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AGRICULTURE - COLOMBIA

ANALYTICAL WORKING DOCUMENT # 14

LINEAR PROGRAMMING ANALYSIS OF AGRICULTURAL PROCESSING ACTIVITIES

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A cada esfuerzo analítico que involucre a varios investigadores en diferentes instituciones y distintas oficinas se le presentan problemas difíciles relacionados con el intercambio de ideas que surgen del análisis y de la copilación de datos. Se ha iniciado esta Serie de Documentos de Trabajo con el fin de intercambiar información oportunamente con colaboradores. En vez de esperar hasta que los analisis hayan llegado a la etapa de convertirse en estudios "preliminares" para circulación, hemos decidido distribuir, lo más pronto posible, a un número muy restricto de colaboradores, estos datos como posible elementos de futures marcos análiticos y como resultados muy preliminares. Este sistema tiene la ventaja de permitir una revisión oportuna de los datos y un cambio de dirección, si fuera necesario, asi como tambien un intercambio de ideas. La obvia desventaja en esta Serie de Documentos es que se circula material que no ha sido corregido ni aprobado. Por lo tanto, los lectores de estos Documentos deben tener en cuenta su carácter completamente provisional. Esperamos con interés los comentarios y las sugerencias que pudieran surgir de la circulación y lectura de estos documentos.

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INTRODUCTION

In the early stages of development most LDC's with limited financial resources must decide if emphasis should be placed on agriculture and related industries or upon basic industry which requires little agricultural product as raw material. Undoubtedly, the physical natural resources endowments of each individual country are of prime importance in determining what path of development to choose. Where a region possesses high quality ores, mineral resources and entrepreneural skills, the development of heavy industry may be justified. On the other hand where a region lacks everything except agricultural resources, the path to higher improvement may be achieved through agriculture and agricultural processing industries.

In earliest working documents of the analysis of the Colombian Agricultural Sector Analysis, the agriculture-industrial complex was identified as being composed of four major sectors or components, namely: (a) agricultural primary production (including livestock, fishery and forestry); (b) agricultural processing industries; (c) agricultural inputs industries (those manufacturing fertilizer, pesticides and other inputs used by the primary activities; and (d) agricultural marketing and service entities (engage in the retail, wholesale, transportation, and storage of raw and processed agricultural products).

In this document a first attempt model of the Colombian Agricultural Processing Sector is presented. The analysis is confined to the agricultural processing activities and does not include interrelationships between the agro-industries and other major sectors of the economy.

The major objective of this analysis is to determine useful information on sectoral investment decisions for alternative policy objectives. This includes among others expansion of processing capacities

of specific agro-industries, selection of the most economically efficient [1] production technology, or short term credit requirements needed by the processor of agricultural raw materials.

Hopefully a refined version of this model may be incorporated as a component of a large model of the entire Colombian economy in which the interrelationships between the different sectors (components) of the model can be fully analyzed.

This document comprises 4 major sections as follows:

A. The Linear Programming Model, its Structure and Variants

B. Methodology and Procedures in Basic Data Derivation and Estimation.

C. Model Solutions - Comments and Recommendations

D. Appendices.

Section A.

The Linear Programming Model

General Description

The model is constituted by linear programming activities, each representing an average for all Colombian plants in a regional or national basis as well as alternative technologies for each particular industry of the Colombia Agricultural Processing Sector. [2] The production of these activities is constrained by several sets of restrictions (representing limited resources) namely; labor (trained labor in processing industries) and total urban economically active population (urban labor force), processing capacities, availability of

[1] In the sense of maximizing the "Objective Function" with the least use of available resources.

[2] For sector definition see General Working Document number 3E, Vol. I, pp. 5-7; Ricardo, Jose M.

raw materials (for 1968 only), working capital (for 1975 only) and markets. Foreign trade is restricted only to the export and import of agricultural processed products and to a few basic agricultural raw materials such as wheat and cacao beans which are essential to the operation of some agro-industries. Linear programming techniques (MPSX) are used to select the level of production for each activity which maximizes (subject to the above restrictions) some of the following objectives: employment (man-years) of trained labor, employment (man-years) of total economically active urban population, monetary payments to labor, return to capital and management, and value added.

Variants of the L.P. Model

The analysis is basically composed of three submodels or variants, brief descriptions of which are as follows:

COLPRI - This submodel is composed only of processing activities represented in the existing 1968 Colombian technology. The 1968 and 1975 versions of this submodel were, however, slightly differently formulated. COLPRI (1968) was designed to reproduce as closely as possible the economic conditions; i.e. production levels, agriculture raw material availability and trade patterns;of the Colombian Processing Sector existing in 1968; that is, it was tailored in order to minimize the degree of abstraction. COLPRI (1975) in addition, of course, to using the 1975 restrictions (RHS), allows for complete import substitution and unlimited availability of agricultural raw material.

COLPR 2 - In addition to Colombian technology, additional activities representing alternative technologies from other countries at different stages of development are introduced.

COLPR 3 - Includes the Colombian technology, the foreign alternative technologies, and a new set of investment activities representing expansion of existing processing capacities.

Both COLPR 2 and COLPR 3 are only run with the 1975 restrictions (RHS).

Model Structure

Activities [1]

Five types of activities comprised the variables of the model:

(1) Production Activities:

(a) commercial processing plants describing the average technology of domestic production in 1968.

(b) non-industrial or non-commercial activities describing production of processed products at the farm level, or at the household level, being produced by members of the family or by independent workers (non-registered establishments).

(c) alternative foreign activities.

(2) Investment activities, for expanding present processing capacity.

(3) External trade activities.

Production Activities

The output from the activities is measured in millions of dollars.[2] All processing activities have a one-year time frame. It is assumed that agricultural raw materials (imported or locally produced) and live

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[1] In order to avoid repetition we are not listing in this section the activity definitions. An industry description and the symbolic name (symbol) of each of the processing activities (Colombia and Foreign Technologies), trade activities and investment activities appear in tables C1 through C10 of Appendix C, as well as in the complete printout of the matrix, column by column shown in Appendix B.

[2] Converted at the rate of 17 Col. $=1 U.S. $

animals (cattle and hogs) could be processed in any establishment in the country. It is assumed that the output of most processing activities were composite commodities, i.e. produced and consumed in fixed proportion. Seasonal variations of any kind are not considered in the model. Production of seasonal industries; for example, the canning of fruits and vegetables, making of cheese and butter, and other processed products; is "annualized" by using average input-coefficient for the whole year (8-hour shift, 260 working days per year) rather than only for the seasonal months.

Processing activities are specified either at the national level or they may be region-specific, but in all cases with the same input-output coefficients (except for some of the labor coefficients), implying average national extraction rates, and average cost structure for all regions.

Alternative techniques of production from foreign countries are specified for almost all processing industries, representing different factor combinations or different levels of technology. Separate activities have been specified for the crushing of the major oilseeds in Colombia, namely soybeans, cottonseed, sesame seed and African palm. However, because of lack of disaggregation of the basic data (Dane: Industrial Census) all input-output coefficients are structurally the same except for the raw material and the extraction rates coefficients (different for each oilseed).

Activities representing the non-commercial production in Colombia of processed agricultural products were specified for seven industries (products). The production of these activities filled the gap between the total primary production of the agricultural raw material, and its utilization as major inputs by registered establishments of processing industries. This non-commercial or non-industrial production takes place at the farm and household level. . A detailed description of procedures and methodology used in calculating

the production of these activities is shown in Section B. While in reality part of the slaughter of livestock and processing of cheese and butter and other products take place at the farm level, no activities were specified for their respective non-industrial production. We hope that enough data in processed products which are manufactured at the farm level were collected in a recent agricultural cost of production survey carried out in Colombia during 1973. Hopefully, these activities will be included in our 1970 model.

