)	(1,000 Ha)	(1,000 MT)	(1,000 MT)		(1,000 MT)	(Pesos/Kilo)	(Million Pesos)
Cafe	570.000	792.768	395.270	174.730	4.167	728.100	0.84	611.604
Banano	770.000	58.779	401.550	368.450	0.675	248.704	2.39	594.403
Citricos	250.000	12.500	-	250.000	0.350	87.500	3.45	301.875
Platano	1600.000	229.984	0.200	1599.800	0.625	999.875	2.61	2609.674
Coco Verde	3.735	6.994	-0.693	4.428	0.265	1.173	10.91	12.797
Pina	40.000	2.000	0.044	39.956	0.550	21.976	2.44	53.621
Cana de Azucar	15954.085	328.476	2233.585	13720.500	0.100	1372.050	2.47	3388.964
Yuca	886.000	149.612	-	886.000	0.800	708.800	2.43	1722.384
Papa	900.000	82.433	0.035	889.965	0.800	711.972	1.64	1167.634
Frijol	40.000	68.847	2.639	37.361	1.000	37.361	10.51	392.664
Tomate	48,000	3.000	0.004	47.996	0.800	38.397	5.25	201.584
Arracacha	125.000	8.803	-	125.000	0.825	103.125	2.38	245.438
Cebolla	35.000	3.000	0.021	34.979	0.950	33.230	5.64	187.417
Remolacha	18.500	2.000	-	18.500	0.800	14.800	3.17	46.916
Zanahoria	30.000	3.000	-	30.000	0.850	25.500	1.51	38.505
Repollo	36.000	2.000	-	36.000	0.850	30.600	1.44	44.064
Lechuga	7.000	3.500	-	7.000	0.550	3.850	6.33	24.371
Arveja	28.000	50.000	-	28.000	1.000	28.000	6.12	171.360
Ajonjoli	15.000	24.712	-0.060	15.060	0.445	6.702	10.91	73.119
Soya	111.000	54.519	-	111.000	0.170	18.870	10.91	205.872
Huevos	170.640	17.064	-	170.640	1.000	170.640	11.82	2016.965

TABLE 1 - AGRICULTURAL PRODUCTION AND LAND USE AND FOOD CONSUMPTION, COLOMBIA, 1968 (Cont.)

Product	Domestic Production 3/	Land Area 3/	Exports Minus Imports 3/	Domestic Availability	Conversion Factor	Food Consumption	Retail Food Price 4/	Value of Food
	(1,000 MT)	(1,000 Ha)	(1,000 MT)	(1,000 MT)		(1,000 MT)	(Pesos/Kilo)	(Million Pesos)
Leche	2308.055	3409.239	-1.280	2309.335	1.000	2309.335	1.77	4087.523
Ave	45.684	4.007	-0.094	45.778	1.000	45.778	27.11	1241.042
Porcino	43.900	756.897	-	43.900	1.000	43.900	17.62	773.518
Bovino	1185.840	20588.818	4.688	1181.152	-	-	-	-
First class beef			0.621 1/		0.1325 2/	156.503	14.36	2247.383
Second class beef			1.864 1/		0.3975 2/	469.508	11.14	5230.319
Higado			0.028 1/		0.0060 2/	7.087	14.36	101.769
Corazon			0.016 1/		0.0035 2/	4.134	11.14	46.053
Sesos			0.004 1/		0.0008 2/	0.945	13.36	13.570
Rinones			0.006 1/		0.0013 2/	1.535	11.14	17.100
Lengua			0.023 1/		0.0050 2/	5.906	11.14	65.793
Maiz	886.600	812.649	-10.792	897.392	1.000	897.392	1.88	1687.097
Trigo	125.000	106.022	-228.127	353.127	0.730	257.783	3.80	979.575
Cebada	74.800	46.809	-23.000	97.800	1.000	97.800	3.80	371.640
Arroz	780.000	228.940	-	780.000	0.620	483.600	4.30	2079.480
Guayaba	105.500	33.000	-	105.500	0.750	79.125	3.07	242.914
Palma Africana	154.000	14.000	-	154.000	0.170	26.180	10.91	285.624

TABLE 1 - AGRICULTURAL PRODUCTION AND LAND USE AND FOOD CONSUMPTION, COLOMBIA, 1968 (Cont.)

Product	Domestic Production 3/	Land Area 3/	Exports Minus Imports 3/	Domestic Availability	Conversion Factor	Food Consumption	Retail Food Price 4/	Value of Food
	(1,000 MT)	(1,000 Ha)	(1,000 MT)	(1,000 MT)		(1,000 MT)	(Pesos/Kilo)	(Million Pesos)
Pescado	107.300	-	1.480	105.820	0.500	52.910	24.35	1288.359
Algodon	339.000	201.187	47.820	291.180	0.095	27.662	10.91	301.792
Total		28105.559						35171.782

1/ Meat, edible weight

2/ Ratios of meat to live weight

3/ Source: Analytical Working Document #4

4/ Source: Appendix A, Table A5

TABLE 2 - DISTRIBUTION OF POPULATION, INCOME AND FOOD EXPENDITURE BY INCOME CLASS, 1968

	Income Class (Pesos per month)				Total
	0-125	125-240	241-500	500+	Population
Average Per Capita 1/ Income (Pesos per month)	91	177	340	1,C64	375
Average annual per capita Income (pesos)	1,092	2,124	4,080	12,768	4,495
Percent of 1/ Population	25.5	29.1	25.3	20.1	100.0
Population (1,000)	5,172	5,902	5,13[illegible]	4,077	20,282 2
Income (million pesos)	5,648	12,536	20,936	52,051	91,171
Per capita food 1/ Expenditure (pesos per month)	75	112	161	294	152
Food Expenditure (million pesos)	4,655	7,932	9,913	14,384	36,884

1/ Source: Market Coordination in the Development of the Cauca Valley Region — Colombia, p.31.

2/ Source: Enrigue Perez Sanin. Parametros Demograficos Colombianos 1951 - 1964, Proyecciones de Poblacion 1965 - 1985, p. 269.

Alternative estimates of total food expenditure for the country presented in Tablee 1 and 2 were based on completely independent data sources and, hence, can not be expected to be exactly equal. However, the estimate based on agricultural production and food prices (35,172 million pesos in Table 1) and the estimate obtained by multiplying the Cali expenditure estimates and population (36,884 million pesos in Table 2) are surprisingly close. The approximately five percent by which the expenditure based estimate exceeds the production based estimate could probably be accounted for by the omission of some minor crops and under-estimation of the degree of food processing in the production based estimate.

Nevertheless, one set of 1968 food expenditure estimates must be chosen for use in the linear programming matrix. Thus, the expenditures by income class in Table 2 are adjusted in Table 3 so that total food expenditure is consistent with production levels in 1968. These adjusted estimates are used in the right hand sides of the expenditure equations.

Information from Table 3 is used to derive the coefficients of the income redistribution activity in Table 4. First, income is redistributed among the consumer groups such that per captia incomes are equalized. Then, using an average propensity to spend on food, estimates of food expenditures by consumer groups are derived under the assumption of equal per capita incomes. Finally, using the implied marginal propensities to spend on food by the four consumer groups, the impacts of a one peso redistribution of income on food expenditures

TABLE 3 - ADJUSTMENT OF INCOME AND FOOD EXPENDITURE ESTIMATES

Consumer Group	Cali Estimates		Adjusted Estimates[1/]	
	Income	Food Expenditure	Income	Food Expenditure
	(Million Pesos)			
Very Low	5,648	4,655	5,386	4,438.907
Low	12,536	7,932	11,954	7,563.783
Middle	20,936	9,913	19,965	9,452.822
High	52,051	14,384	49,636	13,716.270

1/ Cali estimates multiplied by ratio of two total food expenditure estimates shown in Tables 1 & 2, (35171.782/36884) = 0.9535783

TABLE 4 - DERIVATION OF INCOME REDISTRIBUTION ACTIVITY

Consumer Group	Adjusted Income 1968 Actual	Adjusted Income Equal Distribution 1/	Adjusted Income Change	Adjusted Food Expenditure 1968 Actual	Adjusted Food Expenditure Equal Distribution 2/	Adjusted Food Expenditure Change	Food Expenditure Change Per Peso Of Income Change 3/	Income Unit Redistribution 4/	Impact on Food Expenditure 5/
	(Million Pesos)			(Million Pesos)					
Very Low	5,385.810	22,169.365	16,783.555	4,438.907	9,991.733	5,552.326	0.3308	0.5219	0.1726
Low	11,954,058	25,299.158	13,345.100	7,563.783	11,402.331	3,838.548	0.2876	0.4150	0.1194
Middle	19,964.115	21,995.488	2,031.373	9,452.822	9,913.366	460.544	0.2267	0.0631	0.0143
High	49,634.704	17,474.676	-32,160.028	13,716.270	7,875.836	-5,840.434	0.1816	-1.0000	-0.1816
Total	86,938.687	86,938.687	-	35,171.782	39,183.266	4,011.484	-	-	0.1247

1/ Assumes equal distribution of income per person. Percent of population by consumer groups: Very low, 25.5; low, 29.1; middle, 25.3; high, 20.1.

2/ Assumes 45.07 percent of income is spent on food.

3/ Food expenditure change divided by income change.

4/ One peso taken from High income class and distributed to other classes such that the gap between 1968 per capita income for that class and national per capita income is narrowed in the same proportion for each class.

5/ Change in food expenditure resulting from one peso redistribution of income obtained by multiplying previous two columns.

are determined. It is interesting to note that a redistribution of income without any change in total income results in higher total expenditures for food. This phenomenon is due to the higher marginal propensities to spend on food among lower income consumers. By taking $1.00 away from the highest income class and dividing it among the other three classes, total expenditures for food increase $0.12.

Agricultural Change, Income Redistribution and Food Expenditure

Relationships among some of the major aggregate variables are summarized in Table 5 and Figure 1. To meet minimum nutrient requirements, at least 21.3 percent of the income differentials among consumer groups must be redistributed. This means that, of the 32 billion pesos that would have to be transferred from the highest income group to the other three groups to achieve equal per capita incomes (Table 4), at least 21.3 percent or nearly 7 billion pesos must be transferred to meet minimum nutritional requirements for all four consumer groups. This does not mean that a 21.3 percent income redistribution would necessarily result in adequate nutrition for the entire population. It is a necessary, but not sufficient condition. In other words, under the assumptions of the model, adequate nutrition cannot be obtained without at least 21.3 percent income redistribution; many other changes, including drastic changes in food consumption habits and the agriculture product mix, must accompany income redistribution to actually attain adequate nutrition.

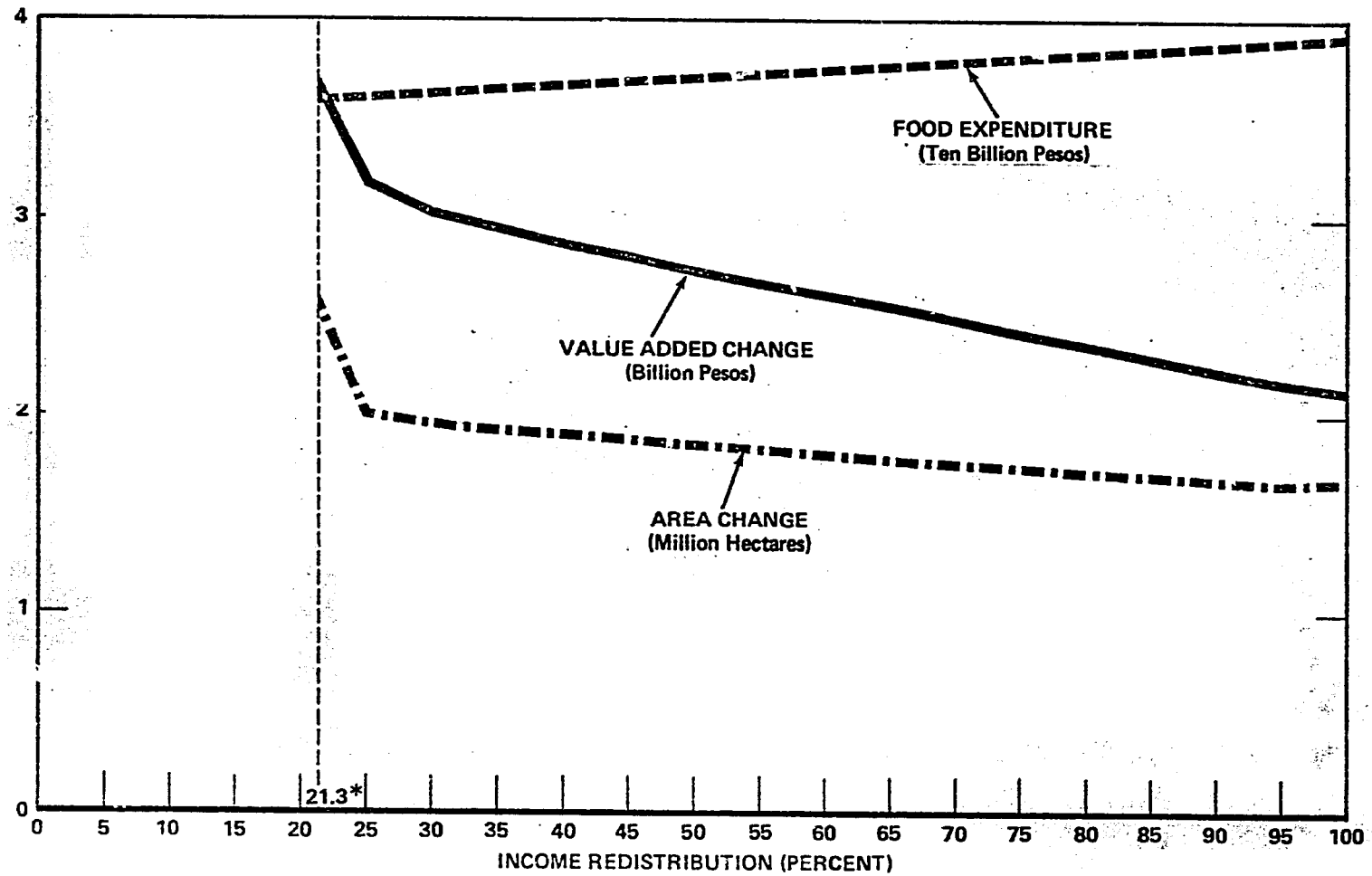
TABLE 5 - MINIMUM CHANGE IN AGRICULTURAL VALUE ADDED AND IMPLIED CHANGES IN AGRICULTURAL AREA AND FOOD EXPENDITURE WITH ASSUMED LEVELS OF INCOME REDISTRIBUTION

Income Redistribution	Value Added Change	Area Change	Food Expenditure
(Percent)	(Million Pesos)	(Thousand Hectares)	(Million Pesos)
21.3*	3,685	2,608	36,028
25	3,199	2,041	36,174
30	3,026	1,966	36,375
35	2,956	1,944	36,575
40	2,886	1,919	36,776
45	2,817	1,894	36,976
50	2,747	1,869	37,177
55	2,677	1,844	37,377
60	2,611	1,821	37,578
65	2,547	1,798	37,779
70	2,482	1,776	37,979
75	2,418	1,754	38,180
80	2,353	1,732	38,380
85	2,289	1,709	38,581
90	2,224	1,687	38,781
95	2,163	1,670	38,982
100	2,114	1,676	39,183

* Minimum level of income redistribution. There is no feasible solution for lower levels of income redistribution.

FIGURE 1

FOOD EXPENDITURE AND CHANGES IN AGRICULTURE VALUE ADDED AND AREA



*Minimum level of income redistribution. There is no feasible solution for lower levels of income redistribution.

Redistribution of income results in increased expenditures for food. For example, with 21.3 percent redistribution, aggregate food expenditure is 36,028 million pesos, compared to the 35,172 million estimated actual expenditure in 1968. Each increase in income redistribution results in a positive increment in food expenditure until it reaches 39,183 million with 100 percent redistribution or perfect equality in per capita incomes.

With 21.3 percent redistribution of income, the minimum change in agricultural value added is 3,685 million pesos. Remember that this is not the required increase in aggregate value added in the agriculture sector, but rather the sum of changes in value added for the various products. Associated with the change in value added is a change in agriculture area of 2,608 thousand hectares. This includes a shift of land use from one product to another as well as an increase in total land use. Even this substantial increase in agricultural land use would not exhaust the available supply of land; additional land would still be available for further increases in agricultural production.

At higher levels of income redistribution, the change in agriculture needed to attain adequate nutrition declines, however, even with equal incomes, significant changes in agriculture would be required. In summary,

both income redistribution and agricultural change are required to meet nutritional requirements, but there is a tradeoff between the two.

Changes in Product Mix

Land use for four different levels of income redistribution are compared with actual 1968 use in Table 6; details for all crops and all solutions are recorded in Appendix A. Two of the six commodity groups — meat and milk and eggs - are unchanged from the 1968 levels in all solutions. Although animal products are good sources of scarce protein, under the assumptions of the model, their production would not have to be increased to attain adequate levels of nutrition.

The major increases in production are in the grains, with land use in all solutions more than double the 1968 level. Since massive increases in grain production imply much larger outlays by consumers to purchase grain products, expenditures on some other products, and therefore production of these products, must decline. At low levels of income redistribution, there is a large cutback in land area devoted to vegetables, and smaller proportionate cutbacks in fruits and other products. However, with complete 100 percent income redistribution, fruit production is the same as 1968, and the land area devoted to vegetables is nearly as

high as in 1968. Total agricultural land required to meet nutritional requirements is only three to five percent more than the total in 1968.

A summary of changes in production for individual products is presented in Table 7. Eighteen of the 31 products were produced at 1968 levels in all solutions. Five products, the most important being sugar, are always produced at reduced levels. Only four products are increased in any solution. Two of these — carrots and cabbage — are relatively small in terms of land area and value of production, although the percentage increases in production are very high in all solutions. Barley production is very high both in terms of the absolute level and percentage increase over the 1968 base in all solutions. Unfortunately barley is a relatively minor item in the Colombian diet, while the model solutions call for it to be a dominant food. Corn, on the other hand, is an important food, and sizeable increases in corn consumption may be possible. If barley production were limited to a relatively small increase, another grain, perhaps corn, could be produced at higher levels to meet nutrient requirements. This possibility is investigated in a later section.