Investment Activities

These activities simply state how much capital, [1] based on the existing Colombian technology in 1968, is needed to expand by one million of 1968 dollars worth of output the processing capacity of each individual industry. We assumed that all capital goods such as industrial machinery, electric motors, etc., which are not presently produced domestically have to be imported. Consequently the same amount of foreign exchange equal to the value of these fixed capital goods is required for the expansion of these activities.

Foreign Trade Activities

Export and import activities were represented in the 1968 model (COLPR 1) for only those traditionally trade agricultural processed commodities and for a few agricultural basic raw materials [2] which are essential to the processing sector. Both import and export activities were forced, at their actual 1968 level, [3]

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[1] How much medium and long-term credit is needed.

[2] These include imports of wheat and flour, cacao beans and some feedstuff material such as fish meal and exports of cigar-type tobacco.

[3] DANE ANUARIO de Comercio Exterior (1968 Foreign Trade Yearbook)

into the 1968 optimum solutions. For the 1975 submodels only exports were forced into the optimum solutions, thus allowing for import substitution for all traditionally imported agricultural processed products and basic raw agricultural materials.

All activities are defined in monetary units, i.e. 1 million U.S. 1968 dollars. (Colombian pesos were converted at the rate of 17 Col. $ = 1 U.S. $).

Constraints

Five basic sets or restrictions delimit the framework of the model. Of these restrictions, two of them- namely, the raw material availability and import requirements- were used only with the 1968 model, while they were relaxed for all model variants in 1975.

Regions

The fact that Colombia has a wide variety of climates is reflected in the diversity that characterizes its agriculture and indirectly the agricultural processing industries (sector).[1/] Consequently any model of the Colombian agriculture or of the agricultural processing sector which is intended to simulate these sectors as close to reality as possible should to some extent be regionalized.[2/] In this model a "partial" regionalization of the processing sector is initiated at this earliest attempt of the analysis. It is only partial in the sense that only one basic input- namely labor- was regionalized, leaving other resources

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1/ For further reference in the location of agro-industries see, General Working Document Number 3D, Part II, pp, 2-5; Ricardo, Jose M.

2/ Data gap inaccuracies and difficiencies and increasing computing costs are the major factors in limiting regionalization.

constrained at the national level. As mentioned before, activities representing the 1968 Colombia technology of each individual agro-industry have the same technical coefficients nationwide (for all regions). This simplification helps to keep the matrix down and reflecks the fact that regionalization although part of the model is not by far its main focus (objective), at least in this stage of the analysis. Eight regions were delineated for this model. The regional groupings were based on previous regionalization schemes by "Planeacion," the Colombian Planning Agency, and on the criteria of selecting specific contiguous Departamentos (States), based on the political administrative division of Colombia in 1964. All territories (Intendencias y Comisarias) were lumped together in one region. Table A1 shows Colombian population, area, and density by states and territories in 1964. Admitedly, this regionalization of Colombia is still very crude and must be restructured for further analytical models.[1/] The departamentos (states) composition of the eight regions is as follows: Atlantico (A): Atlantico, Bolivar, Cordoba, and Magdalena. Antioquia (B): Antioquia and Choco. Valle (C) Valle del Cauca. Cundinamarca (D): Cundinamarca including Bogota. North-East: Boyaca, Norte de Santander and Santander. Central (F): Caldas and Tolima. South (G): Cauca, Huila, and Narino. Territories (H): All Intendencias y Comisarias (see table A1). Table A2 shows total population and the non-agricultural economically active population by regions in 1968 and 1975.

Labor Constraints

Labor was the only basic input which was regionalized in the model. The total non-agricultural economically active population and the trained labor force, defined as those directly employed in agro-industries

1/ For additional information on Colombian agricultural regions, see Working Document Number 3D, Part II.

TABLE A1 , COLOMBIAN POPULATION, AREA, AND DENSITY BY SECTIONS, 1968

SECTIONS	SECTION NUMBER	POPULATION	AREA IN Km^2	INHABITANTS PER Km^2 (DENSITY)	SECTIONS	SECTION NUMBER	POPULATION	AREA IN Km^2	INHABITANTS PER Km^2 (DENSITY)
DEPARTAMENTOS (STATES):	Total	17,096,390	590,545	28.95	DEPARTAMENTOS (STATES):				
ANTIOQUIA	1	2,477,299	62,870	39.40	TOLIMA	16	841,424	23,325	36.07
ATLANTICO	2	707,406	3,270	216.39	VALLE del CAUCA	17	1,733,053	21,245	81.57
BOLIVAR	3	1,006,347	36,915	27.26	TERRITORIES 1/ :	Total	388,118	548,369	0.71
BOYACA	4	1,058,152	67,750	15.62	INTENDENCIAS:	Total	291,737	138,899	2.18
CALDAS	5	1,455,872	13,070	111.39	ARAUCA	20	24,148	23,490	1.03
CAUCA	6	607,197	30,495	19.91	CAQUETA	18	103,718	90,185	1.15
CORDOBA	7	585,714	25,175	23.27	GUAJIRA	21	147,140	20,180	7.29
CUNDINAMARCA	8	2,819,524	23,960	117.68	SAN ANDRES y PROVIDENCIA	19	16,731	44	380.25
CHOCO	9	181,863	47,205	3.85	COMISARIAS:	Total	96,381	414,470	0.23
HUILA	10	416,289	19,990	20.82	AMAZONAS	22	12,962	121,240	0.11
MAGDALENA	11	789,410	46,695	16.90	GUAINIA	23	3,602	78,065	0.05
META	12	165,530	85,770	1.93	PUTUMAYO	24	56,284	25,570	2.20
NARIÑO	13	705,617	31,045	22.73	VAUPES	25	13,403	90,625	0.15
NORTE de SANTANDER	14	534,486	20,815	25.68	VICHADA	26	10,130	98,970	0.10
SANTANDER	15	1,001,213	30,950	32.35	COLOMBIA	Total	17,484,508	1,138,914	15.35

SOURCE: DANE, CENSO NACIONAL de POBLACION, 1964

1/ This figure represents the combined totals for Intendencias and Comisarias.

2/ Resort islands in a small archipelago on Colombia's Caribbean coast, about 500 miles northwest of Cartagena.

TABLE A2, NON-AGRICULTURAL LABOR FORCE IN COLOMBIA, BY REGIONS, 1/ 1968 and 1975

Region	Symbol	Non-Agricultural Economically Active Population 2/		Symbol	Non-Agricultural Econ. Active Pop. of Trained Labor in Agro-Industries 3/		Total Population	
		1968	1975		1968	1975	1968	1975
A (Atlántico)	LA	604500	827000	LTA	22487	30764	3592000	4497200
B (Antioquia)	LB	525100	729600	LTB	19534	27141	3120000	3967400
C (Valle)	LC	337500	461600	LTC	12555	17172	2005200	2510300
D (Cundinamarca)	LD	568300	814000	LTD	21141	30281	3376700	4426300
E (North East)	LE	493800	660300	LTE	18369	24563	2934200	3590500
F (Central)	LF	432200	572100	LTF	16078	21282	2568200	3111300
G (South)	LG	326200	435400	LTG	12135	16197	1938400	2367500
H (Llanos & Territorios)	LH	108300	148300	LTH	4029	5517	643200	806500
N (National)	LN	3395900	4648300	LTN	126328	172917	20177900	25277000

Source: DANE, "Censo Nacional de Poblacion, 1968
CEDE- Perez Sarria, "Parametros Demograficos, 1970"
Suttor, Analytical Working Document #4

1/ Interpolated or extrapolated from data for 1965 and 1970 in Perez Sarria Parametros Demograficos.

2/ Projections based on ratios shown in Table 2 of Analytical Working Document #4, p. 8.

3/ Direct workers employed by all food industries, beverages, tobacco, textile and leather (except shoes), census 1964, p. 134.

in 1964,[1] were calculated by regions for 1968 and 1975. Therefore, there are two labor constraints for each region, in addition to the national labor force constraint. These restrictions simply state that the total non-agricultural labor and the total trained labor used by the regional processing activities cannot exceed available total labor and total trained labor forces in that region. Table A2 shows the total urban labor force and the trained labor forces by regions in 1968 and 1975. Undoubtedly the non-agricultural economically active population is a redundant resource in the sense that it does not bind any solution; however, this resource constraint was not left out of the model since one of the major objectives of the analysis is to determine the total employment generation capability of the processing sector. The labor utilized by the non-industrial processing activities was considered to be from other population outside the restrictions, since these activities operate at the farm level using agricultural labor force and at household level using workers assumed to be outside the urban economically active population. However, the total labor employed by these activities is not excluded from our macro accounting variables of total employment and labor payments.

Processing Capacity Constraints

Pre-specified processing capacity limits for each agro-industry constraints the solution level of the processing activities. Table A3 shows estimated capacities for the Colombian agro-industries in both physical units and in monetary terms (1968 U.S. $). The methodology used in deriving the processing capacities estimates is shown in Section B. The question as to what degree the shortage (excess) in processing capacity in the model is actually an underestimation (overestimation) of existing sector capacity in 1968 has to be

[1] Based on the 1964 Population Census.

TABLE A3, COLOMBIAN AGRICULTURAL PROCESSING CAPACITIES, 1968 AND 1975 1/

INDUSTRY DESCRIPTION	SYMBOL	VALUE IN THOUSANDS U.S. 1968 DOLLARS 2/	PHYSICAL UNITS IN THOUSANDS	UNITS
LIVESTOCK SLAUGHTER	PC103V	584648 3/		$ U.S.
LIVESTOCK SLAUGHTER	PC103P		2676960 3/	Head
MEAT PKG. & PROD.	PC104V	9905		$ U.S.
MEAT PKG. & PROD.	PC104P		8340	M.T.
MFG. PAST. MILK PROD.	PC105V	62195		$ U.S.
MFG. PAST. MILK PROD.	PC105P		428086	Liters
MFG. BUTTER & CREAM	PC106V	11941		$ U.S.
MFG. BUTTER & CREAM	PC106P		13253	M.T.
MFG. CHEESE	PC107V	6112		$ U.S.
MFG. CHEESE	PC107P		4147	M.T.
MFG. CASEIN & OTHER MILK PROD.	PC108V	200		$ U.S.
MFG. CASEIN & OTHER MILK PROD.	PC108P		1952	Liters
MFG. ICE CREAM & MILK SHERBET	PC109V	2680		$ U.S.
MFG. ICE CREAM & MILK SHERBET	PC109P		9447	M.T.
MFG. & PKG. COND. EVAP. DRY MILK	PC110V	17491		$ U.S.
MFG. & PKG. COND. EVAP. DRY MILK	PC110P		14085	M.T.
PKG. PRESERV. FRUIT & VEG. CANNING	PC111V	1367		$ U.S.
PKG. PRESERV. FRUIT & VEG. CANNING	PC111P		2268	M.T.
PREP. CANNING FRUITS & VEG. JUICES	PC112V	2191		$ U.S.
PREP. CANNING FRUITS & VEG. JUICES	PC112P		4468	M.T.
PREP. & PKG. JAMS, MARMALADES	PC113V	933		$ U.S.
PREP. & PKG. JAMS, MARMALADES	PC113P		2792	M.T.
PREP. & PKG SAUCES, ESCABECHE	PC114V	5126		$ U.S.
PREP. & PKG. SAUCES, ESCABECHE	PC114P		4806	M.T.
DEHYD. & FREEZING FRUITS & VEG.	PC115V	506		$ U.S.
DEHYD. & FREEZING FRUITS & VEG.	PC115P		1945	M.T.
PREP. & CANNING FISH, SARDINES	PC117V	2011		$ U.S.
PREP. & CANNING FISH, SARDINES	PC117P		4553	M.T.
PREP. & PKG. SHELLFISH	PC118V	2239		$ U.S.
PREP. & PKG. SHELLFISH	PC118P		1739	M.T.

TABLE A3, (cont.) COLOMBIAN AGRICULTURAL PROCESSING CAPACITIES, 1968 AND 1975 1/

INDUSTRY DESCRIPTION	SYMBOL	VALUE IN THOUSANDS U.S. 1968 DOLLARS 2/	PHYSICAL UNITS IN THOUSANDS	UNITS
RICE HULLING	PC121V	77884		$ U.S.
RICE HULLING	PC121P		409219	M.T.
COFFEE HULLING	PC122V	272641		$ U.S.
COFFEE HULLING	PC122P		356000	M.T.
MANUFACTURING OF CUCHUCOS	PC123V	1130		$ U.S.
MANUFACTURING OF CUCHUCOS	PC123P		8353	M.T.
WHEAT MILL (FLOUR)	PC124V	57589		$ U.S.
WHEAT MILL (FLOUR)	PC124P		347248	M.T.
CORN MILL, OTHER GRAINS	PC125V	24633		$ U.S.
CORN MILL, OTHER GRAINS	PC125P		331555	M.T.
BAKING WHITE BREAD	PC129V	49873		$ U.S.
BAKING WHITE BREAD	PC129P		136431	M.T.
BAKING CORNBREAD, MANDIOCA, OTHER	PC130V	1611		$ U.S.
BAKING CORNBREAD, MANDIOCA, OTHER	PC130P		8138	M.T.
BAKING COOKIES, PIES, SPONGE CAKE	PC131V	22838		$ U.S.
BAKING COOKIES, PIES, SPONGE CAKE	PC131P		46621	M.T.
FRIED POTATOES, CORNFLAKES, FLAKES	PC132V	2523		$ U.S.
FRIED POTATOES, CORNFLAKES, FLAKES	PC132P		3676	M.T.
SUGAR, REFINED AND OTHER	PC133V	87347		$ U.S.
SUGAR, REFINED AND OTHER	PC133P		1116444	M.T.
MFG. CHOCOLATE CANDY	PC135V	50912		$ U.S.
MFG. CHOCOLATE CANDY	PC135P		97063	M.T.
MFG. VEG. & ANIMAL LARD	PC136V	50135		$ U.S.
MFG. VEG. & ANIMAL LARD	PC136P		67906	M.T.
MFG. TABLE OIL, SAUCES, CONDIMENTS	PC137V	51702		$ U.S.
MFG. TABLE OIL, SAUCES, CONDIMENTS	PC137P		28065	M.T.
MFG. CORNSTARCH-YEAST-SPAG. PASTE	PC138V	30504		$ U.S.
MFG. CORNSTARCH-YEAST-SPAG. PASTE	PC138P		74148	M.T.
GROUND AND TOASTING OF COFFEE	PC139V	49344		$ U.S.
GROUND AND TOASTING OF COFFEE	PC139P		79814	M.T.
MFG. OTHER FOOD PROD., ANIMAL FOODS	PC141V	40024		$ U.S.
MFG. OTHER FOOD PROD., ANIMAL FOODS	PC141P		241747	M.T.