Food Expenditures

Food expenditures by the four consumer groups, assuming the minimum level of income redistribution, are

TABLE 6 - LAND USE BY MAJOR COMMODITY GROUPS WITH SELECTED LEVELS OF INCOME REDISTRIBUTION

Commodity Group	1968 Area	Level of Income Redistribution (Percent) 21.3	35	60	100
		(Hectares)			
Meat 1/	21,349,722	21,349,722	21,349,722	21,349,722	21,349,722
Milk and eggs 2/	3,426,303	3,426,303	3,426,303	3,426,303	3,426,303
Grains 3/	1,263,267	3,228,341	2,627,947	2,593,074	2,584,514
Fruits 4/	336,263	275,362	323,763	323,763	336,263
Vegetables 5/	307,348	99,455	101,261	189,213	306,249
Other 6/	1,221,469	924,980	924,980	924,980	924,980
Total	27,904,372	29,304,163	28,753,976	28,807,055	28,928,031

1/ Ave, porcino, and bovino

2/ Huevos and leche

3/ Frijol, maiz, trigo, cebada, arroz

4/ Banano, citricos, platano, pina, guayaba

5/ Yuca, papa, tomate, arracacha, cebolla, remolacha, zanahoria, repollo, lechuga, arveja

6/ Cafe, coco verde, cana de azucar, ajonjoli, soya, and palma africana.

TABLE 7 - AGRICULTURAL PRODUCTS CLASSIFIED ACCORDING TO PRODUCTION CHANGE

Decrease 1/	Decrease/ No Change 2/	No Change 3/	Increase/ No Change 4/	Increase 5/
Sugar	Citrus	Coffee	Corn	Carrots
Tomatoes	Plantains	Bananas		Cabbage
Arracacha	Yuca	Coconuts		Barley
Onions	Potatoes	Pineapple		
African Palm		Beans		
		Beets		
		Lettuce		
		Peas		
		Sesame		
		Soybeans		
		Eggs		
		Milk		
		Poultry		
		Pork		
		Beef		
		Wheat		
		Rice		
		Guava		

1/ Decrease from 1968 levels in all solutions

2/ Decrease from 1968 levels in some solutions and no change in others

3/ No change from 1968 levels in all solutions

4/ Increase from 1968 levels in some solutions and no change in others

5/ Increase from 1968 levels in all solutions

TABLE 8 - FOOD EXPENDITURE BY CONSUMER GROUP

WITH INCOME REDISTRIBUTION OF 21.3 PERCENT

Commodity Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group
	(Million Pesos)			
Meat 1/	-	2,038.3	2,340.4	6,667.8
Milk and eggs 2/	1,699.0	1,358.3	1,354.0	1,693.2
Grains 3/	3,564.0	4,700.6	3,419.1	2,083.2
Fruits 4/	-	97.3	2,039.5	815.8
Vegetables 5/	326.9	214.6	160.0	301.2
Other 6/	33.7	-	238.3	908.5
Total	5,623.6	8,409.1	9,551.3	12,469.7

1/ Ave, porcino, bovino and pescado

2/ Huevos and leche

3/ Frijol, maiz, trigo, cebado and arroz

4/ Banano, citricos, plantano, pina and guayaba

5/ Yuca, papa, tomate, arracacha, cebolla, remolacha zanahoria, repollo, lechuga and arveja

6/ Cafe, coco verde, cana de azucar, ajonjoli, soya, palma africana, and semilla de algodon. Edible oil is derived from ajonjoli, soya, palma africana and semilla de algodon, and is assumed to be the only product produced for human consumption from these crops.

TABLE 9 - PERCENTAGE DISTRIBUTION OF FOOD EXPENDITURE OVER COMMODITY GROUPS BY CONSUMER GROUP WITH INCOME REDISTRIBUTION OF 21.3 PERCENT

Commodity Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group
	(Percent)			
Meat 1/	-	24.2	24.5	53.5
Milk and eggs 2/	30.2	16.1	14.2	13.6
Grains 3/	63.4	55.9	35.8	16.7
Fruits 4/	-	1.2	21.4	6.5
Vegetables 5/	5.8	2.6	1.7	2.4
Other 6/	0.6	-	-	7.3
Total	100.0	100.0	100.0	100.0

1/ Ave, porcino, bovino and pescado

2/ Huevos and leche

3/ Frijol, maiz, trigo, cebada and arroz

4/ Banano, citricos, platano, pina and guayaba

5/ Yuca, papa, tomate, arracacha, cebolla, remolacha, zanahoria, repollo, lechuga and arveja

6/ Cafe, coco verde, cana de azucar, ajonjoli, soya, palma africana and semilla de algodon. Edible oil is derived from ajonjoli, soya, palma africana and semilla de algodon, and is assumed to be the only product produced for human consumption from these crops.

TABLE 10 - PERCENTAGE DISTRIBUTION OF NUTRIENT REQUIREMENTS PROVIDED BY FOODS FOR THE VERY LOW INCOME GROUP WITH INCOME REDISTRIBUTION OF 21.3 PERCENT

Nutrient	Nutrients Provided by Foods[1/]						
	Corn	Milk	Carrots	Cabbage	Peas	Edible Oil	Total
	(Percent)						
Calories	159.8	14.9	0.7	0.4	1.7	0.7	178.2
Protein	129.5	29.3	0.4	1.2	4.6	-	165.0
Fat	68.4	28.6	0.1	0.1	0.2	2.8	100.0*
Calcium	10.7	92.5	1.9	17.3	10.2	-	132.6
Iron	192.8	8.1	1.8	3.7	4.1	-	210.5
Vitamin A	7.4	18.7	64.3	9.0	0.6	-	100.0
Riboflavin	75.4	72.3	1.2	4.5	1.4	-	154.8
Niacin	214.8	3.6	1.1	2.8	2.5	-	224.8
Vitamin C	-	22.7	2.5	74.2	0.5	-	100.0*
Isoleucine	122.5	28.7	0.4	0.6	3.7	-	155.9
Lysine	61.7	33.0	0.4	0.4	4.5	-	100.0
Methionine and Cystine	95.7	16.8	0.3	0.3	1.8	-	114.9
Threonine	141.2	32.0	1.4	0.8	3.1	-	178.5
Tryptophan	71.3	25.9	0.3	0.6	1.9	-	100.0
Valine	134.4	29.4	0.5	0.7	3.5	-	168.5

* Row elements do not add to 100.0 because of rounding error.

1/ The diet includes (all figures in metric tons): corn 1,895,773; milk, 959,885; carrots, 70,757; cabbage, 62,661; peas, 21,224; edible oil, 3,090.

presented in Table 8, and the percentage distributions over commodity groups appear in Table 9. Details on the quantities of individual foods in all the solutions can be found in Appendix A. The reader is reminded that these are not predictions of consumption by the various consumer groups, nor are they necessarily "minimum cost" diets, rather, they are patterns of consumption which provide adequate nutrients consistent with the specified income redistribution and changes in agricultural production.

Clear patterns are apparent for the percentage distribution (Table 9) of the three largest commodity groups in terms of expenditure. As per capita income increases, the percent spent on meat increases from zero to over one-half of total food expenditure. In contrast, the percentage of expenditures on milk and eggs and on grains decrease as per capita income increases. In terms of animal protein, the lower income groups spend larger shares of their budgets on milk and eggs in comparison with the higher income groups.

Impact of Nutrient Requirements on Agricultural Change

Linear programming techniques used to solve the model, among other things, selects combinations of foods which satisfy the nutrient restrictions. Table 10 illustrates one such combination. In this particular case, a large quantity of corn is consumed by the lowest income group. This is supplemented by milk and relatively small quantities of carrots, cabbage, peas and edible oil.

Corn by itself provides more than the minimum requirements of calories, iron, niacin and crude protein in this diet. The protein, however, is inadequate in terms of its amino acid composition; enough isoleucine, threonine and valine are provided by the corn, but not enough lysine, methionine and cystine and tryptophan.

By adding milk to the corn, the diet becomes adequate in terms of calcium and riboflavin and another of the amino acids, methionine and cystine. Carrots and cabbage provide large amounts of vitamin A and vitamin C, respectively. By adding a small amount of peas, the two remaining amino acid requirements — lysine and tryptophan — are fulfilled. Finally, the addition of a small amount of edible oil fulfills the fat requirement.

Although considerable research has been done on the amount of nutrients required to maintain health and productivity, there still is a wide margin of error in the estimates of minimum nutrient requirements.[1/] Changes in the nutrient requirements could significantly change the results presented in this report. In an attempt to measure the impact of changes in the nutrient restrictions, Table 11 summarizes some results which

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1/ See, for example, the report of a Joint FAO/WHO Ad Hoc Expert Committee, Energy and Protein Requirements, Rome, 1973.

TABLE 11 - ELASTICITY[1/] OF NUTRIENT RESTRICTIONS

Restriction	Highest Elasticity	Lowest Elasticity
Fat	0.215	-
Calcium	0.017	-
Vitamin A	0.030	0.004
Vitamin C	0.015	-
Lysine	0.274	-
Methionine and Cystine	0.226	-
Tryptophan	0.733	-

Source: Table A9, Appendix A

1/ Elasticities are calculated by multiplying the ratio of the nutrient requirement to 1968 agriculture value added by the shadow price for the nutrient restriction. All elasticities and shadow prices for nutrients not appearing here are zero.

TABLE 12 - COMPARISON OF AGRICULTURAL CHANGE UNDER DIFFERENT CONSTRAINT SYSTEMS

Percent Income Redistribution	High Restrictions1/		Low Restrictions2/		Differences3/	
	Value Added Change	Area Change	Value Added Change	Area Change	Value Added Change	Area Change
	(Million Pesos)	(Thousand Hectares)	(Million Pesos)	(Thousand Hectares)	(Million Pesos)	(Thousand Hectares)
50	2,747	1,869	N.A.	N.A.	N.A.	N.A.
51.3	N.A.	N.A.	6,346	7,766	N.A.	N.A.
55	2,677	1,844	5,918	4,089	3,241	2,245
60	2,611	1,821	5,879	4,050	3,268	2,229
65	2,547	1,798	5,849	4,025	3,302	2,227
70	2,482	1,776	5,821	4,016	3,339	2,240
75	2,418	1,754	5,797	3,956	3,379	2,202
80	2,353	1,732	5,773	3,895	3,420	2,163
85	2,289	1,709	5,750	3,749	3,461	2,040

TABLE 12 - COMPARISON OF AGRICULTURAL CHANGE UNDER DIFFERENT CONSTRAINT SYSTEMS (Cont.)

Percent Income Redistribution	High Restrictions1/		Low Restrictions2/		Differences3/	
	Value Added Change	Area Change	Value Added Change	Area Change	Value Added Change	Area Change
	(Million Pesos)	(Thousand Hectares)	(Million Pesos)	(Thousand Hectares)	(Million Pesos)	(Thousand Hectares
90	2,224	1,687	5,727	3,553	3,503	1,866
95	2,163	1,670	5,704	3,358	3,541	1,688
100	2,114	1,676	5,682	3,176	3,568	1,500

1/ Upper limits on calories 200 percent of minimum requirements and no effective restriction on individual agricultural products.

2/ Upper limits on calories 110 percent of minimum requirements and barley restricted to three times 1968 production.

3/ Results with "Low Restrictions" minus corresponding results with "High Restrictions".

TABLE 13 - AGRICULTURAL PRODUCTS CLASSIFIED ACCORDING TO PRODUCTION CHANGES UNDER ASSUMPTION OF LOW RESTRICTIONS[1]

Decrease[2]	Decrease/ No Change[3]	No Change[4]	Increase/ No Change[5]	Increase[6]
Plantains	Citrus	Coffee	Milk	Carrots
Sugar	Pineapple	Bananas	Beef	Peas
Yuca	Tomatoes	Coconuts	Corn	Eggs
Potatoes	Onions	Beans	Cabbage	Barley
Arracacha	Soybeans	Beets		
African Palm	Sesame	Lettuce		
		Poultry		
		Pork		
		Wheat		
		Rice		
		Guava		

1/ Low restrictions include upper limit on calories of 110 percent of minimum requirements and barley restricted to three times 1968 production.

2/ Decrease from 1968 levels in all solutions.

3/ Decrease from 1968 levels in some solutions and no change in others.

4/ No change from 1968 levels in all solutions.

5/ Increase from 1968 levels in some solutions and no change in others.

6/ Increase from 1968 levels in all solutions.

are presented in detail in Appendix A, table A9. The elasticities measure the impact of a one percent change in the indicated nutrient restriction on the program solution. Changes in three of the amino acid requirements — lysine, methionine and cystine, and tryptophan — and fat appear to have the highest potential impact on the solution, although in some of the solutions these changes would have no impact. The effect of a one percent change in calcium, vitamin A and vitamin C requirements would be quite small. Vitamin A, however, is notable in that a change in its requirement would effect all of the solutions reported in this document.

An Experiment With More Restrictive Assumptions

Another set of solutions was obtained by running the model again with more restrictive assumptions on calories and barley production. The maximum limit on calories was changed from 200 percent to 110 percent of the minimum requirement. Barley production was limited to a maximum of three times the 1968 level.

Since these changes further limit the alternatives, changes in agricultural value added and area would be expected to be somewhat higher. The actual impacts (Table 12), however, are larger than expected. Change in value added is more than doubled in all solutions. Change in area is more than doubled in all but one solutio Also, the minimum income redistribution needed to achieve adequate nutritional levels increases to 51.3 percen

In terms of individual products (Table 13), the most spectacular change is in pea production. Similar to barley in the previously reported solutions, a minor crop (peas in this case) becomes a staple in the diet; barley is produced at the new, lower maximum limit. Corn production is generally smaller than in the previous set of solutions.

Other differences are apparent when Table 13 is compared with Table 7. Three "starchy" foods — plantain, yuca and potatoes — are always produced (if at all) at less than 1968 levels in the solutions with lower calorie restrictions, while in some solutions with the higher calorie restrictions they are produced at the 1968 levels. Production of two oil seed crops — sesame and soybeans — also tend to be forced down by the lower calorie restrictions. In contrast, three high protein animal products — eggs, milk and beef — exhibit increased production in at least some solutions. The differences in area change shown in Table 12, especially at the lower income redistribution levels, is due to a great extent to increased production of cattle using the land extensive techniques prevalent in Colombia.

Table A1. Derivation of Maximum Food Quantities

Consumer Group	Percent of Population	Food Quantities 1968	Maximum Quantities 1/
	(Percent)	(1,000 MT)	(1,000 MT)
Very Low	25.5	1,866.823	2,053.505
Low	29.1	2,130.374	2,343.411
Middle	25.3	1,852.181	2,037.399
High	20.1	1,471.495	1,618.645
Total	100.0	7,320.873	8,052.960

1/ Food quantities in 1968 plus ten percent.
2/ Total allocated to groups according to percent of population.
3/ Source: Table 1. Excludes cafe and leche.

Table A2. Estimation of Available Land

	Land Area
	(Hectares)
Total Agricultural Land	35,216,000
Less land for exogenous crops	
Tobaco	23,306
Sorgo	49,305
Fique	17,003
Algodon	201,187
Millo	3,000
Flores	500
Available Land	34,921,699

Table A3. Derivation of Right Hand Side for Cooking Oil Balance Equation[1]

Commodity	Exports minus Imports minus Exogenous Production	Conversion Factor	Edible Oil Equivalent
	(1,000 MT)		(1,000 MT)
Coco Verde	-0.693	0.265	-0.184
Ajonjoli	-0.060	0.445	-0.027
Soya	—	n.a.	—
Palma	—	n.a.	—
Algodon[2]	-291.180	0.095	-27.662
Total			-27.873

1/ The cooking oil balance equation is labelled BOIL in the linear programming matrix (Appendix B).

2/ Algodon production was treated as exogenous and set at actual 1968 production.

Table A4. Nutrient Requirements by Income Group

	Very Low Income Group	Low Income Group	Middle Income Group	High Income Group	Total Population
Calories (Billion)	3,868.50	4,414.64	3,838.16	3,049.29	15,170.59
Proteins (Million Hectagrams)	1,112.50	1,269.56	1,103.78	876.91	4,362.76
Fat (Million Hectagrams)	1,109.00	1,265.56	1,100.30	874.15	4,349.00
Calcium (Million Grams)	1,245.01	1,420.78	1,235.24	981.36	4,882.39
Iron (Million Centagrams)	2,360.04	2,693.23	2,341.53	1,860.27	9,255.07
Vitamin A (Trillion U.I.)	7,697.51	8,784.22	7,637.14	6,067.45	30,186.33
Riboflavin (Million Miligrams)	2,388.36	2,725.54	2,369.63	1,882.59	9,366.13
Niacine (Million Centagrams)	2,647.29	3,021.02	2,626.52	2,086.68	10,381.51
Vitamin C (Million Decigrams)	844.06	963.22	837.44	665.31	3,310.02
Isoleucine (Million Grams)	5,415.91	6,180.51	5,373.43	4,269.01	21,238.86
Lysine (Million Grams)	7,805.30	8,907.22	7,744.08	6,152.41	30,609.00
Methionine and Cystine (Million Grams)	6,520.27	7,440.78	6,469.13	5,139.51	25,569.68
Threonine (Million Grams)	4,590.78	5,238.88	4,554.77	3,618.61	18,003.03
Tryptofhan (Million Grams)	1,780.76	2,032.17	1,766.80	1,403.66	6,983.39
Valine (Million Grams)	6,504.75	7,423.06	6,453.73	5,127.27	25,508.81

Table A5. Adjustment of Price Data for Use in Linear Programming Matrix

Commodity	Annual Average Price (various units)	Price for 100 grams	Conversion factor to edible weight	Price per 100 grams edible weight
Arvejas Secas	3.06	0.612		
Arroz de 1a.	2.27	0.454		
Arroz de 2a.	2.03	0.406		
Cebada pelada	1.90	0.380		
Frijol rojo de 1a.	5.51	1.102		
Garbanzos	6.20	1.240		
Lentejas	6.67	1.334		
Maiz duro amarillo	0.94	0.188		
Maiz duro blanco	0.94	0.188		
Aceite para cocinar	10.05	1.091		
Avena enlatada	4.18	0.737		
Azucar	1.26	0.252		
Cafe molido	5.23	1.046		
Chocolate de 1a.	4.28	0.856		
Chocolate de 2a.	3.68	0.736		
Harina de Maiz de 1a.	1.45	0.290		
Harina de Trigo Nacional	1.90	0.380		
Maizena	2.45	0.612		
Manteca vegetal	4.33	0.866		
Panela de 1a.	1.19	0.264		
Panela de 2a.	1.04	0.231		
Pastas Alimenticias	3.57	0.714		
Arveja Verde	2.27	0.454		
Arracacha	1.01	0.202	0.85	0.238
Bananos	3.35	0.167	0.70	0.239
Cebolla Cabezona	2.54	0.508	0.90	0.564

Table A5. Adjustment of Price Data for Use in Linear Programming Matrix (continued)

Commodity	Annual Average Price (various units)	Price for 100 grams	Conversion factor to edible weight	Prince per 100 grams edible weight
Habichuelas	2.11	0.422		
Lechugas	0.95	0.380	0.60	0.633
Naranjas	2.76	0.138	0.60	0.230
Papa de la.	0.85	0.170	0.90	0.189
Papa de 2a.	0.62	0.124	0.90	0.138
Platano harton	0.81	0.162	0.62	0.261
Repollo	0.61	0.122	0.85	0.144
Tomate de la.	2.10	0.420	0.80	0.525
Yuca	0.97	0.194	0.80	0.243
Carne de Cerdo	8.81	1.762		
Carne de Pollo	8.81	1.762	0.65	2.711
Carne de Res de la.	7.18	1.436		
Carne de Res de 2a.	5.57	1.114		
Huevos	0.83	1.064	0.90	1.182
Leche	1.33	0.177		
Mantequilla	14.99	2.998		
Queso	12.09	2.418		
Pescado	10.35	2.070	0.85	2.435
Tocino	7.03	1.406		

Table A6. Value Added in Agriculture, Colombia, 1968

Product	Units Produced in 1968	Value Added per Hectare	Value Added
	(1,000 hectares)	(1,000 pesos)	(Million pesos)
Cafe	792.768	3.870	3,068.012
Banano	58.779	7.141	419.741
Citricos	12.500	6.836	85.450
Platano	229.984	3.770	867.040
Coco Verde	6.994	1.792	12.533
Pina	2.000	9.635	19.270
Cana de Azucar	328.476	2.246	737.757
Yuca	149.612	3.120	466.789
Papa	82.433	3.632	299.397
Frijol	68.847	2.021	139.140
Tomate	3.000	8.120	24.360
Arracacha	8.803	7.365	64.834
Cebolla	3.000	9.286	27.858
Remolacha	2.000	7.071	14.142
Zanahoria	3.000	1.806	5.418
Repollo	2.000	4.011	8.022
Lechuga	3.500	8.606	30.121
Arveja	50.000	1.024	51.200
Ajonjoli	24.712	1.464	36.178
Soya	54.519	2.544	138.696
Huevos	17.064	34.600	590.414
Leche	3,409.239	0.303	1,032.999
Ave	4.007	85.400	342.198
Porcino	756.897	0.494	373.907
Bovino	20,588.818	0.135	2,779.490
Maiz	812.649	0.844	685.876
Trigo	106.022	1.368	145.038
Cebada	46.809	0.914	42.783
Arroz	228.940	2.040	467.038
Cuayaba	33.000	3.887	128.271
Palma	14.000	3.887	54.418
Total			13,158.390

Table 47. Changes in Land Use with Alternative Levels of Income Redistribution

Commodity	1968 area	Level of Income Redistribution (Percent)							
		21.3	25	30	35	40	45	50	55
	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)
Cafe	792,768	—	—	—	—	—	—	—	—
Banano	58,779	—	—	—	—	—	—	—	—
Citricos	12,500	-12,500	-12,500	-12,500	-12,500	-12,500	-12,500	-12,500	-12,500
Platano	229,984	-48,401	-35,407	-8,927	—	—	—	—	—
Coco Verde	6,994	—	—	—	—	—	—	—	—
Pina	2,000	—	—	—	—	—	—	—	—
Cana de Azucar	328,476	-282,489	-282,489	-282,489	-282,489	-282,489	-282,489	-282,489	-282,489
Yuca	149,612	-149,612	-149,612	-149,612	-149,612	-149,612	-149,612	-149,612	-149,612
Papa	82,433	-82,430	-82,430	-82,430	-73,546	-56,296	-39,054	-21,795	-4,544
Frijol	68,847	—	—	—	—	—	—	—	—
Tomate	3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000
Arracacha	8,803	-8,803	-8,803	-8,803	-8,803	-8,803	-8,803	-8,803	-8,803
Cebolla	3,000	-2,998	-2,998	-2,998	-2,998	-2,998	-2,998	-2,998	-2,998
Remolacha	2,000	—	—	—	—	—	—	—	—
Zanahoria	3,000	19,398	18,212	20,576	20,222	20,214	20,206	20,198	20,190
Repollo	2,000	19,552	23,531	11,648	11,650	11,679	11,707	11,735	11,763
Lechuga	3,500	—	—	—	—	—	—	—	—
Arveja	50,000	—	—	—	—	—	—	—	—
Ajonjoli	24,712	—	—	—	—	—	—	—	—
Soya	54,519	—	—	—	—	—	—	—	—
Huevos	17,064	—	—	—	—	—	—	—	—
Leche	3,409,239	—	—	—	—	—	—	—	—
Ave	4,007	—	—	—	—	—	—	—	—
Porcino	756,897	—	—	—	—	—	—	—	—
Bovino	2,058,818	—	—	—	—	—	—	—	—
Maiz	812,649	915,106	92,735	—	—	—	—	—	—
Trigo	106,022	—	—	—	—	—	—	—	—
Cebaoa	46,809	1,049,968	1,315,701	1,368,560	1,364,680	1,356,923	1,349,166	1,341,410	1,333,653
Arroz	228,940	—	—	—	—	—	—	—	—
Guayaba	33,000	—	—	—	—	—	—	—	—
Palma Africana	14,000	-14,000	-14,000	-14,000	-14,000	-14,000	-14,000	-14,000	-14,000
Total (Ignoring Signs)	27,904,372	2,508,258	2,041,417	1,956,740	1,943,500	1,918,514	1,893,535	1,868,540	1,843,552
Net Change	—	1,399,791	858,940	1,071,065	849,604	859,118	868,623	878,146	887,660

Table A7. Changes in Land Use with Alternative Levels of Income Redistribution (Continued)

Commodity	Level of Income Redistribution (Percent)								
	60	65	70	75	80	85	90	95	100
	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)	(Hectares)
Cafe	—	—	—	—	—	—	—	—	—
Banano	—	—	—	—	—	—	—	—	—
Citricos	-12,500	-12,500	-12,500	-12,500	-12,500	-12,500	-12,500	-9,666	—
Platano	—	—	—	—	—	—	—	—	—
Coco Verde	—	—	—	—	—	—	—	—	—
Pina	—	—	—	—	—	—	—	—	—
Cana de Azucar	-282,489	-282,489	-282,489	-282,489	-282,489	-282,489	-282,489	-282,489	-282,489
Yuca	-135,287	-115,840	-96,392	-76,945	-57,498	-38,050	-18,603	—	—
Papa	—	—	—	—	—	—	—	-4,925	-21,205
Frijol	—	—	—	—	—	—	—	—	—
Tomate	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000
Arracacha	-8,803	-8,803	-8,803	-8,803	-8,803	-8,803	-8,803	-8,803	-2,584
Cebolla	-2,998	-2,998	-2,998	-2,998	-2,998	-2,998	-2,998	-2,998	-2,998
Remolacha	—	—	—	—	—	—	—	—	—
Zanahoria	20,271	23,384	20,497	20,609	20,722	20,835	20,947	21,070	20,985
Repollo	11,436	10,983	10,530	10,076	9,623	9,170	8,717	8,232	7,703
Lechuga	—	—	—	—	—	—	—	—	—
Arveja	—	—	—	—	—	—	—	—	—
Ajonjoli	—	—	—	—	—	—	—	—	—
Soya	—	—	—	—	—	—	—	—	—
Huevos	—	—	—	—	—	—	—	—	—
Leche	—	—	—	—	—	—	—	—	—
Ave	—	—	—	—	—	—	—	—	—
Porcino	—	—	—	—	—	—	—	—	—
Bovino	—	—	—	—	—	—	—	—	—
Maiz	—	—	—	—	—	—	—	—	—
Trigo	—	—	—	—	—	—	—	—	—
Cebada	1,329,809	1,327,362	1,324,916	1,322,470	1,320,024	1,317,578	1,315,132	1,314,740	1,321,247
Arroz	—	—	—	—	—	—	—	—	—
Guayaba	—	—	—	—	—	—	—	—	—
Palma Africana	-14,000	-14,000	-14,000	-14,000	-14,000	-14,000	-14,000	-14,000	-14,000
Total (Ignoring Signs)	1,801,359	1,801,359	1,776,125	1,753,890	1,728,957	1,706,423	1,687,189	1,669,923	1,676,211
Net Change	902,439	925,097	935,761	952,420	969,081	985,743	1,002,403	1,018,161	1,023,659

Table A8. Food Consumption By Income Group

Food	Income Redistribution of 21.3 Percent				Income Redistribution of 25 Percent				Income Redistribution of 30 Percent			
	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group
	(100 Metric Tons)				(100 Metric Tons)				(100 Metric Tons)			
Arvejas Secas	212.2	67.8	-	-	280.0	3636.7	-	-	174.0	106.0	-	-
Arroz	-	-	-	4844.7	-	10735.5	-	1208.0	-	4781.6	-	63.1
Cebada	-	11336.6	6419.9	-	3536.6	373.6	-	1988.3	4973.4	9376.1	5426.2	3071.9
Frijol	-	373.6	-	-	-	-	5742.5	-	373.6	-	-	-
Maiz	18957.7	-	-	-	9985.7	-	-	-	8385.0	588.9	-	-
Aceite Cocina	30.9	-	218.4	294.6	59.4	-	-	208.2	5.8	-	538.2	-
Cafe	-	-	-	6989.2	-	-	276.3	6989.2	-	-	-	6989.2
Harina De Trigo	-	-	2577.6	-	-	-	-	-	-	-	2577.6	-
Panela	-	-	-	-	-	-	2577.6	-	-	-	-	-
Arracacha	-	-	-	-	-	-	-	-	-	-	-	-
Beranos	-	-	2489.6	-	-	-	-	-	-	-	2489.6	-
Cebolla	-	-	-	-	-	-	2489.6	-	-	-	-	-
Guayabas	-	316.9	476.4	-	35.1	326.6	-	-	301.9	331.8	159.6	-
Lechuga	-	-	38.5	-	-	-	431.5	-	-	-	38.5	-
Citricos	-	-	-	-	-	-	38.5	-	-	-	-	-
Papa	-	-	-	-	-	-	-	-	-	-	-	-
Pina	-	-	219.5	-	-	-	-	-	-	-	219.5	-
Platano	-	-	4768.7	3125.5	-	-	219.5	5230.8	-	-	1235.0	8375.5
RemoLecha	-	148.0	-	-	-	148.0	3228.4	-	-	148.0	-	-
Repollo	626.6	-	569.2	2091.7	478.3	-	-	1629.4	-	-	2081.9	-
Tomate	-	-	-	-	-	-	1786.8	-	-	-	-	-
Yuca	-	-	-	-	-	-	-	-	-	-	-	-
Zanahoria	707.6	835.4	355.1	-	406.0	1073.2	-	132.7	770.7	1055.3	172.0	-
Carne De Cerdo	-	-	-	439.0	-	-	185.8	439.0	-	-	178.6	260.4
Carne De Pollo	-	18.2	-	439.6	-	-	-	457.7	-	-	-	457.7
Carne Bovino 1ª	-	-	1575.0	-	-	-	-	147.9	-	-	1379.4	195.5
Carne Bovino 2ª	-	1655.4	-	3042.9	-	710.0	1427.1	3988.2	472.1	1012.9	-	3213.2
Huevos	-	-	344.1	1362.3	-	-	-	227.0	-	-	1706.4	-
Leche	9598.9	7674.0	5351.6	468.9	12006.7	7610.1	1479.4	1811.4	7695.9	8158.0	913.6	6325.7
Higado Bovino	-	54.8	-	17.0	-	-	1665.2	-	24.6	-	27.3	19.9
Corazon Bovino	-	-	41.0	-	-	-	-	-	-	-	41.0	-
Sesos Bovino	-	-	10.3	-	-	-	41.0	-	-	-	10.3	-
Riñones Bovino	-	-	16.4	-	-	-	10.3	-	-	-	16.4	-
Lengua Bovino	-	59.5	-	-	-	59.5	16.4	-	-	59.5	-	-
Pescado	-	-	-	529.1	-	-	-	529.1	-	-	-	529.1

Table 18. Food Consumption By Income Group

Food	Income Redistribution of 35 Percent				Income Redistribution of 40 Percent				Income Redistribution of 45 Percent			
	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group
	(100 Metric Tons)				(100 Metric Tons)				(100 Metric Tons)			
Arvejas Secas	-	280.0	-	-	-	223.1	56.9	-	-	280.0	-	-
Arroz	-	4354.4	-	-	1272.3	3572.4	-	-	1462.6	3382.1	-	-
Cebada	4086.7	10187.2	5452.9	3058.7	3254.1	10537.5	5832.0	3038.0	2860.6	10582.8	5866.1	3228.2
Frijol	328.9	-	44.7	-	-	-	373.6	-	-	-	294.4	79.2
Maiz	8973.9	-	-	-	8973.9	-	-	-	8973.9	-	-	-
Aceite Cocina	97.4	-	446.5	-	129.1	11.1	403.7	-	138.3	8.9	396.8	-
Cafe	-	-	-	6989.2	-	-	-	6989.2	-	-	-	6989.2
Harina De Trigo	-	-	2577.6	-	-	-	2577.6	-	-	-	2577.6	-
Panela	-	-	-	-	-	-	-	-	-	-	-	-
Arracacha	-	-	-	-	-	-	-	-	-	-	-	-
Banenos	-	-	2489.6	-	-	-	2489.6	-	661.6	-	1828.0	-
Cebolla	-	-	-	-	-	-	-	-	-	-	-	-
Guayabas	306.0	210.4	276.8	-	310.3	99.9	383.0	-	276.7	179.4	337.1	-
Lechuga	-	-	38.5	-	-	-	38.5	-	-	-	38.5	-
Citricos	-	-	-	-	-	-	-	-	-	-	-	-
Papa	-	-	775.9	-	-	-	2282.7	-	-	-	3789.4	-
Pina	-	-	219.5	-	-	-	219.5	-	-	-	-	219.5
Platano	-	1599.0	-	8399.8	-	1649.1	-	8349.7	-	2015.2	-	7983.5
Remolacha	-	148.0	-	-	-	148.0	-	-	-	148.0	-	-
Repollo	-	-	2082.3	-	-	-	2086.6	-	-	-	2090.8	-
Tomate	-	-	-	-	-	-	-	-	-	-	-	-
Yuca	-	-	-	-	-	-	-	-	-	-	-	-
Zanahoria	704.4	941.4	322.2	-	640.1	946.1	381.1	-	841.8	776.4	348.3	-
Carne De Cerdo	-	-	439.0	-	-	-	439.0	-	-	439.0	-	-
Carne De Pollo	-	-	-	457.7	-	234.8	-	223.0	-	-	-	457.7
Carne Bovino 1a	469.9	-	1105.1	-	888.0	-	687.0	-	1046.9	-	528.1	-
Carne Bovino 2a	113.4	792.2	-	3792.6	-	617.6	-	4080.6	-	523.2	-	4175.1
Huevos	-	-	1706.4	-	-	-	1706.4	-	-	-	1706.4	-
Leche	8030.9	7902.2	827.3	6332.9	8511.7	7879.7	353.5	6348.4	8527.6	7883.7	438.3	6243.8
Higado Bovino	39.0	-	13.4	19.4	51.6	-	-	20.2	-	31.5	13.5	26.8
Corazon Bovino	-	-	41.0	-	-	-	41.0	-	-	-	41.0	-
Sesos Bovino	-	-	10.3	-	-	-	10.3	-	-	-	10.3	-
Riñones Bovino	-	-	16.4	-	-	-	16.4	-	-	-	-	16.4
Lengua Bovino	-	59.5	-	-	-	59.5	-	-	-	59.5	-	-
Pescado	-	-	70.9	458.2	-	-	54.2	474.9	-	21.4	507.7	-

Table A8. Food Consumption By Income Group

Food	Income Redistribution of 50 Percent				Income Redistribution of 55 Percent				Income Redistribution of 60 Percent			
	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group
	(100 Metric Tons)				(100 Metric Tons)				(100 Metric Tons)			
Arvejas	-	280.0	-	-	280.0	-	-	-	280.0	-	-	-
Arroz	1585.1	3259.6	-	-	3495.9	1348.8	-	-	4595.2	249.5	-	-
Cebada	2726.7	10431.4	5841.8	3413.8	2025.3	11637.2	5055.4	3571.9	1412.7	12245.7	4744.4	3825.6
Frijol	-	-	86.4	287.2	-	-	-	373.6	-	-	-	373.6
Maiz	8973.9	-	-	-	8973.9	-	-	-	8973.9	-	-	-
Aceite Cocina	153.5	-	390.5	-	242.2	-	301.7	-	279.0	3.4	261.5	-
Cafe	-	-	-	6989.2	-	-	-	6989.2	-	-	-	6989.2
Harina De Trigo	-	-	2577.6	-	-	-	2577.6	-	-	-	2577.6	-
Panela	-	-	-	-	-	-	-	-	-	-	-	-
Arracacha	-	-	-	-	-	-	-	-	-	-	-	-
Bananos	2252.6	-	237.0	-	2489.6	-	-	-	2489.6	-	-	-
Cebolla	-	-	-	-	-	-	-	-	-	-	-	-
Guayabas	198.8	166.5	428.0	-	188.4	89.2	515.6	-	190.5	-	602.7	-
Lechuga	-	-	38.5	-	-	-	-	38.5	-	-	-	38.5
Citricos	-	-	-	-	-	-	-	-	-	-	-	-
Papa	-	-	5296.1	-	-	-	6802.9	-	-	-	7199.7	-
Pina	-	-	-	219.5	-	-	-	219.5	-	-	-	219.5
Platano	-	2199.7	-	7799.1	-	3213.6	-	6785.1	-	4319.2	-	5679.6
RemoLacha	-	148.0	-	-	-	148.0	-	-	-	148.0	-	-
Repollo	-	-	2095.1	-	-	-	1509.3	590.1	-	-	760.8	1288.8
Tomate	-	-	-	-	-	-	-	-	-	-	-	-
Yuca	-	-	-	-	-	-	-	-	-	-	678.6	-
Zanahoria	796.8	722.8	446.4	-	782.4	683.3	499.7	-	780.1	625.1	566.9	-
Carne De Cerdo	-	439.0	-	-	-	439.0	-	-	-	439.0	-	-
Carne De Pollo	-	-	165.5	292.3	-	-	245.6	212.2	-	39.0	212.6	206.2
Carne Bovino 1a	986.7	-	588.3	-	578.2	-	996.8	-	563.6	-	1011.4	-
Carne Bovino 2a	-	571.3	-	4127.0	-	355.6	-	4342.7	-	201.0	-	4497.4
Huevos	-	-	1706.4	-	-	-	1706.4	-	-	-	1706.4	-
Leche	8505.5	7930.8	623.1	6034.0	8446.6	7798.5	2612.8	4235.5	8549.0	7675.4	4684.4	2184.6
Higado Bovino	-	40.6	-	31.1	-	35.4	-	36.4	-	30.8	-	41.0
Corazon Bovino	-	-	41.0	-	-	-	41.0	-	-	-	41.0	-
Sesos Bovino	-	-	10.3	-	-	-	10.3	-	-	-	10.3	-
Rinones Bovino	-	-	-	16.4	-	-	-	16.4	-	-	-	16.4
Lengua Bovino	-	59.5	-	-	-	59.5	-	-	-	59.5	-	-
Pescado	-	103.8	425.3	-	-	417.2	111.9	-	-	529.1	-	-