TABLE A3, (cont.) COLOMBIAN AGRICULTURAL PROCESSING CAPACITIES, 1968 AND 1975 1/

INDUSTRY DESCRIPTION	SYMBOL	VALUE IN THOUSANDS U.S. 1968 DOLLARS 2/	PHYSICAL UNITS IN THOUSANDS	UNITS
DIST. RECT. & MIXING ALCOHOLIC DR.	PC142V	77045		$ U.S.
DIST. RECT. & MIXING ALCOHOLIC DR.	PC142P		47758	Liters
WINE INDUSTRIES	PC143V	3699		$ U.S.
WINE INDUSTRIES	PC143P		6192	Liters
MFG. BEER & MALTS	PC144V	168817		$ U.S.
MFG. BEER & MALTS	PC144P		767689	Liters
MFG. CIGARS AND CIGARETTES	PC145V	110886		$ U.S.
MFG. CIGARS AND CIGARETTES	PC145P		2374000	N.
MFG. COTTON & GINNING	PC146V	55846		$ U.S.
MFG. COTTON & GINNING	PC146P		56846	M.T.
MFG. ROPE & CORDAGE	PC147V	11868		$ U.S.
MFG. ROPE & CORDAGE	PC147P			
LUMBER MILL	PC149V	6748		$ U.S.
LUMBER MILL	PC149P			
PLANING WOOD, WOOD FRAMES	PC150V	8354		$ U.S.
PLANING WOOD, WOOD FRAMES	PC150P			
MFG. WOODEN BOXES FOR PACKING	PC151V	1883		$ U.S.
MFG. WOODEN BOXES FOR PACKING	PC151P		3355	N.B.
MFG. CHIPBOARD & PRESSED BOARD	PC152V	13811		$ U.S.
MFG. CHIPBOARD & PRESSED BOARD	PC152P		17904	M^2
MFG. OF PARQUETS	PC153V	347		$ U.S.
MFG. OF PARQUETS	PC153P		69	M^2
MFG. CONSTRUCT. & INSTALL. BUILD. PROD.	PC155V	4446		$ U.S.
MFG. CONSTRUCT. & INSTALL. BUILD. PROD.	PC155P			
MFG. PULPWOOD, BAGS & OTHER FIBERS	PC156V	6469		$ U.S.
MFG. PULPWOOD, BAGS & OTHER FIBERS	PC156P		50208	M.T.
COFFEE HULLING	PC166V	119849		$ U.S.
COFFEE HULLING	PC166P		1265082	M.T.
MFG. SOFT DRINKS, BOTTLED WATER	PC167V	52100		$ U.S.
MFG. SOFT DRINKS, BOTTLED WATER	PC167P		946318	Liters
LEATHER PROCESSING & FINISHING	PC162V	80822		$ U.S.
LEATHER PROCESSING & FINISHING	PC162P		2017311	D^2
MFG. OF INEDIBLE FATS & OILS (AN & VEG)	PC164V	5426		$ U.S.
MFG. OF INEDIBLE FATS & OILS (AN & VEG)	PC164P		9571	M.T.

SOURCE: DERIVED FROM TABLE IV OF W.D. #3F AND TABLE 3 OF W.D. # 3D PART I.

Legend

N Equals Number in thousands
M.T. = Metric tons
N.B. = Number of boxes
M^2 = Square Meters
D^2 = Square Decimeters

1/ Processing capacities in 1975 are the same as in 1968, except Livestock Slaughter, (5 work days/week basis) which are as follows: 3,346,200 Head or 429,888,000 U.S. $.
2/ Converted from 17 Col. Pesos = 1 U.S. Dollar, 1968.
3/ Four work days/week basis

subject to further study. The capacity utilization at the industry level (3 or 4-digit)[1] was also not known, and some estimates at the industry group level (2-digits) were applied across the board for similar industries.[2]

Shortages of capacity are of much serious concern for those processing activities in which production can take place only in industrial plants per se. This is the case for sugar mills, cacao and oilseeds extraction facilities, etc. On the other hand, the slaughter of domestic animals and the making of butter and cheese can be carried out at the farm level with practically no investment and know-how.

Agricultural Raw Material Constraints

Because of the strong functional interaction (backward linkage) between processing industries and the primary agricultural production sector, agricultural raw material availability[3] was specified for the 1968 model. This restriction was specified only for those farm products which "must" be consumed or utilized in a processed form rather than as fresh or raw products. This includes all oilseeds and cacao beans which have to be crushed into oil; grain and cereals which have to be shelled, hulled and milled; sugar can which has to be ground; seed cotton which has to be ginned; tobacco which has to be cured, dried and later manufactured into cigarettes and cigars; feedstuffs which have to be mixed into balanced feeds; hides which have to be cured and processed into leather; and so forth. A complete list of the raw materials restrictions used for the 1968 COLPRI submodel is shown in table A4. For the 1975 submodels this constraint was left unrestricted for the following reasons:

1/ Based on the International Industrial Classification.

2/ See Table IV, Working Document 3F.

3/ Simply calculated as Production + Imports - Exports.

TABLE A4, AGRICULTURAL RAW MATERIAL AVAILABILITY CONSTRAINTS 1/, 1968

CONSTRAINT SYMBOL	DESCRIPTION OF PRINCIPAL AGRICULTURAL PRODUCT UTILIZED BY AGRO-INDUSTRIES	INDUSTRY DESCRIPTION	VALUE IN THOUSANDS U.S. 1963 DOLLARS 3/	PHYSICAL UNITS IN THOUSANDS (metric-except as noted)
AG103V	LIVE CATTLE	LIVESTOCK SLAUGHTER	370613 3/	
AG103P	LIVE CATTLE	LIVESTOCK SLAUGHTER		2986450 3/
AG121V	ROUGH RICE	RICE HULLING	82864 3/	
AG121P	ROUGH RICE	RICE HULLING		780000
AG122V	UNHULLED COFFEE	COFFEE HULLING	246884	
AG122P	UNHULLED COFFEE	COFFEE HULLING		570000
AG124V	WHEAT	WHEATMILL (FLOUR)	42791 2/	
AG124P	WHEAT	WHEATMILL (FLOUR)		353127 2/
AG129V	WHEAT FLOUR	BAKING WHITE BREAD	32570 2/	
AG129P	WHEAT FLOUR	BAKING WHITE BREAD		205072 2/
AG133V	SUGAR CANE	SUGAR, REFINED & OTHER	37526	
AG133P	SUGAR CANE	SUGAR, REFINED & OTHER		8620752
AG135V	CACAO BEANS	MFG. CHOCOLATE CANDY	17349	
AG135P	CACAO BEANS	MFG. CHOCOLATE CANDY		27930
AG136V	OILSEEDS	MFG. VEG. & ANIMAL LARD	37440 b/	
AG136P	OILSEEDS	MFG. VEG. & ANIMAL LARD		483460 b/
AG139V	GREEN COFFEE	GROUND & TOASTING OF COFFEE	249727	
AG139P	GREEN COFFEE	GROUND & TOASTING OF COFFEE		
AG144V	BARLEY & MEAT	MFG. BEER & MALTS	11391	
AG144P	BARLEY & MEAT	MFG. BEER & MALTS		598000
AG145V	TOBACCO	MFG. CIGARS & CIGARETTES	14173	
AG145P	TOBACCO	MFG. CIGARS & CIGARETTES		30889
AG146V	SEED COTTON	MFG. COTTON & GINNING	[illegible]	
AG146P	SEED COTTON	MFG. COTTON & GINNING		213158
AG147V	FIQUE	MFG. ROPE & CORDAGE	111373	
AG147P	FIQUE	MFG. ROPE & CORDAGE		32000
AG162V	UNCURED HIDES	LEATHER PROCESSING & FINISHING	26702	
AG162P	UNCURED HIDES	LEATHER PROCESSING & FINISHING		119458
AG164V	INEDIBLE TALLOW	MFG. OF INEDIBLE FATS & OILS	13028	
AG164P	INEDIBLE TALLOW	MFG. OF INEDIBLE FATS & OILS		107512
AG166V	CORN	CORN HULLING	68096	
AG166P	CORN	CORN HULLING		897392

Source: Derived from DANE, 1964 updated sample of 1968 Industrial Census
DANE, COMERCIO EXTERIOR 1968
Ricardo, Statistical Working Document #1, Table 1-A
Sattar, Analytical Working Document #4

1/ At prices paid by processing industries (purchase prices).