Table A8. Food Consumption By Income Group

Food	Income Redistribution of 65 Percent				Income Redistribution of 70 Percent				Income Redistribution of 75 Percent			
	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group
	(100 Metric Tons)				(100 Metric Tons)				(100 Metric Tons)			
Arvejas	-	280.0	-	-	-	280.0	-	-	-	-	-	-
Arroz	4844.7	-	-	-	4844.7	-	-	-	4844.7	-	-	-
Cebada	961.8	12341.2	4840.8	4045.5	335.2	12447.1	5336.0	4032.0	-	12560.4	5546.2	4004.5
Frijol	-	-	-	373.6	-	-	-	373.6	-	-	-	373.6
Maiz	8973.9	-	-	-	8973.9	-	-	-	8643.7	-	330.2	-
Aceite Cocina	264.4	60.4	219.1	-	262.9	61.1	200.0	-	259.3	55.6	229.0	-
Cafe	-	-	-	6989.2	-	-	-	6989.2	-	-	-	6989.2
Harina De Trigo	-	-	2577.6	-	-	-	2577.6	-	-	-	2577.6	-
Panela	-	-	-	-	-	-	-	-	-	-	-	-
Arracacha	-	-	-	-	-	-	-	-	-	-	-	-
Bananos	2489.6	-	-	-	2489.6	-	-	-	2489.6	-	-	-
Cebolla	-	-	-	-	-	-	-	-	-	-	-	-
Guayabas	193.1	-	600.1	-	194.6	-	598.7	-	195.4	-	597.9	-
Lechuga	-	-	-	38.5	-	-	-	38.5	-	-	-	38.5
Citricos	-	-	-	-	-	-	-	-	-	-	-	-
Papa	-	-	7199.7	-	-	-	6018.9	1180.8	-	-	4722.9	2476.8
Pina	-	-	-	219.5	-	-	-	219.5	-	-	-	219.5
Platano	-	5365.9	-	4632.9	-	6428.7	-	3570.0	-	7637.0	-	2361.0
Remolacha	-	148.0	-	-	-	148.0	-	-	-	148.0	-	-
Repollo	-	-	29.6	1950.8	-	-	-	1911.3	-	-	-	1842.2
Tomate	-	-	-	-	-	-	-	-	-	-	-	-
Yuca	-	-	1600.0	-	-	-	2521.3	-	-	-	3442.7	-
Zanahoria	783.6	557.1	640.9	-	779.3	561.7	649.7	-	761.9	498.1	652.9	87.9
Carne De Cerdo	-	439.0	-	-	-	439.0	-	-	-	439.0	-	-
Carne De Pollo	-	41.4	235.1	181.3	-	14.7	359.9	83.2	-	-	457.7	-
Carne Bovino 1ª	901.6	-	673.4	-	1210.7	-	334.3	-	1553.0	-	21.9	-
Carne Bovino 2ª	-	15.5	-	4682.7	-	2.1	-	4696.1	-	-	-	4698.3
Huevos	-	-	1706.4	-	-	-	1706.4	-	-	-	1706.4	-
Leche	8787.3	7520.1	6538.4	247.5	8959.2	7457.1	6287.4	389.7	9067.9	7409.1	6016.3	600.1
Higado Bovino	-	26.6	-	45.2	-	6.7	-	65.1	4.0	-	-	67.8
Corazon Bovino	-	-	41.0	-	-	-	41.0	-	-	-	41.0	-
Sesos Bovino	-	-	10.3	-	-	-	10.3	-	-	-	10.3	-
Riñones Bovino	-	-	-	16.4	-	-	-	16.4	-	-	-	16.4
Lengua Bovino	-	59.5	-	-	-	59.5	-	-	-	59.5	-	-
Pescado	-	529.1	-	-	-	529.1	-	-	-	491.8	37.3	-

Table 18. Food Consumption By Income Group

Food	Income Redistribution of 80 Percent				Income Redistribution of 85 Percent				Income Redistribution of 90 Percent			
	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group
	(100 Metric Tons)				(100 Metric Tons)				(100 Metric Tons)			
Arvejas	-	-	-	-	-	-	-	-	-	280.0	-	-
Arroz	4844.7	-	-	-	4844.7	280.0	-	-	4844.7	-	-	-
Cebada	-	12382.4	5269.1	4420.5	-	-	5142.6	5139.4	-	11100.6	4937.0	5956.2
Frijol	-	-	-	373.6	-	11750.9	-	373.6	-	-	-	373.6
Maiz	8243.9	-	730.1	-	8081.5	-	892.4	-	7817.7	-	1156.2	-
Aceite Cocina	249.3	2.2	292.4	-	240.7	-	303.2	-	238.0	-	305.9	-
Cafe	-	-	-	6989.2	-	-	-	6989.2	-	-	-	6989.2
Harina De Trigo	-	-	2577.6	-	-	-	2577.6	-	-	-	2577.6	-
Panela	-	-	-	-	-	-	-	-	-	-	-	-
Arracacha	-	-	-	-	-	-	-	-	-	-	-	-
Banano	2489.6	-	-	-	2489.6	-	-	-	2489.6	-	-	-
Cebolla	-	-	-	-	-	-	-	-	-	-	-	-
Guayabas	197.6	-	595.6	-	142.4	-	650.9	-	56.9	-	736.3	-
Lechuga	-	-	-	38.5	-	-	-	38.5	-	-	-	38.5
Citricos	-	-	-	-	-	-	-	-	-	-	-	-
Papa	-	-	4610.5	2589.3	657.9	-	4468.7	2073.1	1724.5	-	4246.3	1229.0
Pina	-	-	-	219.5	-	-	-	219.5	-	-	-	219.5
Platano	-	8103.1	-	1895.5	-	7700.0	-	2298.8	-	6955.2	-	3003.6
Remolacha	-	148.0	-	-	-	148.0	-	-	-	148.0	-	-
Repollo	-	-	-	1773.0	-	-	-	1703.9	-	-	-	1634.7
Tomate	-	-	-	-	-	-	-	-	-	-	-	-
Yuca	-	932.8	3381.2	-	-	1870.2	3415.1	-	-	2725.2	3481.4	-
Zanahoria	491.9	443.7	649.8	425.0	784.1	185.8	645.5	404.5	790.1	239.2	639.0	361.2
Carne De Cerdo	151.4	287.6	-	-	317.0	122.0	-	-	419.1	19.9	-	-
Carne De Pollo	-	-	457.7	-	-	-	457.7	-	-	-	457.7	-
Carne Bovino 1a	1575.0	-	-	-	1575.0	-	-	-	1575.0	-	-	-
Carne Bovino 2a	-	263.3	-	4435.0	-	779.5	-	3918.8	-	1344.5	-	3353.8
Huevos	-	-	1706.4	-	-	-	1706.4	-	-	-	1706.4	-
Leche	9153.0	7234.1	6091.4	614.8	9077.1	7281.8	6106.2	628.3	9080.9	7257.4	6128.1	616.9
Higado Bovino	66.9	4.9	-	-	-	71.8	-	-	-	71.8	-	-
Corazon Bovino	-	-	41.0	-	-	-	41.0	-	-	-	41.0	-
Sesos Bovino	-	-	10.3	-	-	-	10.3	-	-	-	10.3	-
Riñones Bovino	-	-	-	16.4	-	-	-	16.4	-	-	-	16.4
Lengua Bovino	-	59.5	-	-	-	59.5	-	-	-	59.5	-	-
Pescado	-	476.7	52.4	-	-	466.5	62.6	-	-	450.2	78.9	-

Table A3. Food Consumption By Income Group

Food	Income Redistribution of 95 Percent				Income Redistribution of 100 Percent			
	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group	Very Low Income Group	Low Income Group	Middle Income Group	Upper Income Group
	(100 Metric Tons)				(100 Metric Tons)			
Arvejas	-	280.0	-	-	-	280.0	-	-
Arroz	4844.7	-	-	-	4844.7	-	-	-
Cebada	-	10514.5	4765.1	6707.9	-	10089.5	4686.6	7315.4
Frijol	-	-	40.8	332.8	-	-	201.0	172.6
Maiz	7546.9	-	1427.0	-	7268.1	-	1705.8	-
Aceite Cocina	239.1	-	304.8	-	238.7	-	305.2	-
Cafe	-	-	-	6989.2	-	-	-	6989.2
Harina De Trigo	-	-	2577.6	-	-	-	2577.6	-
Panela	-	-	-	-	-	-	-	-
Arracacha	-	-	-	-	-	729.8	-	-
Bananos	2489.6	-	-	-	2489.6	-	-	-
Cebolla	-	-	-	-	-	-	-	-
Guayabas	-	-	793.2	-	-	-	793.2	-
Lechuga	-	-	-	38.5	-	-	-	38.5
Citricos	-	-	198.2	-	-	-	874.1	-
Papa	2541.8	-	3657.1	570.6	2708.1	-	2349.0	290.5
Pina	-	-	-	219.5	-	-	-	219.5
Platano	-	6431.0	-	3567.7	-	6136.1	-	3862.6
RemoLacha	-	148.0	-	-	-	148.0	-	-
Repollo	-	-	-	1560.8	-	-	-	1480.1
Tomate	-	-	-	-	-	-	-	-
Yuca	-	3402.5	3685.5	-	-	3054.0	4034.1	-
Zanahoria	794.5	281.5	635.7	328.2	795.6	234.1	639.3	313.6
Carne De Cerdo	439.0	-	-	-	439.0	-	-	-
Carne De Pollo	64.5	-	393.3	-	176.2	-	281.5	-
Carne Bovino 1ª	1575.0	-	-	-	1575.0	-	-	-
Carne Bovino 2ª	-	1854.2	-	2844.1	-	2221.1	-	2477.1
Huevos	-	-	1706.4	-	-	-	1706.4	-
Leche	9081.6	7279.5	6062.3	670.0	9081.7	7320.4	5811.8	879.4
Higado Bovino	-	71.8	-	-	-	71.8	-	-
Corazon Bovino	-	-	41.0	-	-	-	41.0	-
Sesos Bovino	-	-	10.3	-	-	-	10.3	-
Riñones Bovino	-	-	-	16.4	-	-	-	16.4
Lengua Bovino	-	59.5	-	-	-	59.5	-	-
Pescado	-	391.1	138.0	-	-	360.3	168.8	-

TABLE A9. Shadow and Elasticities[1] of Nutrient and Other Constraints

CONSTRAINT	RHS	RHS Divided by Agriculture Value added in 1968[2]	21.3% Redistribution Shadow Price	21.3% Redistribution Elasticity	25% Redistribution Shadow Price	25% Redistribution Elasticity	30% Redistribution Shadow Price	30% Redistribution Elasticity	35% Redistribution Shadow Price	35% Redistribution Elasticity	40% Redistribution Shadow Price	40% Redistribution Elasticity
VERY LOW INCOME GROUP												
Fat	1,109.000	0.084	2.564	0:215	0.969	0.081	---	---	---	---	---	---
Calcium	1,245.010	0.095	---	---	---	---	0.156	0.015	0.155	0.015	0.155	0.015
Vitamin A	7,697.510	0.585	0.051	0.030	0.025	0.015	0.008	0.005	0.008	0.005	0.008	0.005
Vitamin C	844.060	0.064	0.241	0.015	0.124	0.008	---	---	---	---	---	---
Lysine	7,805.300	0.593	0.462	0.274	0.251	0.149	---	---	---	---	---	---
Methionine & Cystine	6,520.270	0.496	---	---	0.255	0.126	0.400	0.198	0.397	0.197	---	---
Tryptophan	1,780,760	0.135	5.432	0.733	1.844	0.249	---	---	---	---	0.397	0.054
Food Quantity	2,053.505	0.156	---	---	---	---	---	---	---	---	---	---
Food Expenditure	4,438.907	0.337	-2.702	-0.911	-1.240	-0.418	-0.352	-0.119	-0.347	-0.117	-0.347	-0.117
LOW INCOME GROUP												
Calcium	1,420.780	0.108	0.156	0.017	0.156	0.017	0.156	0.017	0.155	0.017	0.155	0.017
Vitamin A	8,784.220	0.668	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005
Methionine & Cystine	7,440.780	0.565	0.400	0.226	0.400	0.226	0.400	0.226	0.397	0.224	0.397	0.224
Food Quantity	2,343.411	0.178	---	---	---	---	---	---	---	---	---	---
Food Expenditure	7,563.783	0.575	-0.352	-0.202	-0.352	-0.202	-0.352	-0:202	-0.347	-0.200	-0.347	-0.200
MIDDLE INCOME GROUP												
Calcium	1,235.240	0.094	0.156	0.015	0.156	0.015	0.156	0.015	0.154	0.014	0.155	0.015
Vitamin A	7,637.140	0.580	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005
Methionine & Cystine	6,469.130	0.492	0.400	0.197	0.400	0.197	0.400	0.197	0.397	0.195	0.397	0.195
Food Quantity	2,037.399	0.155	---	---	---	---	---	---	---	---	---	---
Food Expenditure	9,452.822	0.718	-0.352	-0.253	-0.352	-0.253	-0.352	-0.253	-0.347	-0.249	-0.347	-0.249
UPPER INCOME GROUP												
Calcium	981.360	0.075	0.156	0.012	0.156	0.012	0.156	0.012	0.155	0.012	0.155	0.012
Vitamin A	6,067.450	0.461	0.008	0.004	0.008	0.004	0.008	0.004	0.008	0.004	0.008	0.004
Methionine & Cystine	5,139.510	0.391	0.400	0.156	0.400	0.156	0.400	0.156	0.397	0.155	0.397	0.155
Food Quantity	1,618.645	0.123	---	---	---	---	---	---	---	---	---	---
Food Expenditure	13,716.270	1.042	-0.352	-0.367	-0.352	-0.367	-0.352	-0.367	-0.347	-0.362	-0.347	-0.362
INCOME REDISTRIBUTION	32,160.028	2.444	-0.450	-1.100	-0.197	-0.481	-0.039	-0.095	-0.043	-0.105	-0.043	-0.105

1/ Shadow price times the right hand side divided by agriculture value added in 1968.
2/ Value Added in 1968 is estimated at 13,158.390 million pesos. See Table A6 in Appendix A.

Table 9A Elasticitia of Nutrient and Other Constraints

Constraints	45% Redistribution Shadow Price	Elasticity	50% Redistribution Shadow Price	Elasticity	55% Redistribution Shadow Price	Elasticity	60% Redistribution Shadow Price	Elasticity	65% Redistribution Shadow Price	Elasticity
VERY LOW INCOME GROUP										
Fat	---	---	---	---	---	---	---	---	---	---
Calcium	0.155	0.015	0.155	0.015	0.155	0.015	0.148	0.014	0.148	0.014
Vitamin A	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005
Vitamin C	---	---	---	---	---	---	---	---	---	---
Lisine	---	---	---	---	---	---	---	---	---	---
Methionine & Cystine	0.397	0.197	0.397	0.197	0.397	0.197	0.376	0.220	0.376	0.186
Tryptophan	---	---	---	---	---	---	---	---	---	---
Food Quantity	---	---	---	---	---	---	---	---	---	---
Food Expenditure	-0.347	-0.117	-0.347	-0.117	-0.347	-0.117	-0.322	-0.112	-0.322	-0.112
LOW INCOME GROUP										
Calcium	0.155	0.017	0.155	0.017	0.155	0.017	0.148	0.016	0.148	0.016
Vitamin A	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005
Methionine & Cystine	0.397	0.224	0.397	0.224	0.397	0.224	0.376	0.212	0.376	0.211
Food Quantity	---	---	---	---	---	---	---	---	---	---
Food Expenditure	-0.347	-0.200	-0.347	-0.200	-0.347	-0.200	-0.322	-0.185	-0.322	-0.185
MIDDLE INCOME GROUP										
Calcium	0.155	0.015	0.155	0.015	0.155	0.015	0.148	0.014	0.148	0.014
Vitamin A	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005
Methionine & Cystine	0.397	0.195	0.397	0.195	0.397	0.195	0.376	0.185	0.376	0.185
Food Quantity	---	---	---	---	---	---	---	---	---	---
Food Expenditure	-0.347	-0.249	-0.347	-0.249	-0.347	-0.249	-0.322	-0.231	-0.322	-0.231
UPPER INCOME GROUP										
Calcium	0.155	0.012	0.155	0.012	0.155	0.112	0.148	0.011	0.148	0.011
Vitamin A	0.008	0.004	0.008	0.004	0.008	0.004	0.008	0.004	0.008	0.004
Methionine & Cystine	0.397	0.155	0.397	0.155	0.397	0.155	0.376	0.147	0.376	0.147
Food Quantity	---	---	---	---	---	---	---	---	---	---
Food Expenditure	-0.347	-0.362	-0.347	-0.362	-0.347	-0.362	-0.322	-0.336	-0.322	-0.336
INCOME REDISTRIBUTION	-0.043	-0.105	-0.043	-0.105	-0.043	-0.105	-0.040	-0.098	-0.040	-0.098

Table 9A Elasticitia of Nutrient and Other Constraints

Constraints	70% Redistribution Shadow Price	70% Redistribution Elasticity	75% Redistribution Shadow Price	75% Redistribution Elasticity	80% Redistribution Shadow Price	80% Redistribution Elasticity	85% Redistribution Shadow Price	85% Redistribution Elasticity	90% Redistribution Shadow Price	90% Redistribution Elasticity
VERY LOW INCOME GROUP										
Fat	---	---	---	---	---	---	---	---	---	---
Calcium	0.148	0.014	0.148	0.014	0.148	0.014	0.148	0.014	0.148	0.014
Vitamin A	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005
Vitamin C	---	---	---	---	---	---	---	---	---	---
Lisine	---	---	---	---	---	---	---	---	---	---
Methionine & Cystine	0.376	0.186	0.376	0.186	0.376	0.186	0.376	0.186	0.376	0.186
Tryptophan	---	---	---	---	---	---	---	---	---	---
Food Quantity	---	---	---	---	---	---	---	---	---	---
Food Expenditure	-0.322	-0.109	-0.322	-0.109	-0.322	-0.109	-0.322	-0.109	-0.322	-0.109
LOW INCOME GROUP										
Calcium	0.148	0.016	0.148	0.016	0.148	0.016	0.148	0.016	0.148	0.016
Vitamin A	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005
Methionine & Cystine	0.376	0.212	0.376	0.212	0.376	0.212	0.376	0.212	0.376	0.212
Food Quantity	---	---	---	---	---	---	---	---	---	---
Food Expenditure	-0.322	-0.185	-0.322	-0.185	-0.322	-0.185	-0.322	-0.185	-0.322	-0.185
MIDDLE INCOME GROUP										
Calcium	0.148	0.014	0.148	0.014	0.148	0.014	0.148	0.014	0.148	0.014
Vitamin A	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005	0.008	0.005
Methionine & Cystine	0.376	0.185	0.376	0.185	0.376	0.185	0.376	0.185	0.376	0.185
Food Quantity	---	---	---	---	---	---	---	---	---	---
Food Expenditure	-0.322	-0.231	-0.322	-0.231	-0.322	-0.231	-0.322	-0.231	-0.322	-0.231
UPPER INCOME GROUP										
Calcium	0.149	0.011	0.148	0.011	0.148	0.011	0.148	0.011	0.148	0.011
Vitamin A	0.008	0.004	0.008	0.004	0.008	0.004	0.008	0.004	0.008	0.004
Methionine & Cystine	0.376	0.147	0.376	0.147	0.376	0.147	0.376	0.147	0.376	0.147
Food Quantity	---	---	---	---	---	---	---	---	---	---
Food Expenditure	-0.322	-0.336	-0.322	-0.336	-0.322	-0.336	-0.322	-0.336	-0.322	-0.336
INCOME REDISTRIBUTION	-0.040	-0.098	-0.040	-0.098	-0.040	-0.098	-0.040	-0.098	-0.040	-0.098