2/ Includes imported raw material or excludes exports of raw materials used by the processing sector.

3/ Same as producer prices.

b/
cotton seed	203400 MT	15674 $
soybean seed	111000 MT	12375 $
sesame seed	15060 MT	3818 $
African Palm seed	154000 MT	5573 $
	483460 MT	37440 $

3/ Unit of measurement for cattle is head.

(a) to avoid overestimation (underestimation) of the supplies of these agricultural raw products which may result in misleading activity level of the model solutions.

(b) to use the model itself as a mechanism for determining the 1975 agricultural raw material requirements of the processing sector, which in the case of these agricultural commodities represent the actual country needs to meet domestic and export requirements.

Table A4 shows the estimated 1968 supply of specified agricultural raw materials used by the Colombian processing sector.

Non-Industrial Production Constraints

These constraints simply state that some production of agricultural processed products invariably takes place at the farm or household level. Consequently, this output is produced outside of registered industrial establishments and its production is not recorded in the industrial censuses,[1] of either large or small industrial establishment.[2]

Seven constraints are represented in the model by equality equations (rows), which simply forced optimum solutions to meet the specified level of these constraints. Therefore, it is important to bear in mind that the commercial production data of some processing industries sometimes includes only part of the total national production of certain processed items and, in some instances, as in the case of "Panela" in Colombia, are completely excluded from the industrial statistics. Table A5 shows the 1968 and 1975 non-commercial

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1/ The Official Colombian Industrial Census carried out by DANE (The Official Statistical Agency of Colombia).

2/ DANE carried out two Censuses, one for large establishments, those which employed 5 or more workers, and one census for small plants with less than 5 workers.

production level (constraints) for seven major agricultural commodities which were imposed to the system. The 1968 level was simply determined by tracing back the raw material supplies in 1968 and subtracting the amounts utilized by the industrial plants. The 1975 constraints simply assume constant 1968 per capita production applied to projected 1975 population figure. Detailed information on procedures and calculations for each individual commodity are shown in Section B. For some additional information on data recollection of processing industries, the reader can refer to General Working Document No. 3C.

Foreign Trade Restrictions

In the 1968 models (COLPR1), exports and imports of agricultural processed products and of a few agricultural basic raw materials [1] are constrained at their actual 1968 level. Exports reflect the f.o.b. export value and imports their c.i.f. values from Anuario de Comercio Exterior (Colombia Trade Yearbook). Feedstuff by-products are exported (oilseed cakes) as well as imported (fishmeal) as was historically the case. For the 1975 variants of the model, only exports were forced into the solution at predetermined (projected) levels. The constraint of the exports at some "reasonable" levels was intended to prevent undue specialization in a few exportable products which occurs, for example, as a result of maximizing "foreign exchange" with unrestricted external markets. As mentioned before, imports are not forced into the 1975 optimum solutions, thus allowing for import substitution for all traditionally imported agricultural processed products and imported basic agricultural raw materials. [2]

[1] Principally wheat, cacao beans, and some animal feedstuffs.

[2] Principally wheat, cacao beans, and fishmeal.

Table A5. Non-Industrial Production[1] Constraints, 1968 and 1975

Constraint Name	Industry I/O #	Restriction Symbol	1968 Millions U.S. $	1975 Millions U.S. $
Non-Industrial Production of Milled Rice	121	NI121	32.44000	40.59500
" " " " Green Coffee	122	NI122	53.13600	66.49400
" " " " Wheat Bread	129	NI129	77.66900	97.19500
" " " " Crackers, Cake, etc.	131	NI131	14.63000	18.30300
" " " " Lint Cotton	146	NI146	66.89600	83.71400
" " " " "Panela"	133	NI133	66.00000	82.59200
" " " " Cigars	145	NI145	9.70600	12.14600

1/ Production from Farms, Households and Independent Workers (non-registered establishements)

Table A6. Foreign Trade Restrictions, 1968[1] and 1975

Constraint Name	Constraint Symbol	1968 Millions U.S. $	1975 Millions U.S. $
External Market for Green Coffee	EX122V	351.47400	378.10700
" " " Sugar	EX133V	14.90600	40.41000
" " " Lint Cotton	EX146V	28.05100	56.38000
" " " Beef	EX103V	3.08500	34.19600
" " " Feed by-products	EX141V	3.85400	14.99700
" " " Lumber	EX149V	3.71800	3.86300
" " " Cured Hides	EX162V	6.28900	6.98000
" " " Seashell Products	EX118V	2.99400	18.21100
" " " Unmanufactured Tobacco	EX145RV	5.05400	12.45500

1/ In addition, imports of processed products and essential agricultural raw materials were forced into the 1968 solutions; see Appendix, computer printout of columns and rows (restrictions in the model).

It is important to call the reader's attention to the fact that the model explicitly allows for the importation of raw material and supplies utilized in the production process of each processing activity. This is to say, the production activities are structurally provided with an input-output coefficient which specifies the proportion of raw material and supplies imported for each dollar of output produced by each processing industry. For example, the wheat flour processing activity has an input-output coefficient of 0.6243 in the row corresponding to "imported raw materials and supplies" and a coefficient of 0.60 in the row entitled "raw materials of agricultural origin." This indicates, as is the case in Colombia, that all or almost all of the agricultural raw material, namely wheat, utilized by this industry (activity) is imported. Thus, caution must be taken in analyzing the results of the 1968 solution in order to net out the duplicate counting of the imports and their direct foreign exchange repercussions in the Colombian trade balance. Table A6 shows Foreign Trade constraints for 1968 (exports and imports) and for 1975 (exports). The 1968 constraints, as previously mentioned, represent actual trade data expressed in monetary terms (U.S. 1968 dollars), whereas the 1975 restrictions are merely the writer's exports projection adjusted to represent 1968 dollar pri es. See Section B for procedures and calculations of 1975 restrictions.

Foreign Exchange Balance Equation

In the early formulation of this analysis a foreign exchange balance equation was specified in the model. This implied that the amount of foreign exchange used to pay for imported processed products and agricultural raw material utilized by processing activities must not exceed the amount of foreign exchange generated by the exports of the whole processing sector. Since at this earliest stage of the 1968 model, neither the

export nor import activities were forced [1] into the solution, the results were that, mainly due to the foreign exchange balance equation restriction, exports of important exportable commodities were at negligible levels or were non-existent.[2] This was the case of green coffee and lint cotton exports. In addition all import activities were at zero level. In other words, the export activities generate foreign exchange only enough to pay for the imported agricultural raw material and supplies. This inconsistency of the model was later modified, first by forcing both imports and exports into the 1968 solution and later by relaxing the foreign exchange restriction to become a free or unrestricted row. In this way, it will serve as an accounting device in determining the net foreign exchange produced by optimum solutions of the processing sector.

Working Capital Constraint

The working or operating capital coefficients of all processing activities were simply set equal to three months working capital requirements, or equivalent to 0.25 of one year cost requirements of all purchased inputs, including utilities and contracted work plus labor payments (including social security and other fringe benefits). Admitedly this across the board rule of thumb represents a crude estimate of the operating capital actually required by each individual industry. Some processing industries in general require relatively small investment in fixed assets, but their working capital requirements are substantially higher than other processing industries, because of the high raw material cost which usually must be paid for in cash upon receipt. For additional information on the general description and characteristics of the

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[1] Only upper limits were placed in both exports and imports.

[2] Since the trade activities do not have any technical coefficient in the rows corresponding to any of the objective functions they, of course, would not be in the basic of any optimum solution unless they are forced into it, either through a commodity balance equation or by requiring them to meet some maximum market constraints.

individual industry groups or segments, the reader is referred to General Working Document No. 3E, Vol. I. Total sector working capital requirements in 1968 were estimated from a value added maximization solution with unlimited working capital. The amount obtained was rounded to $365 millions (U.S.) and this figure was used as the base to derive the 1975 working capital constraints. Three short-term credit or working capital constraints were used for 1975 as follows: (1) assuming that only the estimated total amount of $365 millions used by the sector in 1968 would be available for 1975; (2) assuming the same per capita available capital estimated for 1968, and applying it to the projected 1975 population, resulting in an estimated $457 millions ($365 x growth factor of 1.2514), and (3) assuming a per capita income increase of 2 percent annually, and a sector average income elasticity of 0.5 resulting in an estimated capital restriction of $489 millions ($365 x growth factor of 1.3389).1/ This assumption implies that the size of the processing sector, as a whole is increasing proportionately greater than population growth because of more acceptance in the services provided in processed food.

Objective Functions and Sector Accounting Aggregates

Five objective functions were used with the different variants of the model. The maximization of value added, however, was only used as the pivotal objective function when alternative working capital were obtained. Other objective functions used were: employment of direct workers in production, measured in man-years (260 working-days); total employment of direct and indirect workers, including administrative and other auxiliary activities, measured in man-years; payments to labor factor, including all fringe benefits expressed in monetary terms; and returns to capital and management in monetary terms. The latter which is calculated as a residual component of the cost structure of each individual processing activity does also

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1/ Derived from Suttor, Analytical Working Document #4, pp. 10-16, and our market constraints estimates.

include indirect taxes. For certain processing industries, mainly manufacturing of tobacco and liquor products, caution should be taken in interpreting the, technical coefficients corresponding to this objective function in these activities since they all represent a high cost percentage largely due to heavy excise (revenue) taxes, which may lead to misleading conclusions.

There are several non-restricted rows in the model which served as a mechanism for measuring other macro variables or sector aggregates which may be very useful or facilitate auxiliary analyses. Among these, the model measures, at the sector level, installed capacity (H.P.) of electric motors, the total cost of supplies and packaging material, fixed capital requirements (at the base year technology), net foreign exchange generated by the sector, utilization of specific by-products endogenously produced by the sector and for "COLPR3" sub-model the additional long-term capital requirements needed for expanding processing capacities.

Since in any particular run of the model only one row is used as the objective function, the other four non-used objective functions represented by non-restricted rows remain in the model, serving as an accounting device in measuring the aggregate level of these variables.

Market Constraints

There is one market constraint for the output of each processing industry which put an upper limit on production. Market information for this model was estimated as close as possible for 1968, by using actual registered industrial production in 1968, adjusted to include output from small establishments (less than 5 workers).

Domestic consumption for 1968 was estimated simply by adding the adjusted commercial production figure

to the net trade as shown in table B3 of section B. Then the domestic consumption figure for seven processed commodities, was again adjusted to include the consumption of commodities processed at the farm and household level. See table B4 in section B.

Admittedly there are many difficulties and data discrepancies in estimating consumption data, since exports, imports and production are expressed at different price levels, that is, f.o.b., c.i.f., and at the producer level respectively. Besides, the level of aggregation of the commodity composition, of the output of each processing activity varies significantly from industry to industry, from a single processed commodity, e.g. hulled coffee or wheat flour, to a composite commodity formed by several related products such as chocolate and candy products or canned fruits and vegetables. This makes it practically impossible to make an accurate estimate of some processed commodities.

Domestic consumption in 1975 was projected based on the same assumptions and formula used in the analysis of the Colombia agricultural sector[1], which were the following:

(a) population growth rate of about 3.26 per annum

(b) a 2% annual rate of growth of real per capita income.

(c) income elacticity for agricultural processed products varying form 0 to 100.

However, for the purpose of this analysis four sets of income elasticities (E), applied to group products, were used as follows:

(a) E=0, for coffee and for all starchy food such as processed grains, bread, etc.

(b) E=0.5, for all canned and processed fruits and vegetables, oils, chocolate products and miscellaneous (n.e.s.) food products,

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[1] Suttor, Analytical Working Document #4, pp. 10-16.

(c) E=1.0, for all processed animal products, meats, dairy and fish products,

(d) E=0.5, for all non-food products (fiber, tobacco, etc.) and beverages and spirits.

Three growth factors to be used in the 1975 projection were obtained from the following formula:

$$C_{75}=C_{68}\ [1 + .0326 + E(.02)]^7$$

where

C_{75}= projected 1975 consumption

C_{68}= 1968 consumption

E= income elasticity

and .0326 and .02 correspond to the assumed annual rate of population growth, and real per capita income growth respectively. By substituting the three different income elasticities (E) in the above formula we obtained the following growth factors:

where E=0; g.f.=[1 + .0326 + 0(.02) = 1.2514

where E=0.5; g.f. =[1 + .0326 + .5(.02) = 1.3389

where E=1.0; g.f. =[1 + .0326 + 1.0(.02) = 1.4313

See table 7, section B for the estimated projected consumption for 1975.

Export market projection for 1975, as previously mentioned was estimated by simply projecting historical trends to the 1972 trade statistics (See table B1). Total market restrictions for 1975 were then obtained by simply adding domestic consumption and exports. This, of course, implies that the domestically processed product is a true substitute for the imported commodity. Admittedly, this is unrealistic, especially in the case of wheat products (hard or soft wheat flour) or tobacco types (imported mild cigarette type versus cigar-type tobacco grown in Colombia) and many other commodities. Market projections for 1975 assume complete import substitution as well as growth in domestic and external markets as shown in table B5.

Other Restrictions

In the early stage of the model formulation a commodity balance equation was specified for each processed commodity or agricultural raw material traded in the economy. These equations (rows) simply states that production plus imports equals the sum of the domestic and external markets. Since the model was estructurally constructed in monetary terms rather than in physical units, it would have been an insuperable statistical task, in a country like Colombia, with multiple exchange rates, differential exports taxes, a special tax in kind charged to coffee exports, etc. to accurately adjust all level of prices to a common denominator.

All of the original commodity balance equations were dropped from the first runs of the model, except for one row, accounting for the feedstuff by-products. This was done primarily because feeds' by-products were endogeneously produced as intermediate commodities (inputs) by the processing sector, of course, subject to predetermined extraction rate coefficients and to the level of production of related processing activities. However, in various runs of the 1968 submodel it was found that this restriction was binding the solution and that several activities were at much lower production level than their actual 1968 output. This restriction was then relaxed and converted to an unrestricted row serving as an accounting device, measuring the utilization of feed by-products. The use of commodity balance of equations will be more meaningful inna more comprehensive model which corporates the interrelation of the whole economy system and that expressed the commodity output of its activities in physical units rather than in monetary terms.

SECTION B

Procedures, Methodologies used in Data Derivation for the L. P. Matrix.

A considerable amount of a "specific" data is required in the construction of a linear programming matrix for the analysis of a sector. Hence, it was considered impractical to discuss in detail in the previous section all laborious aspects involved in the estimation of the activities coefficients and derivation of estimates for some of the restrictions. Therefore, this section is presented in this paper exclusively for those readers concerned with the procedures which are followed in deriving estimates of resource availability, market projections and other types of specific information required for L. P. models.

Activities Technical (Input/Output) Coefficients

The technical coefficients for the processing activities (Colombia technology) were originated from raw data of DANE 1968 updated sample of the 1964 Industrial Census in Colombia. This data was properly organized in General Working Document #B and #BA, showing itemized expenditures (cost) for each individual industry from which the input-output coefficient representing their respective proportion for each dollar of the industry output were ultimately derived. Since most of the industries are comprised of multiproduct establishments, they represent in general the actual cost structure of several products. For the cattle slaughter activity for which no Colombian data was available, the coefficients were simply derived by averaging out the coefficients of the technologies representing the U. S. Census and A. I. D. slaughter plants. The coefficients for the alternative foreign technologies are the same developed in General Working Document #E, Vol. I.[1/] Since the U. S. Census shows no data on fixed capital and horse power (H.P.) capacity of electric motors, the empty coefficients were filled with the corresponding coefficient

1/ Ricardo, J. M., General Working Document #E, Vol. I, "International Comparisons of Technology and Production Cost of Agricultural Processing Industries."

of the same industry from a comparable foreign technology.