Table 9A Elasticitia of Nutrient and Other Constraints

Constraints	95% Redistribution Shadow Price	95% Redistribution Elasticity	100% Redistribution Shadow Price	100% Redistribution Elasticity
VERI LOW INCOME GROUP				
Fat	—	—	—	—
Calcium	0.159	0.015	0.162	0.015
Vitamin A	0.008	0.005	0.008	0.005
Vitamin C	—	—	—	—
Lisine	—	—	—	—
Methionine & Cystine	0.355	0.176	0.323	0.160
Tryptophan	—	—	—	—
Food Quantity	0.177	0.028	0.203	0.028
Food Expenditure	-0.266	-0.090	-0.208	-0.070
LOW INCOME GROUP				
Calcium	0.159	0.017	0.162	0.017
Vitamin A	0.008	0.005	0.008	0.005
Methionine & Cystine	0.355	0.201	0.323	0.182
Food Quantity	0.177	0.032	0.208	0.037
Food Expenditure	-0.266	-0.153	-0.203	-0.036
MIDDLE INCOME GROUP				
Calcium	0.159	0.015	0.162	0.015
Vitamin A	0.008	0.005	0.008	0.005
Methionine & Cystine	0.355	0.175	0.323	0.159
Food Quantity	0.177	0.027	0.208	0.032
Food Expenditure	-0.266	-0.191	-0.203	-0.146
UPPER INCOME GROUP				
Calcium	0.159	0.012	0.162	0.012
Vitamin A	0.008	0.004	0.008	0.004
Methionine & Cystine	0.355	0.139	0.323	0.126
Food Quantity	0.177	0.022	0.208	0.026
Food Expenditure	-0.266	-0.277	-0.203	-0.212
INCOME REDISTRIBUTION	-0.033	-0.081	-0.025	-0.061

Table A10. Provision of Nutrients by Foods for the Very Low Income Groups With Income Redistribution of 21.3 Percent

Nutrient	Minimum Requirement	Nutrients Provided by Foods					
		Corn	Milk	Carrots	Cabbage	Peas	Edible Oil
Calories	3,868.500	6,180.220	575.931	25.473	15.039	65.371	27.313
Protein	1,112.500	1,440.888	326.361	4.953	13.785	50.726	—
Fat	1,109.000	758.309	316.762	0.708	0.627	1.698	30.897
Calcium	1,245.010	132.704	1,151.862	23.350	215.554	127.345	—
Iron	2,360.040	4,549.856	191.977	42.454	87.726	97.631	—
Vitamin A	7,697.510	568.732	1,439.828	4,952.985	689.272	46.693	—
Riboflavin	2,388.360	1,800.985	1,727.793	28.303	106.611	33.959	—
Niacin	2,647.290	5,687.319	95.989	28.303	75.193	65.795	—
Vitamin C	844.060	—	191.977	21.227	626.611	4.245	—
Isoleucine	5,415.910	6,635.206	1,555.014	23.350	31.331	201.630	—
Lysine	7,805.300	4,815.264	2,572.492	31.133	31.331	355.081	—
Methionine and Cystine	6,520.270	6,237.094	1,094.269	18.397	21.931	115.672	—
Threonine	4,590.780	6,483.544	1,468.524	22.642	38.223	142.839	—
Tryptophan	1,780.760	1,270.168	460.745	5.661	10.652	33.534	—
Valine	6,504.750	8,739.514	1,910.174	35.379	42.610	225.401	—

BOUND	XCAFE LOWER	UCAFE LOWER	DCAFE LOWER	XBANANO LOWER	UBANANO LOWER	DBANANO LOWER	XCIT LOWER	BOUND	1....1
LAND	1.00000	.	.	1.00000	.	.	1.00000	LAND	
LCAFE	1.00000	1.00000-	1.00000	.	.	.	.	LCAFE	
LBANANO	.	.	.	1.00000	1.00000-	1.00000	.	LBANANO	
LCIT	.	.	.	.	.	.	1.00000	LCIT	
MUCAFE	.	1.00000	.	.	.	.	.	MUCAFE	
MDCAFE	.	.	1.00000	.	.	.	.	MDCAFE	
MUBANANO	.	.	.	.	1.00000	.	.	MUBANANO	
MDBANANO	.	.	.	.	.	1.00000	.	MDBANANO	
BCAFE	.71900	.	.	.	.	.	.	BCAFE	
BBANANO	.	.	.	13.10000	.	.	.	BBANANO	
BCIT	.	.	.	.	.	.	20.00000	BCIT	
ACHG	.	1.00000	1.00000	.	1.00000	1.00000	.	ACHG	
VACHG	.	3.87000	3.87000	.	7.14100	7.14100	.	VACHG	

BOUND	UCIT	DCIT	XPLAT	UPLAT	DPLAT	XCOCOV	UCOCOV	BOUND
LAND	.	.	1.00000	.	.	1.00000	.	LAND
LCIT	1.00000-	1.00000	.	.	.	.	.	LCIT
LPLAT	.	.	1.00000	1.00000-	1.00000	.	.	LPLAT
LCOCOV	.	.	.	.	.	1.00000	1.00000-	LCOCOV
MUCIT	1.00000	.	.	.	.	.	.	MUCIT
MDCIT	.	1.00000	.	.	.	.	.	MDCIT
MUPLAT	.	.	.	1.00000	.	.	.	MUPLAT
MDPLAT	.	.	.	.	1.00000	.	.	MDPLAT
MUCOCOV	.	.	.	.	.	.	1.00000	MUCOCOV
BPLAT	.	.	6.95700	.	.	.	.	BPLAT
BOIL	.	.	.	.	.	.14100	.	BOIL
ACHG	1.00000	1.00000	.	1.00000	1.00000	.	1.00000	ACHG
VACHG	6.83600	6.83600	.	3.77000	3.77000	.	1.79200	VACHG

BOUND	DCOCOV	XPINA	UPINA	DPINA	XCANA	UCANA	DCANA	BOUND	3....1
LAND	.	1.00000	.	.	1.00000	.	.	LAND	
LCOCOV	1.00000	.	.	.	.	.	.	LCOCOV	
LPINA	.	1.00000	1.00000-	1.00000	.	.	.	LPINA	
LCANA	.	.	.	.	1.00000	1.00000-	1.00000	LCANA	
MDCOCOV	1.00000	.	.	.	.	.	.	MDCOCOV	
MUPINA	.	.	1.00000	.	.	.	.	MUPINA	
MDPINA	.	.	.	1.00000	.	.	.	MDPINA	
MUCANA	.	.	.	.	.	1.00000	.	MUCANA	
MDCANA	.	.	.	.	.	.	1.00000	MDCANA	
BPINA	.	20.00000	.	.	.	.	.	BPINA	
BCANA	.	.	.	.	48.57000	.	.	BCANA	
ACHG	1.00000	.	1.00000	1.00000	.	1.00000	1.00000	ACHG	
VACHG	1.79200	.	9.63500	9.63500	.	2.24600	2.24600	VACHG	

BOUND	XYUCA	UYUCA	DYUCA	XPAPA	UPAPA	DPAPA	XFRIJOL	BOUND	4....1
LAND	1.00000	.	.	1.00000	.	.	1.00000	LAND	
LYUCA	1.00000	1.00000-	1.00000	.	.	.	.	LYUCA	
LPAPA	.	.	.	1.00000	1.00000-	1.00000	.	LPAPA	
LFRIJOL	.	.	.	.	.	.	1.00000	LFRIJOL	
MUYUCA	.	1.00000	.	.	.	.	.	MUYUCA	
MDYUCA	.	.	1.00000	.	.	.	.	MDYUCA	
MUPAPA	.	.	.	.	1.00000	.	.	MUPAPA	
MDPAPA	.	.	.	.	.	1.00000	.	MDPAPA	
BYUCA	5.92200	.	.	.	.	.	.	BYUCA	
BPAPA	.	.	.	10.91800	.	.	.	BPAPA	
BFRIJOL	.	.	.	.	.	.	.58100	BFRIJOL	
ACHG	.	1.00000	1.00000	.	1.00000	1.00000	.	ACHG	
VACHG	.	3.12000	3.12000	.	3.63200	3.63200	.	VACHG	

BOUND	UFRIJOL	DFRIJOL	XTOMATE	UTOMATE	DTOMATE	XARRACA	UARRACA	BOUND
LAND	.	.	1.00000	.	.	1.00000	.	LAND
LFRIJOL	1.00000-	1.00000	.	.	.	.	.	LFRIJOL
LTOMATE	.	.	1.00000	1.00000-	1.00000	.	.	LTOMATE
LARRACA	.	.	.	.	.	1.00000	1.00000-	LARRACA
MUFRIJOL	1.00000	.	.	.	.	.	.	MUFRIJOL
MDFRIJOL	.	1.00000	.	.	.	.	.	MDFRIJOL
MUTOMATE	.	.	.	1.00000	.	.	.	MUTOMATE
MDTOMATE	.	.	.	.	1.00000	.	.	MDTOMATE
MUARRACA	.	.	.	.	.	.	1.00000	MUARRACA
BTOMATE	.	.	16.00000	.	.	.	.	BTOMATE
BARRACA	.	.	.	.	.	14.20000	.	BARRACA
ACHG	1.00000	1.00000	.	1.00008	1.00000	.	1.00000	ACHG
VACHG	2.02100	2.02100	.	8.12000	8.12000	.	7.36500	VACHG

5....1

BOUND	DARRACA	XCEB	UCEB	DCEB	XREMO	UREMO	DREMO	BOUND
LAND	.	1.00000	.	.	1.00000	.	.	LAND
LARRACA	1.00000	.	.	.	.	.	.	LARRACA
LCEB	.	1.00000	1.00000-	1.00000	.	.	.	LCEB
LREMO	.	.	.	.	1.00000	1.00000-	1.00000	LREMC
MDARRACA	1.00000	.	.	.	.	.	.	MDARRACA
MUCEB	.	.	1.00000	.	.	.	.	MUCEB
MDCEB	.	.	.	1.00000	.	.	.	MDCEB
MUREMO	.	.	.	.	.	1.00000	.	MUREMO
MDREMO	.	.	.	.	.	.	1.00000	MDREMC
BCEB	.	11.66700	.	.	.	.	.	BCEB
BREMC	.	.	.	.	9.25000	.	.	BREMC
ACHG	1.00000	.	1.00000	1.00000	.	1.00000	1.00000	ACHG
VACHG	7.36500	.	9.28600	9.28600	.	7.07100	7.07100	VACHG

6....1

BCUND	XZANA	UZANA	DZANA	XREPO	UREPO	DREPO	XLECH	BCUND
LAND	1.00000	.	.	1.00000	.	.	1.00000	LAND
LZANA	1.00000	1.00000-	1.00000	.	.	.	.	LZANA
LREPC	.	.	.	1.00000	1.00000-	1.00000	.	LREPC
LLECH	.	.	.	.	.	.	1.00000	LLECH
MUZANA	.	1.00000	.	.	.	.	.	MUZANA
MDZANA	.	.	1.00000	.	.	.	.	MDZANA
MUREPO	.	.	.	.	1.00000	.	.	MUREPO
MDREPO	.	.	.	.	.	1.00000	.	MDREPO
BZANA	10.00000	.	.	.	.	.	.	BZANA
BREPC	.	.	.	18.00000	.	.	.	BREPC
BLECH	.	.	.	.	.	.	2.00000	BLECH
ACHG	.	1.00000	1.00000	.	1.00000	1.00000	.	ACHG
VACHG		1.80600	1.80600	.	4.01100	4.01100		VACHG

7....1

BOUND	ULECH	DLECH	XARVEJA	UARVEJA	DARVEJA	XAJON	UAJON	BOUND	8....1
LAND	.	.	1.00000	.	.	1.00000	.	LAND	
LLECH	1.00000-	1.00000	.	.	.	.	.	LLECH	
LARVEJA	.	.	1.00000	1.00000-	1.00000	.	.	LARVEJA	
LAJON	.	.	.	.	.	1.00000	1.00000-	LAJON	
MULECH	1.00000	.	.	.	.	.	.	MULECH	
MDLECH	.	1.00000	.	.	.	.	.	MDLECH	
MUARVEJA	.	.	.	1.00000	.	.	.	MUARVEJA	
MDARVEJA	.	.	.	.	1.00000	.	.	MDARVEJA	
MUAJON	.	.	.	.	.	.	1.00000	MUAJON	
BOIL	.	.	.	.	.	.27000	.	BOIL	
BARVEJA	.	.	.56000	.	.	.	.	BARVEJA	
ACHG	1.00000	1.00000	.	1.00000	1.00000	.	1.00000	ACHG	
VACHG	8.60600	8.60600	.	1.02400	1.02400	.	1.46400	VACHG	

FCUNC	DAJON	XSOYA	USOYA	DSOYA	XHUEVOS	UHUEVOS	DHUEVOS	BOUND	9....1
LAND	•	1.00000	•	•	1.00000	•	•	LAND	
LAJON	1.00000	•	•	•	•	•	•	LAJON	
LSOYA	•	1.00000	1.00000-	1.00000	•	•	•	LSOYA	
LHUEVOS	•	•	•	•	1.00000	1.00000-	1.00000	LHUEVOS	
MDAJON	1.00000	•	•	•	•	•	•	MDAJON	
MUSOYA	•	•	1.00000	•	•	•	•	MUSOYA	
MDSOYA	•	•	•	1.00000	•	•	•	MDSOYA	
MUHUEVOS	•	•	•	•	•	1.00000	•	MUHUEVOS	
MDHUEVOS	•	•	•	•	•	•	1.00000	MDHUEVOS	
BOIL	•	.34600	•	•	•	•	•	BOIL	
BHUEVOS	•	•	•	•	10.00000	•	•	BHUEVOS	
ACHG	1.00000	•	1.00000	1.00000	•	1.00000	1.00000	ACHG	
VACHG	1.46400	•	2.54400	2.54400	•	34.60000	34.60000	VACHG	

BOUND	XLECHE	ULECHE	DLECHE	XAVE	UAVE	DAVE	XPORC	BOUND
LAND	1.00000	.	.	1.00000	.	.	1.00000	LAND
LLECHE	1.00000	1.00000-	1.00000	.	.	.	.	LLECHE
LAVE	.	.	.	1.00000	1.00000-	1.00000	.	LAVE
LPORC	.	.	.	.	.	.	1.00000	LPORC
MULECHE	.	1.00000	.	.	.	.	.	MULECHE
MDLECHE	.	.	1.00000	.	.	.	.	MDLECHE
MUAVE	.	.	.	.	1.00000	.	.	MUAVE
MDAVE	.	.	.	.	.	1.00000	.	MDAVE
BLECHE	.67700	.	.	.	.	.	.	BLECHE
BAVE	.	.	.	11.40000	.	.	.	BAVE
BPORC	.	.	.	.	.	.	.05800	BPORC
ACHG	.	1.00000	1.00000	.	1.00000	1.00000	.	ACHG
VACHG	.	.30300	.30300	.	85.40000	85.40000	.	VACHG

10....1

OUND	UPORC	DPORC	XBOVINO	UBOVINO	DBOVINO	XMAIZ	UMAIZ	BOUND	11....1
ANC	.	.	1.00000	.	.	1.00000	.	LAND	
PORC	1.00000-	1.00000	.	.	.	.	.	LPORC	
BOVINO	.	.	1.00000	1.00000-	1.00000	.	.	LBOVINO	
MAIZ	.	.	.	.	.	1.00000	1.00000-	LMAIZ	
LPORC	1.00000	.	.	.	.	.	.	MUPORC	
DPORC	.	1.00000	.	.	.	.	.	MDPORC	
UBOVINO	.	.	.	1.00000	.	.	.	MUBOVINO	
DBOVINO	.	.	.	.	1.00000	.	.	MDBOVINO	
UMAIZ	.	.	.	.	.	.	1.00000	MUMAIZ	
BM1A	.	.	.00768	.	.	.	.	BBM1A	
BM2A	.	.	.02291	.	.	.	.	BBM2A	
LIVER	.	.	.00035	.	.	.	.	BLIVER	
HEART	.	.	.00020	.	.	.	.	BHEART	
BRAIN	.	.	.00005	.	.	.	.	BBRAIN	
KIDNEY	.	.	.00008	.	.	.	.	BKIDNEY	
TONGUE	.	.	.00029	.	.	.	.	BTONGUE	
MAIZ	.	.	.	.	.	1.09100	.	BMAIZ	
CHG	1.00000	1.00000	.	1.00000	1.00000	.	1.00000	ACHG	
ACHG	.49400	.49400	.	.13500	.13500	.	.84400	VACHG	

RCUND	CMAIZ	XTRIGO	UTRIGO	DTRIGO	XCEBADA	UCEBADA	DCEBADA	RCUND	12....1
LAND	.	1.00000	.	.	1.00000	.	.	LAND	
LMAIZ	1.00000	.	.	.	.	.	.	LMAIZ	
LTRIGO	.	1.00000	1.00000-	1.00000	.	.	.	LTRIGO	
LCEBADA	.	.	.	.	1.00000	1.00000-	1.00000	LCEBADA	
MDMAIZ	1.00000	.	.	.	.	.	.	MDMAIZ	
MUTRIGO	.	.	1.00000	.	.	.	.	MUTRIGO	
MDTRIGO	.	.	.	1.00000	.	.	.	MDTRIGO	
MUCEBADA	.	.	.	.	.	1.00000	.	MUCEBADA	
MDCEBADA	.	.	.	.	.	.	1.00000	MDCEBADA	
BTRIGO	.	1.17900	.	.	.	.	.	BTRIGO	
BCEBADA	.	.	.	.	1.59800	.	.	BCEBADA	
ACHG	1.00000	.	1.00000	1.00000	.	1.00000	1.00000	ACHG	
VACHG	.84400	.	1.36800	1.36800	.	.91400	.91400	VACHG	

BOUND	XARROZ	UARROZ	DARROZ	XGUA	UGUA	DGUA	XPALMA	BOUND	13....1
LAND	1.00000	•	•	1.00000	•	•	1.00000	LAND	
LARROZ	1.00000	1.00000-	1.00000	•	•	•	•	LARROZ	
LGUA	•	•	•	1.00000	1.00000-	1.00000	•	LGUA	
LPALMA	•	•	•	•	•	•	1.00000	LPALMA	
MUARROZ	•	1.00000	•	•	•	•	•	MUARROZ	
MDARROZ	•	•	1.00000	•	•	•	•	MDARROZ	
MUGUA	•	•	•	•	1.00000	•	•	MUGUA	
MDGUA	•	•	•	•	•	1.00000	•	MDGUA	
BOIL	•	•	•	•	•	•	1.87000	BOIL	
BARROZ	3.40700	•	•	•	•	•	•	BARROZ	
BGUA	•	•	•	3.19700-	•	•	•	BGUA	
ACHG	•	1.00000	1.00000	•	1.00000	1.00000	•	ACHG	
VACHG	•	2.04000	2.04000	•	3.88700	3.88700	•	VACHG	

BCUND	UPALMA	DPALMA	ARV1	ARROZ1	CEBADA1	FRIJOL1	MAIZ1	BCUND
LPALMA	1.00000-	1.00000	.	.	.	.	.	LPALMA
MUPALMA	1.00000	.	.	.	.	.	.	MUPALMA
MDPALMA	.	1.00000	.	.	.	.	.	MDPALMA
BFRIJOL	.	.	.	.	.	.10000-	.	BFRIJOL
BARVEJA	.	.	.10000-	.	.	.	.	BARVEJA
BMAIZ	.	.	.	.	.	.	.10000-	BMAIZ
BCEBADA	.	.	.	.	.10000-	.	.	BCEBADA
BARROZ	.	.	.	.16100-	.	.	.	BARROZ
CALO1	.	.	.30800	.35900	.35900	.30400	.32600	CALO1
PROT1	.	.	.23900	.07800	.09000	.21300	.07600	PROT1
GRASAS1	.	.	.00800	.00400	.07000	.01200	.04000	GRASAS1
CALCIO1	.	.	.06000	.00900	.03600	.10500	.00700	CALCIO1
HIERRO1	.	.	.46000	.08000	.17000	.64500	.24000	HIERRO1
VITA1	.	.	.22000	.	.	.	.03000	VITA1
RIBO1	.	.	.16000	.03000	.11000	.13500	.09500	RIBO1
NIAC1	.	.	.31000	.13000	.59000	.18000	.30000	NIAC1
VITC1	.	.	.02000	.	.01000	.02500	.	VITC1
ISOL1	.	.	.95000	.29600	.42100	1.09900	.35000	ISOL1
LISINA1	.	.	1.67300	.22500	.40600	1.57400	.25400	LISINA1
METYSIS1	.	.	.54500	.25800	.46300	.43500	.32900	METYSIS1
TREO1	.	.	.67300	.22600	.36500	.92500	.34200	TREO1
TRIP1	.	.	.15800	.10000	.13000	.21400	.06700	TRIP1
VALINA1	.	.	1.06200	.40800	.59200	1.18100	.46100	VALINA1
EXP1	.	.	.61200	.43000	.38000	1.05100	.18800	EXP1
ACHG	1.00000	1.00000	.	.	.	.	.	ACHG
VACHG	3.88700	3.88700	.	.	.	.	.	VACHG

BOUND	ACEITE1	CAFEC1	HART1	PANELA1	ARRACA1	BANANO1	CEBOLLA1	BOUND	15....1
BCAFE	.	.02500-	.	.	.	.	.	BCAFE	
BBANANO	.	.	.	.	.	.14800-	.	BBANANO	
BOIL	.10000-	.	.	.	.	.	.	BOIL	
BCANA	.	.	.	1.00000-	.	.	.	BCANA	
BARRACA	.	.	.	.	.12100-	.	.	BARRACA	
BCEB	.	.	.	.	.	.	.10500-	BCEB	
BTRIGO	.	.	.13700-	.	.	.	.	BTRIGO	
CALC1	.88400	.05000	.35600	.31200	.10000	.08400	.03300	CALC1	
PROT1	.	.00300	.10400	.00500	.00900	.01200	.01400	PROT1	
GRASAS1	1.00000	.00100	.00500	.00100	.00100	.00100	.00100	GRASAS1	
CALCIO1	.	.00500	.03000	.08000	.02600	.00600	.03500	CALCIO1	
HIERRO1	.	.02000	.27000	.24000	.07000	.05000	.05000	HIERRO1	
VITA1	.	.	.	.	.19000	.22000	.	VITA1	
RIBO1	.	.01000	.05000	.07000	.04000	.03000	.03000	RIBO1	
NIAC1	.	.09000	.08000	.03000	.28000	.07000	.02000	NIAC1	
VITC1	.	.	.	.03000	.20000	.10000	.10000	VITC1	
ISOL1	.	.	.47600	.	.	.03200	.02000	ISOL1	
LISINA1	.	.	.32600	.	.02600	.04600	.06300	LISINA1	
METYSIS1	.	.	.45900	.	.00200	.05200	.01600	METYSIS1	
TREO1	.	.	.28100	.	.	.02900	.	TREO1	
TRIP1	.	.	.13900	.	.00500	.01300	.02000	TRIP1	
VALINA1	.	.	.55400	.	.	.04500	.03000	VALINA1	
EXP1	1.09100	.08400	.28000	.24700	.23800	.23900	.56400	EXP1	

BOUND	GUAY1	LECH1	CIT1	PAPA1	PINA1	PLAT1	REMO1	BOUND	16....1
BCIT	.	.	.28600-	.	.	.	.	BCIT	
BPLAT	.	.	.	.	.	.16000-	.	BPLAT	
BPINA	.	.	.	.	.18200-	.	.	BPINA	
BPAPA	.	.	.	.12500-	.	.	.	BPAPA	
BREMC	.	.	.	.	.	.	.12500-	BREMC	
BLECH	.	.18200-	.	.	.	.	.	BLECH	
BGUA	.13300-	.	.	.	.	.	.	BGUA	
CALO1	.03600	.01300	.02600	.09100	.05100	.13900	.04200	CALO1	
PROT1	.00900	.01100	.00400	.01900	.00400	.01100	.01400	PROT1	
GRASAS1	.00100	.00200	.00300	.00100	.00100	.00200	.	GRASAS1	
CALCIO1	.01700	.04400	.01200	.00200	.02100	.00400	.01800	CALCIO1	
HIERRO1	.07300	.10100	.03500	.10000	.04000	.05000	.10000	HIERRO1	
VITA1	.40000	.26000	.	.	.	.54000	.	VITA1	
RIBO1	.03000	.06000	.02000	.08000	.03000	.03000	.07000	RIBO1	
NIAC1	.06000	.05000	.02000	.09000	.02000	.05000	.02000	NIAC1	
VITC1	2.00000	.20000	.02300	.16000	.12000	.15000	.06000	VITC1	
ISOL1	.	.05000	.01200	.07600	.	.	.04400	ISOL1	
LISINA1	.02400	.05000	.02200	.09600	.	.	.09600	LISINA1	
METYSIS1	.00800	.02400	.01100	.03800	.	.	.05400	METYSIS1	
TREO1	.	.05400	.00600	.07500	.	.	.06000	TREO1	
TRIP1	.00800	.01000	.00300	.03300	.	.	.01700	TRIP1	
VALINA1	.	.07100	.01600	.09300	.	.	.04400	VALINA1	
EXP1	.30700	.63300	.34500	.16400	.24400	.26100	.31700	EXP1	

BOUND	REPC1	TOMATE1	YUCA1	ZANA1	CERDO1	POLLO1	CARB11	BOUND
BYUCA	.	.	.12500-	.	.	.	.	BYUCA
BTOMATE	.	.12500-	.	.	.	.	.	BTOMATE
BZANA	.	.	.	.11800-	.	.	.	BZANA
BREPC	.11800-	.	.	.	.	.	.	BREPC
BAVE	.	.	.	.	.	.10000-	.	BAVE
BPORC	.	.	.	.	.10000-	.	.	BPORC
BBM1A	.	.	.	.	.	.	.10000-	BBM1A
CALO1	.02400	.01700	.14600	.03600	.18600	.17800	.19100	CALO1
PROT1	.03200	.00900	.00800	.00700	.18500	.20200	.20100	PROT1
GRASAS1	.00100	.00100	.00100	.00100	.11900	.10200	.11700	GRASAS1
CALCIO1	.34400	.03700	.02700	.03300	.00500	.01400	.00600	CALCIO1
HIERRO1	.14000	.07000	.04000	.06000	.20000	.15000	.29000	HIERRO1
VITA1	1.10000	1.10000	.01000	7.00000	.	.	.	VITA1
RIBO1	.17000	.02000	.03000	.04000	.25000	.16000	.20000	RIBO1
NIAC1	.12000	.06000	.15000	.04000	.28000	.90000	.47000	NIAC1
VITC1	1.00000	.20000	.30000	.03000	.	.90000	.	VITC1
ISCL1	.05000	.02000	.02300	.03300	.60800	1.06900	.96600	ISCL1
LISINA1	.35000	.03200	.03300	.04400	.96100	1.59000	1.78400	LISINA1
METYSIS1	.03500	.01400	.02200	.02600	.45400	.76400	.79800	METYSIS1
TREO1	.06100	.02500	.04300	.03200	.58300	.79400	.92100	TREO1
TRIP1	.01700	.00900	.01900	.00800	.16200	.20500	.22400	TRIP1
VALINA1	.06800	.02400	.05400	.05000	.61600	1.01800	1.00400	VALINA1
EXP1	.14400	.52500	.24300	.15100	1.76200	2.71100	1.43600	EXP1

17....1

FOUND	CARP21	HUEVO1	LECHE1	HIGADO1	CORA1	SESOS1	RINO1	BOUND	18....1
BHUEVOS	.	.10000-	.	.	.	.	.	BHUEVOS	
BLECHE	.	.	.10000-	.	.	.	.	BLECHE	
BBM2A	.10000-	.	.	.	.	.	.	BBM2A	
BLIVER	.	.	.	.10000-	.	.	.	BLIVER	
BHEART	.	.	.	.	.10000-	.	.	BHEART	
BBRAIN	.	.	.	.	.	.10000-	.	BBRAIN	
BKIDNEY	.	.	.	.	.	.	.10000-	BKIDNEY	
CALO1	.36700	.16300	.06000	.13600	.15300	.13400	.11500	CALO1	
PROT1	.15200	.12300	.03400	.20000	.16800	.10800	.15300	PROT1	
GRASAS1	.33400	.11500	.03300	.04500	.08800	.09700	.05000	GRASAS1	
CALCIO1	.00700	.05400	.12000	.00900	.00800	.00800	.01300	CALCIO1	
HIERRO1	.25300	.27000	.02000	.60000	.50000	.20000	.57000	HIERRO1	
VITA1	.	1.10000	.15000	30.00000	.10000	.	1.00000	VITA1	
RIBO1	.15000	.29000	.18000	3.20000	1.10000	.25000	2.60000	RIBO1	
NIAC1	.29000	.01000	.01000	.90000	.45000	.29000	.53000	NIAC1	
VITC1	.	.	.02000	.03000	.05000	.15000	.10000	VITC1	
ISOL1	.73100	.77300	.16200	.95000	.54000	.60000	.90000	ISOL1	
LISINA1	1.35100	.86300	.26800	1.45200	1.24900	.80000	1.20000	LISINA1	
METYSIS1	.60400	.71700	.11400	.67700	.58100	.37200	.55000	METYSIS1	
TREO1	.69700	.63400	.15300	.80000	.71400	.46000	.70000	TREO1	
TRIP1	.17000	.18400	.04800	.27500	.17200	.11000	.15000	TRIP1	
VALINA1	.76000	.84700	.19900	1.27300	.94700	.60000	.90000	VALINA1	
EXP1	1.11400	1.18200	.17700	1.43600	1.11400	1.43600	1.11400	EXP1	

ROUND	LENGUA1	PESCA1	ARV2	ARRCZ2	CEBADA2	FRIJOL2	MAIZ2	ROUND	1S....1
BFRIJOL	.	.	.	.	.	.10000-	.	BFRIJOL	
BARVEJA	.	.	.10000-	.	.	.	.	BARVEJA	
BTONGUE	.10000-	.	.	.	.	.	.	BTONGUE	
BMAIZ	.	.	.	.	.	.	.10000-	BMAIZ	
BCEBADA	.	.	.	.	.10000-	.	.	BCEBADA	
BARRCZ	.	.	.	.16100-	.	.	.	BARRCZ	
BPESCA	.	.10000-	.	.	.	.	.	BPESCA	
CALO1	.16500	.10000	.	.	.	.	.	CALO1	
PROT1	.16500	.19200	.	.	.	.	.	PROT1	
GRASAS1	.10300	.02000	.	.	.	.	.	GRASAS1	
CALCIO1	.00900	.02100	.	.	.	.	.	CALCIO1	
HIERRO1	.15000	.06000	.	.	.	.	.	HIERRO1	
RIBO1	.36000	.09000	.	.	.	.	.	RIBO1	
NIAC1	.28000	.29000	.	.	.	.	.	NIAC1	
ISOL1	.94000	.93000	.	.	.	.	.	ISOL1	
LISINA1	1.24900	1.71300	.	.	.	.	.	LISINA1	
METYSIS1	.58100	.75900	.	.	.	.	.	METYSIS1	
TREO1	.71400	.86100	.	.	.	.	.	TREO1	
TRIP1	.17200	.21100	.	.	.	.	.	TRIP1	
VALINA1	.94700	1.15000	.	.	.	.	.	VALINA1	
EXP1	1.11400	2.43500	.	.	.	.	.	EXP1	
CALO2	.	.	.30800	.35900	.35900	.30400	.32600	CALO2	
PROT2	.	.	.22900	.07800	.09000	.21300	.07600	PROT2	
GRASAS2	.	.	.00800	.00400	.07000	.01200	.04000	GRASAS2	
CALCIO2	.	.	.06000	.03900	.03600	.10500	.00700	CALCIO2	
HIERRO2	.	.	.46000	.08000	.17000	.64500	.24000	HIERRO2	
VITA2	.	.	.22000	.	.	.	.03000	VITA2	
RIBO2	.	.	.16000	.03000	.11000	.13500	.09500	RIBO2	
NIAC2	.	.	.31000	.13000	.59000	.18000	.30000	NIAC2	
VITC2	.	.	.02000	.	.31000	.02500	.	VITC2	
ISOL2	.	.	.95000	.29600	.42100	1.09900	.35000	ISOL2	
LISINA2	.	.	1.67300	.22500	.40600	1.57400	.25400	LISINA2	
METYSIS2	.	.	.54500	.25800	.46300	.43500	.32900	METYSIS2	
TREO2	.	.	.67300	.22600	.36500	.92500	.34200	TREO2	
TRIP2	.	.	.15800	.10000	.13000	.21400	.06700	TRIP2	
VALINA2	.	.	1.06200	.40800	.59200	1.18100	.46100	VALINA2	
EXP2	.	.	.61200	.43000	.38000	1.05100	.18800	EXP2	

BOUND	ACEITE2	CAFED2	HART2	PANELA2	ARRACA2	BANANO2	CEBOLLA2	BOUND	20....1
BCAFE	.	.02500-	.	.	.	.	.	BCAFE	
BBANANO	.	.	.	.	.	.14800-	.	BBANANO	
BOIL	.11000-	.	.	.	.	.	.	BOIL	
BCANA	.	.	.	1.00000-	.	.	.	BCANA	
BARRACA	.	.	.	.	.12100-	.	.	BARRACA	
BCEB	.	.	.	.	.	.	.10500-	BCEB	
BTRIGO	.	.	.13700-	.	.	.	.	BTRIGO	
CALO2	.89411	.05111	.35600	.31200	.10000	.01200	.03300	CALC2	
PROT2	.	.00300	.10400	.00500	.00900	.01200	.01400	PROT2	
GRASAS2	1.00000	.00100	.00500	.00100	.00100	.00100	.00100	GRASAS2	
CALCIO2	.	.00500	.03000	.08000	.02600	.00600	.03500	CALCIO2	
HIERRO2	.	.02000	.27000	.24000	.07000	.05000	.05000	HIERRO2	
VITA2	.	.	.	.	.19000	.22000	.	VITA2	
RIBO2	.	.01000	.05000	.07000	.04000	.03000	.03000	RIBO2	
NIAC2	.	.09000	.08000	.03000	.28000	.07000	.02000	NIAC2	
VITC2	.	.	.	.03000	.20000	.10000	.10000	VITC2	
ISOL2	.	.	.47600	.	.	.03200	.02000	ISOL2	
LISINA2	.	.	.32600	.	.02600	.04600	.06300	LISINA2	
METYSIS2	.	.	.45900	.	.00200	.05200	.01600	METYSIS2	
TREO2	.	.	.38100	.	.	.02900	.	TREO2	
TRIP2	.	.	.13900	.	.00500	.01300	.02000	TRIP2	
VALINA2	.	.	.55400	.	.	.04500	.03000	VALINA2	
EXP2	1.09100	.08400	.38000	.24700	.23800	.23900	.56400	EXP2	

BOUND	GUAY2	LECH2	CIT2	PAPA2	PINA2	PLAT2	REMO2	BOUND
BCIT	.	.	.28600-	.	.	.	.	BCIT
BPLAT	.	.	.	.	.	.16000-	.	BPLAT
BPINA	.	.	.	.	.18200-	.	.	BPINA
BPAPA	.	.	.	.12500-	.	.	.	BPAPA
BREMO	.	.	.	.	.	.	.12500-	BREMO
BLECH	.	.18200-	.	.	.	.	.	BLECH
BGUA	.13300-	.	.	.	.	.	.	BGUA
CALO2	.03600	.01300	.02600	.09100	.05100	.13900	.04200	CALO2
PROT2	.00900	.01100	.00400	.01900	.00400	.01100	.01400	PROT2
GRASAS2	.00100	.00200	.00300	.00100	.00100	.00200	.	GRASAS2
CALCIO2	.01700	.04400	.01200	.00200	.02100	.00400	.01800	CALCIO2
HIERRO2	.07000	.10000	.03500	.10000	.04000	.05000	.10000	HIERRO2
VITA2	.40000	.26000	.	.	.	.54000	.	VITA2
RIBO2	.03000	.06300	.02000	.08000	.03000	.03000	.07000	RIBO2
NIAC2	.06000	.05000	.02000	.09000	.02000	.05000	.02000	NIAC2
VITC2	2.00000	.20000	.02300	.16000	.12000	.15000	.06000	VITC2
ISOL2	.	.05000	.01200	.07600	.	.	.04400	ISOL2
LISINA2	.02400	.05000	.02200	.09600	.	.	.09600	LISINA2
METYSIS2	.03000	.02400	.01100	.03800	.	.	.05400	METYSIS2
TREO2	.	.05400	.00600	.07500	.	.	.06000	TREO2
TRIP2	.00800	.01000	.00300	.03300	.	.	.01700	TRIP2
VALINA2	.	.07100	.01600	.09300	.	.	.04400	VALINA2
EXP2	.00700	.63300	.34500	.16400	.24400	.26100	.14400	EXP2