For detailed explanatory notes on the compiled data on the alternative foreign technologies, the reader is referred to the above-mentioned General Working Document #3E, Vol. I. The technical coefficient matrix for all the activities of the model, showing their structural composition, is shown in Appendix B, PartII. We should at this point call the attention of the reader to the fact that the high "profit" coefficient in the spirit and wines activities is due to the fact that it includes excise taxes as well as high inventory cost in the aging process of wines and hard liquors.

Restrictions Estimates

In the early versions of the 1968 model five sets of restrictions were constraining the model, namely: raw material availability, total markets processing capacities and labor (both, total urban labor force, and trained labor in processing industries) and foreign trade (both imports and exports). In the 1975 runs, the raw material restrictions were left unconstrained as free rows and a working capital constraint derived from a 1968 run was included. Of these six different types of restrictions the estimation procedures of the working capital and of the labor constraints for 1975 required no further explanation, as they were fully explained in section 1.

Foreign trade constraints for the 1968 models, were actual exports, and imports as reported in the official Colombian trade statistics. The 1975 models allowed for complete import substitution, and the export market restrictions were derived from projections shown in table B1.

These projections were simply calculated as follows: preliminary Colombian official exports statistics (in dollars value) for 1972 were used as the base year for our projection. Then the annual rate of increase between 1968 and 1972 for the ten major Colombian exports of agricultural processed products were simply applied to the 1972 exports figures to obtain the projected exports for 1975 (in dollars). The projected 1975 exports (in 1975 dollars) were then adjusted to 1968 prices by assuming an annual rate of inflation (for the U.S. dollar) of 4 percent, or 1.31593 for the 7 years

TABLE B1. PROJECTED 1975 EXPORTS OF AGRICULTURAL PROCESSED PRODUCTS

Product or Commodity Group Description	Matrix Symbol	1968[1] $1000 U.S.	1972[2] 1000 U.S. $	Exports Increased from 1968 to 1972		Projected 1975[3] $1000 U.S. $	Exports-1975 Projection Adjusted to 1968 U.S. $ (1000)[4]
				Total % Increase	Annual Rate Increase		
green coffee	EX 122 V	351474	428711	21.97	5.09	497563	378107
sugar (refined and raw)	EX 133 V	14906	30895	106.97	19.90	53177	40410
raw (lint) cotton	EX 146 V	28051	48897	74.31	14.91	74192	56380
live cattle & beef	EX 103 V	1489(beef) 1596(live)	29271 10795	1198.73	5.88	45000 15000	34196 11399
feedstuff - oil cakes	EX 141 V	3854	9800	154.28	26.28	19735	14997
sawn timber	EX 149 V	3718	4445	19.55	4.57	5083	3863
cured hides & processed skins	EX 162 V	6289	7809	24.16	5.56	9185	6980
starches	EX 138 V	576	800est less1000	38.88	8.56	1024	778
frozen and/or prepared seashell	EX 118 V	2994	9827	228.22	34.60	23964	18211
unmanu. cigar-type tobacco	EX 145 V	5054	9900	95.88	18.30	16390	12455

[1]From DANE, Comercio Exterior 1968
[2]Estimated, from Colombia Today; Vol. 8, 1973.
[3]Projected at the annual rate prevailing during the 1968-1972 period
[4]Adjusted to 1968 dollars using an estimated 4% annual rate of inflation

period (1968-1975). For example, green coffee exports increased from 351,474 thousand U.S. dollars to 428,711 (000 U.S. $) in 1972 or a 21.97% increase in 4 years equal to a 5.09 annual rate of increase. The 1975 coffee export projection is equal to 428,711 (000 $) in 1972 $\times (1 + .0509)^3 = 428,711 \times 1.1606 = 497,563$ (000 $). Then adjusting this figure to 1968 U.S. $ we have $\frac{497,563}{1.31593} = 378,107$ (000 $) which is our external market constraint for 1975.

Processing Capacities Restrictions Estimation

The methodology and procedures used in estimating industrial capacities of major processing industries in Colombia were fully described in General Working Document #3[1/] and the estimated capacity figures were presented in Table IV of the above-mentioned publication. However, these estimates do not include the capacity-output of small plants (with less than 5 workers) which were not covered by the DANE Industrial Census. To adjust our previous figure to include the small plant capacities we employ the following procedure:

From Table 3 of General Working Document #3D, Part I[2/], using the number of employees per plant as our yardstick, we first estimate what proportions of the total industry output capacity is from small plants (those with less than 5 workers). Then we proportionally increase our previous capacity figure for large plants to obtain the total estimated capacity for all plants (small and large) of each individual industry. This procedure can be better illustrated by showing all of the steps followed in calculating the total capacity of the "meat processing and packing" industry (I/O #104).

1/ Ricardo, Jose M.; G. W. D. #3F. "Capacity output of Agricultural Processing Industries in Colombia, 1968. Methodology for Estimating Capacities."

2/ Ricardo, J. M. G. W. D. #3D, Part I, "Distribucion Geografica de los Establecimientos de Elaboracion de Productos Agropecuarios por Escala, en Colombia in 1968, p.

According to the Colombian Industrial Directory (Guia Industrial) the meat processing industry in 1968 was comprised of 45 plants of the following sizes: 15 plants with fewer than 5 workers; 14 plants employing 5-9 workers; 1 plant employing 10-14; 5 plants employing 15-19; 4 plants employing 20-24; 5 plants with 25-49, and 1 plant with 100-199. Using the number of workers as our yardstick for measuring size, and assuming instant returns to scale in the sense that the capacity of a plant employing 10 employees has double capacity of one employing only 5 or half capacity of one employing 20 workers and assuming that the midpoint of the range of the number of workers for each plant size category is the average used for each category size, We may now proceed to the following calculations:

(1) # Plants in each size category	(2) Range of # of Workers	(3) Midpoint (Average)	(4) Estimated Total # Workers Employed (1) × (3)	
15	5	3	45	
14	5-9	7	98	
1	10-14	12	12	
5	15-19	17	85	
4	20-24	22	88	
5	25-49	37	175	
1	100-199	150	150	
45			663	Total

The proportion of capacity output estimated for small plants is equal to $\frac{45}{663}\left(\frac{\text{workers employed by small plants}}{\text{total employed by industry}}\right) = 7\%$, and for the other plants, medium and large, 100% - 7% = 93%.

In Table IV of G. W. D. #3F, we estimated the capacity output (in metric tons) of the meat processing industry to be 7757 MT in 1968 for large and meduim sized plants (those with more than 5 workers). Then, if 7757 MT was only 93% of the processing capacity, the total industry capacity or $\frac{100\%}{31}$ is equal to $\frac{7757}{.93} = 8340$ MT which is our estimated physical

capacity for this industry, as shown in Table B2.

The constraints capacity for the model are expressed in monetary terms and are simply calculated by multiplying the estimated physical capacity (shown in column 2 of Table B2) by an estimated average price for the industry output. Thus the final capacity constraint estimate is equal to 8340 (000 kgs.) $\times \frac{20.19 \text{ (Colombian Pesos)}}{17 \text{ (17 Col \$ 1 U.S. \$)}} =$ 9.905 millions U.S. $. This is shown in column 3 of Table B2.