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BCUNE	BEPO2	TOMATE2	YUCA2	ZANA2	CERDO2	POLLO2	CARB12	BOUND	22....1
BYUCA	.	.	.12500-	.	.	.	.	BYUCA	
BTOMATE	.	.12500-	.	.	.	.	.	BTOMATE	
BZANA	.	.	.	.11800-	.	.	.	BZANA	
BREPO	.11800-	.	.	.	.	.	.	BREPO	
BAVE	.	.	.	.	.	.10000-	.	BAVE	
BPCRC	.	.	.	.	.10000-	.	.	BPCRC	
BBM1A	.	.	.	.	.	.	.10000-	BBM1A	
CALO2	.02400	.01700	.14600	.03600	.18600	.19100	.19100	CALO2	
PRCT2	.02200	.01900	.00800	.00700	.18500	.20200	.20100	PRCT2	
GRASAS2	.00100	.00100	.00100	.00100	.11900	.10200	.11700	GRASAS2	
CALCIO2	.34400	.00700	.02700	.03300	.00500	.01400	.00600	CALCIO2	
HIERRO2	.14000	.07000	.04000	.06000	.20000	.15000	.29000	HIERRO2	
VITA2	1.10000	1.10000	.01000	7.00000	.	.	.	VITA2	
RIBO2	.17000	.02000	.03000	.04000	.25000	.16000	.20000	RIBO2	
NIAC2	.12000	.06000	.05000	.04000	.28000	.90000	.47000	NIAC2	
VITC2	1.00000	.20000	.30000	.03000	.	.90000	.	VITC2	
ISCL2	.05000	.02000	.02300	.03300	.60800	1.06900	.96600	ISCL2	
LISINA2	.05000	.03200	.03300	.04400	.96100	1.59000	1.78400	LISINA2	
METYSIS2	.03500	.01400	.02200	.02600	.45400	.76400	.79800	METYSIS2	
TREO2	.06100	.02500	.04300	.03200	.58300	.79400	.92100	TREO2	
TRIP2	.01700	.00900	.01900	.00800	.16200	.20500	.22400	TRIP2	
VALINA2	.06800	.02400	.05400	.05000	.61600	1.01800	1.00400	VALINA2	
EXP2	.14400	.52500	.24300	.15100	1.76200	2.71100	1.43600	EXP2	

BOUND	CARR22	HUEVO2	LECHE2	HIGADO2	CORA2	SESOS2	RINO2	BOUND
BHUEVOS	.	.10000-	.	.	.	.	.	BHUEVOS
BLECHE	.	.	.10000-	.	.	.	.	BLECHE
BBM2A	.10000-	.	.	.	.	.	.	BBM2A
BLIVER	.	.	.	.10000-	.	.	.	BLIVER
BHEART	.	.	.	.	.10000-	.	.	BHEART
BBRAIN	.	.	.	.	.	.10000-	.	BBRAIN
BKIDNEY	.	.	.	.	.	.	.10000-	BKIDNEY
CALC2	.36700	.16300	.06000	.13600	.15300	.13400	.11500	CALC2
PROT2	.15200	.12800	.03400	.20000	.16800	.10800	.15300	PROT2
GRASAS2	.33400	.11500	.03300	.04500	.08800	.09700	.05000	GRASAS2
CALCIO2	.00700	.05400	.12000	.00900	.00800	.00800	.01300	CALCIO2
HIERRO2	.25000	.27000	.02000	.60000	.50000	.20000	.57000	HIERRO2
VITA2	.	1.10000	.15000	30.00000	.10000	.	1.00000	VITA2
RIBO2	.15000	.29000	.18000	3.20000	1.10000	.25000	2.60000	RIBO2
NIAC2	.20000	.01000	.01000	.90000	.45000	.29000	.53000	NIAC2
VITC2	.	.	.02000	.03000	.05000	.15000	.10000	VITC2
ISOL2	.73100	.77800	.16200	.95000	.94000	.60000	.90000	ISOL2
LISINA2	1.35100	.86300	.26800	1.45200	1.24900	.80000	1.20000	LISINA2
METYSIS2	.60400	.71700	.11400	.67700	.58100	.37200	.55000	METYSIS2
TREO2	.69700	.63400	.15300	.80000	.71400	.46000	.70000	TREO2
TRIP2	.17000	.18400	.04800	.27500	.17200	.11000	.15000	TRIP2
VALINA2	.76000	.84700	.19900	1.27300	.94700	.60000	.90000	VALINA2
EXP2	1.11400	1.18200	.17700	1.43600	1.11400	1.43600	1.11400	EXP2

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BCUND	LENGUA2	PESCA2	ARV3	ARROZ3	CEBADA3	FRIJOL3	MAIZ3	BCUND	24....1
BFRIJOL	.	.	.	.	.	.10000-	.	BFRIJOL	
BARVEJA	.	.	.10000-	.	.	.	.	BARVEJA	
BTONGUE	.10000-	.	.	.	.	.	.	BTONGUE	
BMAIZ	.	.	.	.	.	.	.10000-	BMAIZ	
BCEBADA	.	.	.	.	.10000-	.	.	BCEBADA	
BARROZ	.	.	.	.16100-	.	.	.	BARROZ	
BPESCA	.	.10000-	.	.	.	.	.	BPESCA	
CALC2	.16500	.10000	.	.	.	.	.	CALC2	
PROT2	.16500	.19200	.	.	.	.	.	PROT2	
GRASAS2	.10300	.02300	.	.	.	.	.	GRASAS2	
CALCIO2	.00900	.02100	.	.	.	.	.	CALCIO2	
HIERRO2	.15000	.06000	.	.	.	.	.	HIERRO2	
RIBO2	.36000	.09000	.	.	.	.	.	RIBO2	
NIAC2	.28000	.29000	.	.	.	.	.	NIAC2	
ISOL2	.94000	.90000	.	.	.	.	.	ISOL2	
LISINA2	1.24900	1.71300	.	.	.	.	.	LISINA2	
METYSIS2	.59100	.75900	.	.	.	.	.	METYSIS2	
TREO2	.71400	.86100	.	.	.	.	.	TREO2	
TRIP2	.17200	.21100	.	.	.	.	.	TRIP2	
VALINA2	.94700	1.15000	.	.	.	.	.	VALINA2	
EXP2	1.11400	2.43500	.	.	.	.	.	EXP2	
CALC3	.	.	.30800	.35900	.35900	.30400	.32600	CALC3	
PROT3	.	.	.23900	.07800	.09000	.21300	.07600	PROT3	
GRASAS3	.	.	.00800	.00400	.07000	.01200	.04000	GRASAS3	
CALCIO3	.	.	.06000	.00900	.03600	.10500	.00700	CALCIO3	
HIERRO3	.	.	.46000	.08000	.17000	.64500	.24000	HIERRO3	
VITA3	.	.	.22000	.	.	.	.03000	VITA3	
RIBO3	.	.	.16000	.03000	.11000	.13500	.09500	RIBO3	
NIAC3	.	.	.31000	.10000	.59000	.18000	.30000	NIAC3	
VITC3	.	.	.02000	.	.01000	.02500	.	VITC3	
ISOL3	.	.	.95000	.29600	.42100	1.09900	.35000	ISOL3	
LISINA3	.	.	1.67300	.22500	.40600	1.57400	.25400	LISINA3	
METYSIS3	.	.	.54500	.25800	.46300	.43500	.32900	METYSIS3	
TREO3	.	.	.67300	.22600	.36500	.92500	.34200	TREO3	
TRIP3	.	.	.15800	.10000	.13000	.21400	.06700	TRIP3	
VALINA3	.	.	1.06200	.40800	.59200	1.19100	.46100	VALINA3	
EXP3	.	.	.61200	.43000	.38000	1.05100	.18800	EXP3	

BOLND	ACEITE3	CAFEC3	HART3	PANELA3	ARRACA3	BANANC3	CEBOLLA3	BOLND
BCAFE	.	.02500-	.	.	.	.	.	BCAFE
BBANANC	.	.	.	.	.	.14800-	.	BBANANC
BOIL	.10000-	.	.	.	.	.	.	BOIL
BCANA	.	.	.	1.00000-	.	.	.	BCANA
BARRACA	.	.	.	.	.12100-	.	.	BARRACA
BCEB	.	.	.	.	.	.	.10500-	BCEB
BTRIGO	.	.	.13700-	.	.	.	.	BTRIGO
CALC3	.88400	.05000	.35600	.31200	.10000	.01200	.03300	CALC3
PROT3	.	.00300	.10400	.00500	.00900	.01200	.01400	PROT3
GRASAS3	1.00000	.00100	.00100	.00100	.00100	.00100	.00100	GRASAS3
CALCIO3	.	.00500	.03000	.08000	.02600	.00600	.03500	CALCIO3
HIERRO3	.	.02000	.27000	.24000	.07000	.05000	.05000	HIERRO3
VITA3	.	.	.	.	.19000	.22000	.	VITA3
RIBO3	.	.01000	.05000	.07000	.04000	.03000	.03000	RIBO3
NIAC3	.	.00000	.08000	.03000	.28000	.07000	.02000	NIAC3
VITC3	.	.	.	.03000	.20000	.10000	.10000	VITC3
ISCL3	.	.	.47600	.	.	.03200	.02000	ISCL3
LISINA3	.	.	.32600	.	.02600	.04600	.06300	LISINA3
METYSIS3	.	.	.45900	.	.00200	.05200	.01600	METYSIS3
TREO3	.	.	.38100	.	.	.02900	.	TREO3
TRIP3	.	.	.13900	.	.00500	.01300	.02000	TRIP3
VALINA3	.	.	.55400	.	.	.04500	.03000	VALINA3
EXP3	1.09100	.08400	.38000	.24700	.23800	.23900	.56400	EXP3

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BCUND	GUAY3	LECH3	CIT3	PAPA3	PINA3	PLAT3	REMO3	ECUNC	26....1
BCIT	.	.	.28600-	.	.	.	.	BCIT	
BPLAT	.	.	.	.	.	.16000-	.	BPLAT	
BPINA	.	.	.	.	.18200-	.	.	BPINA	
BPAPA	.	.	.	.12500-	.	.	.	BPAPA	
BREMC	.	.	.	.	.	.	.1 .500-	BREMC	
BLECH	.	.18200-	.	.	.	.	.	BLECH	
BGUA	.13300-	.	.	.	.	.	.	BGLA	
CALC3	.03600	.01300	.02600	.09100	.05100	.13900	.04200	CALC3	
PRCT3	.00900	.01100	.00400	.01900	.00400	.01100	.01400	PRCT3	
GRASAS3	.00100	.00200	.00300	.00100	.00100	.00200	.	GRASAS3	
CALCIC3	.01700	.04400	.01200	.00200	.02100	.00400	.01800	CALCIC3	
HIERRC3	.37000	.10000	.03500	.10000	.04000	.05000	.10000	HIERRC3	
VITA3	.40000	.26000	.	.	.	.54000	.	VITA3	
RIBC3	.03000	.06000	.02000	.08000	.03000	.03000	.07000	RIBC3	
NIAC3	.06000	.05000	.02000	.09000	.02000	.05000	.02000	NIAC3	
VITC3	2.00000	.20000	.02300	.16000	.12000	.15000	.06000	VITC3	
ISCL3	.	.05000	.01200	.07600	.	.	.04400	ISCL3	
LISINA3	.02400	.05000	.02200	.09600	.	.	.09600	LISINA3	
METYSIS3	.00800	.02400	.01100	.03800	.	.	.05400	METYSIS3	
TREO3	.	.05400	.00600	.07500	.	.	.06000	TREC3	
TRIP3	.00800	.01000	.00300	.03300	.	.	.01700	TRIP3	
VALINA3	.	.07100	.01600	.09300	.	.	.04400	VALINA3	
EXP3	.20000	.63300	.34500	.16400	.24400	.26100	.14400	EXP3	

BOUND	BREPO3	TOMATE3	YUCA3	ZANA3	CERDO3	POLLO3	CARB13	BOUND
BYLCA	.	.	.12500-	.	.	.	.	BYLCA
BTOMATE	.	.12500-	.	.	.	.	.	BTOMATE
BZANA	.	.	.	.11800-	.	.	.	BZANA
BREPO	.11800-	.	.	.	.	.	.	BREPO
BAVE	.	.	.	.	.	.10000-	.	BAVE
BPORC	.	.	.	.	.10000-	.	.	BPORC
BBMIA	.	.	.	.	.	.	.10[illegible]0-	BBMIA
CALO3	.02400	.01700	.14600	.03600	.18600	.19100	.19100	CALO3
PROT3	.02200	.00900	.00800	.00700	.18500	.20200	.20100	PROT3
GRASAS3	.00100	.00100	.00100	.00100	.11900	.10200	.11700	GRASAS3
CALCIO3	.34400	.00700	.02700	.03300	.00500	.01400	.00600	CALCIO3
HIERRO3	.14000	.07000	.04000	.06000	.20000	.15000	.29000	HIERRO3
VITA3	1.10000	1.10000	.01000	7.00000	.	.	.	VITA3
RIBO3	.17000	.02000	.03000	.04000	.25000	.16000	.20000	RIBO3
NIAC3	.12000	.06000	.05000	.04000	.28000	.90000	.47000	NIAC3
VITC3	1.00000	.23000	.30000	.03000	.	.90000	.	VITC3
ISOL3	.05000	.32000	.02300	.03300	.60000	1.06900	.96600	ISOL3
LISINA3	.05000	.03200	.03300	.04400	.96100	1.59000	1.78400	LISINA3
METYSIS3	.03500	.01400	.02200	.02600	.45400	.76400	.79800	METYSIS3
TREO3	.06100	.02500	.04300	.03200	.58300	.79400	.92100	TREO3
TRIP3	.01700	.00900	.01500	.00800	.16200	.20500	.22400	TRIP3
VALINA3	.06800	.02400	.05400	.05000	.61600	1.01800	1.00400	VALINA3
EXP3	.14400	.52500	.24300	.15100	1.76200	2.71100	1.43600	EXP3

BOUND	CARB23	HUEVO3	LECHE3	HIGADO3	CORA3	SESCS3	RINO3	BOUND	28....1
BHUEVOS	.	.10000-	.	.	.	.	.	BHUEVOS	
BLECHE	.	.	.10000-	.	.	.	.	BLECHE	
BBM2A	.10000-	.	.	.	.	.		BBM2A	
BLIVER	.	.	.	.10000-	.	.	.	BLIVER	
BHEART	.	.	.	.	.10000-	.	.	BHEART	
BBRAIN	.	.	.	.	.	.10000-	.	BBRAIN	
BKIDNEY	.	.	.	.	.	.	.10000-	BKIDNEY	
CALC3	.36700	.16300	.06000	.13600	.15300	.13400	.11500	CALC3	
PROT3	.15200	.12800	.03400	.20000	.16800	.10800	.15300	PROT3	
GRASAS3	.33400	.11500	.03300	.04500	.08800	.09700	.05000	GRASAS3	
CALCIC3	.00700	.05400	.12000	.00900	.00800	.00800	.01300	CALCIC3	
HIERRO3	.25000	.27000	.02000	.60000	.50000	.20000	.57000	HIERRO3	
VITA3	.	1.10000	.15000	30.00000	.10000	.	1.00000	VITA3	
RIBO3	.15000	.29000	.18000	3.20000	1.10000	.25000	2.60000	RIBO3	
NIAC3	.29000	.01000	.01000	.90000	.45000	.29000	.53000	NIAC3	
VITC3	.	.	.02000	.03000	.05000	.15000	.10000	VITC3	
ISOL3	.73100	.77800	.16200	.95000	.94000	.60000	.90000	ISOL3	
LISINA3	1.35100	.86300	.26800	1.45200	1.24900	.80000	1.20000	LISINA3	
METYSIS3	.60400	.71700	.11400	.67700	.58100	.37300	.55000	METYSIS3	
TREO3	.69700	.63400	.15300	.80000	.71400	.46000	.70000	TREO3	
TRIP3	.17000	.18400	.04800	.27500	.17200	.11000	.15000	TRIP3	
VALINA3	.76100	.84700	.19900	1.27300	.94700	.60000	.90000	VALINA3	
EXP3	1.11400	1.18200	.17700	1.43600	1.11400	1.43600	1.11400	EXP3	

BOUND	LENGUA3	PESCA3	ARV4	ARROZ4	CEBADA4	FRIJOL4	MAIZ4	BOUND
BFRIJOL	.	.	.	.	.	.10000-	.	BFRIJOL
BARVEJA	.	.	.10000-	.	.	.	.	BARVEJA
BTONGUE	.10000-	.	.	.	.	.	.	BTONGUE
BMAIZ	.	.	.	.	.	.	.10000-	BMAIZ
BCEBADA	.	.	.	.	.10000-	.	.	BCEBADA
BARROZ	.	.	.	.16100-	.	.	.	BARROZ
BPESCA	.	.10000-	.	.	.	.	.	BPESCA
CALC3	.16500	.10000	.	.	.	.	.	CALC3
PROT3	.16500	.19200	.	.	.	.	.	PROT3
GRASAS3	.10300	.02000	.	.	.	.	.	GRASAS3
CALCIO3	.00900	.02100	.	.	.	.	.	CALCIO3
HIERRO3	.15000	.06000	.	.	.	.	.	HIERRO3
RIBO3	.36000	.09000	.	.	.	.	.	RIBO3
NIAC3	.28000	.29000	.	.	.	.	.	NIAC3
ISOL3	.94000	.90000	.	.	.	.	.	ISOL3
LISINA3	1.24900	1.71300	.	.	.	.	.	LISINA3
METYSIS3	.58100	.75900	.	.	.	.	.	METYSIS3
TREO3	.71400	.86100	.	.	.	.	.	TREO3
TRIP3	.17200	.21100	.	.	.	.	.	TRIP3
VALINA3	.94700	1.15000	.	.	.	.	.	VALINA3
EXP3	1.11400	2.43500	.	.	.	.	.	EXP3
CALO4	.	.	.30800	.35900	.35900	.30400	.32600	CALO4
PROT4	.	.	.22900	.07800	.09000	.21300	.07600	PROT4
GRASAS4	.	.	.00800	.00400	.00700	.01200	.04000	GRASAS4
CALCIO4	.	.	.06000	.00900	.03600	.10500	.00700	CALCIO4
HIERRO4	.	.	.46000	.08000	.17000	.64500	.24000	HIERRO4
VITA4	.	.	.22000	.	.	.	.03000	VITA4
RIBO4	.	.	.16000	.03000	.11000	.13500	.09500	RIBO4
NIAC4	.	.	.31000	.13000	.59000	.18000	.30000	NIAC4
VITC4	.	.	.02000	.	.01000	.02500	.	VITC4
ISOL4	.	.	.95000	.29600	.42100	1.09900	.35000	ISOL4
LISINA4	.	.	1.67300	.22500	.40600	1.57400	.25400	LISINA4
METYSIS4	.	.	.54500	.25800	.46300	.43500	.32900	METYSIS4
TREO4	.	.	.67200	.22600	.36500	.92500	.34200	TREO4
TRIP4	.	.	.15800	.10000	.13000	.21400	.06700	TRIP4
VALINA4	.	.	1.06200	.40800	.59200	1.18100	.46100	VALINA4
EXP4	.	.	.61200	.43000	.38000	1.05100	.18800	EXP4

BOUND	ACEITE4	CAFEC4	HART4	PANELA4	ARRACA4	BANANC4	CEBOLLA4	BOUND	36....1
BCAFE	.	.02500-	.	.	.	.	.	BCAFE	
BBANANO	.	.	.	.	.	.14800-	.	BBANANC	
BOIL	.10000-	.	.	.	.	.	.	BOIL	
BCANA	.	.	.	1.00000-	.	.	.	BCANA	
BARRACA	.	.	.	.	.12100-	.	.	BARRACA	
BCEB	.	.	.	.	.	.	.10500-	BCEB	
BTRIGC	.	.	.13700-	.	.	.	.	BTRIGO	
CALO4	.88400	.05000	.35600	.31200	.10000	.01200	.03300	CALC4	
PROT4	.	.00300	.10400	.00500	.00900	.01200	.01400	PROT4	
GRASAS4	1.00000	.00100	.00500	.00100	.00100	.00100	.00100	GRASAS4	
CALCIO4	.	.00500	.03000	.08000	.02600	.00600	.03500	CALCIC4	
HIERRO4	.	.02000	.27000	.24000	.07000	.05000	.05000	HIERRO4	
VITA4	.	.	.	.	.19000	.22000	.	VITA4	
RIBO4	.	.01000	.05000	.07000	.04000	.03000	.03000	RIBO4	
NIAC4	.	.09000	.08000	.03000	.28000	.07000	.02000	NIAC4	
VITC4	.	.	.	.03000	.20000	.10000	.10000	VITC4	
ISOL4	.	.	.47600	.	.	.03200	.02000	ISOL4	
LISINA4	.	.	.32600	.	.02600	.04600	.06300	LISINA4	
METYSIS4	.	.	.45900	.	.00200	.05200	.01600	METYSIS4	
TREO4	.	.	.38100	.	.	.02900	.	TREO4	
TRIP4	.	.	.13900	.	.00500	.01300	.02000	TRIP4	
VALINA4	.	.	.55400	.	.	.04500	.03000	VALINA4	
EXP4	1.09100	.08400	.38000	.24700	.23800	.23900	.56400	EXP4	

BCUNC	GUAY4	LECH4	CIT4	PAPA4	PINA4	PLAT4	REMO4	ECUNC
BCIT	.	.	.28600-	.	.	.	.	BCIT
BPLAT	.	.	.	.	.	.16000-	.	BPLAT
BPINA	.	.	.	.	.18200-	.	.	BPINA
BPAPA	.	.	.	.12500-	.	.	.	BPAPA
BREMO	.	.	.	.	.	.	.12500-	BREMO
BLECH	.	.18200-	.	.	.	.	.	BLECH
BGUA	.12300-	.	.	.	.	.	.	BGUA
CALC4	.03600	.01300	.02600	.09100	.05100	.13900	.04200	CALC4
PROT4	.00900	.01100	.00400	.01900	.00400	.01100	.01400	PROT4
GRASAS4	.00100	.00200	.00300	.00100	.00100	.00200	.	GRASAS4
CALCIC4	.01700	.04400	.01200	.00200	.02100	.00400	.01800	CALCIC4
HIERRO4	.07000	.10000	.03500	.10000	.04000	.05000	.10000	HIERRO4
VITA4	.40000	.26000	.	.	.	.54000	.	VITA4
RIBC4	.03000	.06000	.02000	.08000	.03000	.03000	.07000	RIBC4
NIAC4	.06000	.15000	.02000	.09000	.02000	.05000	.02000	NIAC4
VITC4	2.00000	.20000	.02300	.16000	.12000	.15000	.06000	VITC4
ISCL4	.	.05000	.01200	.07600	.	.	.04400	ISCL4
LISINA4	.02400	.05000	.02200	.09600	.	.	.09600	LISINA4
METYSIS4	.00800	.02400	.01100	.03800	.	.	.05400	METYSIS4
TREO4	.	.05400	.00600	.07500	.	.	.06000	TREO4
TRIP4	.00800	.01000	.00200	.03300	.	.	.01700	TRIP4
VALINA4	.	.07100	.01600	.09200	.	.	.04400	VALINA4
EXP4	.30700	.63300	.34500	.16400	.24400	.26100	.14400	EXP4

BOUND	BEPO4	TOMATE4	YUCA4	ZANA4	CERDC4	PCLLC4	CARE14	BOUND
BYUCA	.	.	.12500-	.	.	.	.	BYUCA
BTOMATE	.	.12500-	.	.	.	.	.	BTOMATE
BZANA	.	.	.	.11800-	.	.	.	BZANA
BREPO	.11900-	.	.	.	.	.	.	BREPO
BAVE	.	.	.	.	.	.10000-	.	BAVE
BPORC	.	.	.	.	.10000-	.	.	BPORC
BBM1A	.	.	.	.	.	.	.10000-	BBM1A
CALC4	.02400	.01700	.14600	.03600	.18600	.19100	.19100	CALC4
PROT4	.02200	.00900	.00800	.00700	.18500	.20200	.20100	PROT4
GRASAS4	.00100	.00100	.00100	.00100	.11900	.10200	.11700	GRASAS4
CALCIO4	.34400	.00700	.02700	.03300	.00500	.01400	.00600	CALCIC4
HIERRO4	.14000	.07000	.04000	.06000	.20000	.15000	.29000	HIERRO4
VITA4	1.10000	1.10000	.01000	7.00000	.	.	.	VITA4
RIBO4	.17000	.02000	.03000	.04000	.25000	.16000	.20000	RIBO4
NIAC4	.12000	.06000	.05000	.04000	.28000	.90000	.47000	NIAC4
VITC4	1.00000	.21000	.30000	.03000	.	.90000	.	VITC4
ISOL4	.05000	.02000	.02300	.03300	.60800	1.06900	.96600	ISOL4
LISINA4	.05000	.03200	.03300	.04400	.96100	1.59000	1.78400	LISINA4
METYSIS4	.0[illegible]000	.01400	.02200	.02600	.45400	.76400	.79800	METYSIS4
TREO4	.06100	.02500	.04300	.03200	.58300	.79400	.92100	TREO4
TRIP4	.01700	.01900	.01900	.00800	.16200	.20500	.22400	TRIP4
VALINA4	.06800	.02400	.05400	.05000	.61600	1.01800	1.00400	VALINA4
EXP4	.14400	.02500	.24300	.15100	1.76200	2.71100	1.43600	EXP4

BCUND	CARNE24	HUEVO4	LECHE4	HIGADO4	CORA4	SESOS4	RINO4	BCUND
BHUEVOS	.	.10000-	.	.	.	.	.	BHUEVOS
BLECHE	.	.	.10000-	.	.	.	.	BLECHE
BEMZA	.10000-	.	.	.	.	.	.	BEMZA
BLIVER	.	.	.	.10000-	.	.	.	BLIVER
BHEART	.	.	.	.	.10000-	.	.	BHEART
BBRAIN	.	.	.	.	.	.10000-	.	BBRAIN
BKIDNEY	.	.	.	.	.	.	.10000-	BKIDNEY
CALO4	.36700	.16300	.06000	.13600	.15300	.13400	.11500	CALO4
PROT4	.15200	.12900	.03400	.20000	.16800	.10800	.15300	PROT4
GRASAS4	.33400	.11500	.03300	.04500	.08800	.09700	.05000	GRASAS4
CALCIO4	.00700	.05400	.12000	.00900	.00800	.00800	.01300	CALCIO4
HIERRO4	.25000	.27000	.02000	.60000	.50000	.20000	.57000	HIERRO4
VITA4	.	1.10000	.15000	30.00000	.10000	.	1.00000	VITA4
RIBO4	.15000	.29000	.18000	3.20000	1.10000	.25000	2.60000	RIBO4
NIAC4	.29000	.01000	.01000	.90000	.45000	.29000	.53000	NIAC4
VITC4	.	.	.02000	.03000	.05000	.15000	.10000	VITC4
ISCL4	.73100	.77800	.16200	.95000	.94000	.60000	.90000	ISCL4
LISINA4	1.35100	.86300	.26800	1.45200	1.24900	.80000	1.20000	LISINA4
METYSIS4	.60400	.71700	.11400	.67700	.58100	.37200	.55000	METYSIS4
TREO4	.69700	.63400	.15300	.80000	.71400	.46000	.70000	TREO4
TRIP4	.17000	.18400	.04800	.27500	.17200	.11000	.15000	TRIP4
VALINA4	.76000	.84700	.19900	1.27300	.94700	.60000	.90000	VALINA4
EXP4	1.11400	1.19200	.17700	1.43600	1.11400	1.43600	1.11400	EXP4

BCUNC	LENGUA4	PESCA4	FOOD1	FOOD2	FOOD3	FOOD4	GROWTH	BCUNC
BTONGUE	.10000-	.	.	.	.	.	.	BTONGUE
BPESCA	.	.10000-	.	.	.	.	.	BPESCA
EXP1	.	.	1.00000-	.	.	.	.	EXP1
EXP2	.	.	.	1.00000-	.	.	.	EXP2
EXP3	.	.	.	.	1.00000-	.	.	EXP3
CALC4	.16500	.10000	.	.	.	.	.	CALC4
PROT4	.16500	.15200	.	.	.	.	.	PROT4
GRASAS4	.10300	.02000	.	.	.	.	.	GRASAS4
CALCIO4	.00900	.02100	.	.	.	.	.	CALCIO4
HIERRO4	.15000	.06000	.	.	.	.	.	HIERRO4
RIBC4	.36000	.09100	.	.	.	.	.	RIBC4
NIAC4	.28100	.25000	.	.	.	.	.	NIAC4
ISCL4	.94000	.90000	.	.	.	.	.	ISCL4
LISINA4	1.24900	1.71300	.	.	.	.	.	LISINA4
METYSIS4	.58100	.75900	.	.	.	.	.	METYSIS4
TREO4	.71400	.86100	.	.	.	.	.	TREO4
TRIP4	.17200	.21100	.	.	.	.	.	TRIP4
VALINA4	.94700	1.15000	.	.	.	.	.	VALINA4
EXP4	1.11400	2.43500	.	.	.	1.00000-	.	EXP4
COST1	.	.	1.00000	.	.	.	.02500-	COST1
COST2	.	.	.	1.00000	.	.	.04200-	COST2
COST3	.	.	.	.	1.00000	.	.04200-	COST3
COST4	.	.	.	.	.	1.00000	.05700-	COST4
TCOST	.	.	1.00000	1.00000	1.00000	1.00000	.	TCOST
INCHG	.	.	.	.	.	.	1.00000	INCHG

BCLNO	TRAN1	TRAN2	TRAN3	RCF	BOUND
MDERIJOL	•	•	•	30000.000	MDERIJOL
MUTOMATE	•	•	•	35000.000	MUTOMATE
MDTOMATE	•	•	•	30000.000	MDTOMATE
MUARRACA	•	•	•	35000.000	MUARRACA
MDARRACA	•	•	•	30000.000	MDARRACA
MUCEB	•	•	•	35000.000	MUCEB
MDCEB	•	•	•	30000.000	MDCEB
MUREMO	•	•	•	35000.000	MUREMC
MDREMO	•	•	•	30000.000	MDREMC
MUZANA	•	•	•	35000.000	MUZANA
MDZANA	•	•	•	30000.000	MDZANA
MUREPO	•	•	•	35000.000	MUREPC
MDREPO	•	•	•	30000.000	MDREPO
MULECH	•	•	•	35000.000	MULECH
MDLECH	•	•	•	30000.000	MDLECH
MUARVEJA	•	•	•	35000.000	MUARVEJA
MDARVEJA	•	•	•	30000.000	MDARVEJA
MUAJON	•	•	•	35000.000	MUAJON
MDAJON	•	•	•	30000.000	MDAJON
MUSOYA	•	•	•	35000.000	MUSOYA
MDSOYA	•	•	•	30000.000	MDSOYA
MUHUEVOS	•	•	•	35000.000	MUHUEVOS
MDHUEVOS	•	•	•	30000.000	MDHUEVOS
MULECHE	•	•	•	35000.000	MULECHE
MDLECHE	•	•	•	30000.000	MDLECHE
MUAVE	•	•	•	35000.000	MUAVE
MDAVE	•	•	•	30000.000	MDAVE
MUPORC	•	•	•	35000.000	MUPORC
MDPORC	•	•	•	30000.000	MDPORC
MUBOVINO	•	•	•	35000.000	MUBOVINO
MDBOVINO	•	•	•	30000.000	MDBOVINO
MUMAIZ	•	•	•	35000.000	MUMAIZ
MDMAIZ	•	•	•	30000.000	MDMAIZ
MUTRIGO	•	•	•	35000.000	MUTRIGO
MDTRIGO	•	•	•	30000.000	MDTRIGO
MUCEBADA	•	•	•	35000.000	MUCEBADA
MDCEBADA	•	•	•	30000.000	MDCEBADA
MUARROZ	•	•	•	35000.000	MUARROZ
MDARROZ	•	•	•	30000.000	MDARROZ
MUGUA	•	•	•	35000.000	MUGUA
MDGUA	•	•	•	30000.000	MDGUA
MUPALMA	•	•	•	35000.000	MUPALMA
MDPALMA	•	•	•	30000.000	MDPALMA
BCAFE	•	•	•	395.27000	BCAFE
BBANANO	•	•	•	401.55000	BBANANO
BPLAT	•	•	•	.20000	BPLAT
BOIL	•	•	•	27.87300-	BOIL
BPINA	•	•	•	.04400	BPINA
BCANA	•	•	•	2233.5950	BCANA
BPAPA	•	•	•	.03500	BPAPA
BERIJOL	•	•	•	2.63900	BERIJOL

POUNC	TRAN1	TRAN2	TRAN3	RCF	POUNC
BTOMATE	•	•	•	.00400	BTOMATE
BCEB	•	•	•	.02100	BCEB
BLECHE	•	•	•	1.28100-	BLECHE
BAVE	•	•	•	.09400-	BAVE
BBM1A	•	•	•	.62486	BBM1A
BBM2A	•	•	•	1.86400	BBM2A
BLIVER	•	•	•	.02848	BLIVER
BHEART	•	•	•	.01627	BHEART
BBRAIN	•	•	•	.00407	BBRAIN
BKIDNEY	•	•	•	.00651	BKIDNEY
BTONGUE	•	•	•	.02360	BTONGUE
BMAIZ	•	•	•	10.79200-	BMAIZ
BTRIGO	•	•	•	228.12700-	BTRIGO
BCEBADA	•	•	•	23.00000-	BCEBADA
BPESCA	•	•	•	52.91000-	BPESCA
CALC1	•	•	•	3868.5000	CALC1
PROT1	•	•	•	1112.5000	PROT1
GRASAS1	•	•	•	1109.0000	GRASAS1
CALCIC1	•	•	•	1245.0100	CALCIC1
HIERRO1	•	•	•	2360.0400	HIERRO1
VITA1	•	•	•	7697.5100	VITA1
RIBO1	•	•	•	2388.3600	RIBO1
NIAC1	•	•	•	2647.2900	NIAC1
VITC1	•	•	•	844.06000	VITC1
ISOL1	•	•	•	5415.9100	ISOL1
LISINA1	•	•	•	7805.3000	LISINA1
METYSIS1	•	•	•	6520.2700	METYSIS1
TREO1	•	•	•	4590.7800	TREO1
TRIP1	•	•	•	1780.7600	TRIP1
VALINA1	•	•	•	6504.7500	VALINA1
CALC2	•	•	•	4414.6400	CALC2
PROT2	•	•	•	1269.5600	PROT2
GRASAS2	•	•	•	1265.5600	GRASAS2
CALCIO2	•	•	•	1420.7800	CALCIO2
HIERRO2	•	•	•	2693.2300	HIERRO2
VITA2	•	•	•	8784.2200	VITA2
RIBO2	•	•	•	2725.5400	RIBO2
NIAC2	•	•	•	3021.0200	NIAC2
VITC2	•	•	•	963.22000	VITC2
ISOL2	•	•	•	6180.5100	ISOL2
LISINA2	•	•	•	8907.2200	LISINA2
METYSIS2	•	•	•	7440.7800	METYSIS2
TREO2	•	•	•	5238.9800	TREO2
TRIP2	•	•	•	2032.1700	TRIP2
VALINA2	•	•	•	7423.0600	VALINA2
CALC3	•	•	•	3838.1600	CALC3
PROT3	•	•	•	1113.7800	PROT3
GRASAS3	•	•	•	1100.3000	GRASAS3
CALCIO3	•	•	•	1235.2400	CALCIO3
HIERRO3	•	•	•	2341.5300	HIERRO3
VITA3	•	•	•	7637.1400	VITA3

RCUND	TRÁN1	TRAN2	TRAN3	RCF	9OUND
RIBO3	•	•	•	2369.6300	RIBO3
NIAC3	•	•	•	2626.5200	NIAC3
VITC3	•	•	•	837.44000	VITC3
ISCL3	•	•	•	5373.4300	ISCL3
LISINA3	•	•	•	7744.0800	LISINA3
METYS S3	•	•	•	6469.1300	METYSIS3
TREO3	•	•	•	4554.7700	TREO3
TRIP3	•	•	•	1766.8000	TRIP3
VALINA3	•	•	•	6453.7300	VALINA3
CALO4	•	•	•	3049.2900	CALC4
PROT4	•	•	•	876.91000	PROT4
GRASAS4	•	•	•	874.15000	GRASAS4
CALCIO4	•	•	•	981.36000	CALCIC4
HIERRO4	•	•	•	1860.2700	HIERRO4
VITA4	•	•	•	6067.4500	VITA4
RIBO4	•	•	•	1882.5900	RIBO4
NIAC4	•	•	•	2086.6800	NIAC4
VITC4	•	•	•	665.31000	VITC4
ISCL4	•	•	•	4269.0100	ISCL4
LISINA4	•	•	•	6152.4100	LISINA4
METYSIS4	•	•	•	5139.5100	METYSIS4
TREO4	•	•	•	3618.6100	TREO4
TRIP4	•	•	•	1403.6600	TRIP4
VALINA4	•	•	•	5127.2700	VALINA4
COST1	.43000-	•	•	4438.9070	COST1
COST2	•	.30100-	•	7563.7830	COST2
COST3	•	•	.18400-	9452.8220	COST3
COST4	.15000	.15000	.15000	13716.270	COST4
INCHG	1.00000	1.00000	1.00000		INCHG