Non-Industrial Production Estimates

The non-industrial or non-commercial production of agricultural processed products, is for the purpose of this paper derived as the output produced outside of registered establishments either at the farm or household level, but without any relation to size of the establishment or producing unit per se. For the purpose of this analysis, the non-commercial production of only seven processed commodities was included in the model. The general procedure in estimating their output in 1968 as previously explained in section A was by simply tracing back the raw material supplies and subtracting the amounts utilized as input by all the industrial establishments. The specific production figure derivation for each commodity is shown below.

(1) green coffee - Figure 1, shows a diagram of the 1968 coffee crop in Colombia. This type of production supply and distribution chart is very useful in tracing back to the primary production data of raw material the different industrial and commercial channels of the agricultural processed commodities. The amount of coffee hulled in the industrial plants was increased to 356,984 MT to include the processing done in small plants (with 5 workers), consequently the farm coffee hulling was accordingly reduced to 96,404 MT in 1968.

(2) "Panela" (brown sugar) - the value of the farm production of "panela" a type of "brown sugar' which is processed at the farm level was simply calculated by multiplying the official production figure in MT by the average price in 1968 as follows: 660,000 MT x 1.70 Col. $/kg.= 1122 millions of Col. $ or 66 millions U.S. $.

TABLE B2 , ESTIMATION OF TOTAL CAPACITY OF THE AGRICULTURAL PROCESSING INDUSTRIES IN COLOMBIA INCLUDING SMALL ESTABLISHMENTS (EXPRESSED IN MONETARY TERMS, 1000 1968 U.S. DOLLARS)1/

INDUSTRY DESCRIPTION	I/O CODE	(1) PRICES OF AGRICULTURAL PROCESSED PRODUCTS (1968 COL. PESOS)2/	(2) ESTIMATED PHYSICAL CAPACITY 3/ (THOUSAND UNITS)	ESTIMATED CAPACITY IN MILLION 1968 DOLLARS OF OUTPUT 4/ (COLUMN 1 x COLUMN 2 ÷ 17)
LIVESTOCK SLAUGHTER	103			
MEAT PKG. & PROD.	104	20.19/kg	8340	9.905
MFG. PAST. MILK PROD.	105	2.47/L	428036	62.195
MFG. BUTTER & CREAM	106	15.32/kg	13253	11.941
MFG. CHEESE	107	25.05/kg	4147	6.112
MFG. CASEIN & OTHER MILK PROD.	108	2.4 /L	1952	.200
MFG. ICE CREAM & MILK SHERBET	109	4.82/kg	9447	2.680
MFG. & PKG. COND. EVAP. DRY MILK	110	21.11/kg	14085	17.491
PKG. PRESERV. FRUIT & VEG. CANNING	111	10.25/kg	2268	1.367
PREP. CANNING FRUITS & VEG. JUICES	112	8.34/kg	4468	2.191
PREP. & PKG. JAMS, MARMALADES	113	5.68/kg	2792	.933
PREP. & PKG. SUACES ESCABECHE	114	18.13/kg	4806	5.126
DEHYD. & FREEZING FRUITS & VEG.	115	4.43/kg	1945	.506
PREP. & CANNING FISH, SARDINES	117	7.50/kg	4558	2.011
PREP. & PKG. SHELLFISH	118	21.89/kg	1739	2.239
RICE HULLING	121	3.23/kg	409219	77.884
COFFEE HULLING	122	9.37/kg	491630	272.641
MANUFACTURING OF CUCHUCOS	123	2.30/kg	8353	1.130
WHEAT MILL (FLOUR)	124	2.82/kg	347248	57.589
CORN MILL, OTHER GRAINS	125	1.26/kg	331555	24.633
BAKING WHITE BREAD	129	6.21/kg	136431	49.873
BAKING CORNBREAD, MANDIOCA, OTHER	130	3.36/kg	8138	1.611
BAKING COOKIES, PIES, SPONGE CAKE	131	8.32/kg	16621	22.838
FRIED POTATOS, CORNFLAKES, FLAKES	132	11.67/kg	3676	2.523
SUGAR, REFINED AND OTHER	133	1.33/kg	1116444	87.347
MFG. CHOCOLATE CANDY	135	8.92/kg	97003	50.912
MFG. VEG. & ANIMAL LARD	136	12.49/kg	67906	50.135
MFG. TABLE OIL, SAUCES, CONDIMENTS	137	32.01/kg	28065	51.702
MFG. CORNSTARCH-YEAST-SPAG. PASTE	138	7.00/kg	74148	30.504

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TABLE B2 , ESTIMATION OF TOTAL CAPACITY OF THE AGRICULTURAL PROCESSING INDUSTRIES IN COLOMBIA INCLUDING SMALL ESTABLISHMENTS (EXPRESSED IN MONETARY TERMS, 1000 1968 U.S. DOLLARS)1/

INDUSTRY DESCRIPTION	I/O CODE	(1) PRICES OF AGRICULTURAL PROCESSED PRODUCTS (1968 COL. PESOS)2/	(2) ESTIMATED PHYSICAL CAPACITY 3/ (THOUSAND UNITS)	(3) ESTIMATED CAPACITY IN MILLION 1968 DOLLARS OF OUTPUT 4/ (COLUMN 1 x COLUMN 2 ÷ 17)
GROUND AND TOASTING OF COFFEE	139	10.51/kg	79014	49.344
MFG. OTHER FOOD PROD., ANIMAL FOODS	141	2.81/kg	243747	40.024
DIST. ROCT. & MIXING ALCOHOLIC DR.	142	27.12/L	47753	77.045
WINE INDUSTRIES	143	10.15/L	6192	3.699
MFG. BEER AND MALTS	144	3.71/L	767639	168.817
MFG. CIGARS AND CIGARETTES	145	.80/N	2374000	110.806
MFG. COTTON & GINNING	146	16.70/kg	56816	55.869
MFG. ROPE & CORDAGE	147	38.78/kg	5202	11.863
LUMBER MILL	149	5/	6/	6.718
PLAINING WOOD, WHITE FRAMES	150	5/	6/	8.354
MFG. WOODEN BOXES FOR PACKING	151	9.51/NB	3354	1.883
MFG. CHIPBOARD & PRESSED BOARD	152	13.11/M2	17904	13.811
MFG. OF PARQUETS	153	76.36/M2	69	.347
MFG. CONSTRUCT. & INSTALL. BUILD. PROD.	155	5/	6/	4.446
MFG. PULPWOOD, BAGS & OTHER FIBERS	156	2.19/kg	50208	6.469
CORN HULLING	166	1.61/kg	1265082	119.849
MFG. SOFT DRINKS, BOTTLED WATER	167	.91/L	818051	52.000
LEATHER PROCESSING & FINISHING	162	.71/D2	1847130	80.822
MFG. OF EDIBLE FATS & OILS (AN & VEG)	164	9.64/kg	9571	5.426

SOURCE: DERIVED FROM TABLE IV OF W.D. #3F AND TABLE 3 OF W.D. # 3D PART I.

1/ Employed less than 5 workers (not included in Dane Data)
2/ Derived from Dane 1968-Updated sample of the 1964 Industrial Census by dividing total value of output into total number of units produced by each industry. However due to the multi-product and by-products problem, some prices were adjusted to be more in line with actual market prices. (See Table B7)
3/ Adjusted to include production from small establishments.
4/ One U.S. dollar equals 17 Col. pesos.
5/ Not applicable due to the fact that the output of this industry was expressed in many product units.
6/ The out put of this industry was expressed in many product units not suitable to be aggregated in common units of measurement.

Legend
kg Equals Kilograms
L " Liters
G " Gallons
M " Linear meter
N " Number in thousands
M^2 " Square Meters
D^2 " Square Decimeters
NB " Number of Boxes

Note: The output of some of the agricultural industries which were reported in liquid measurements were 1 gallon (milk, cream, oil) Equals 4 kg; 1 liter Equals 1 kg.

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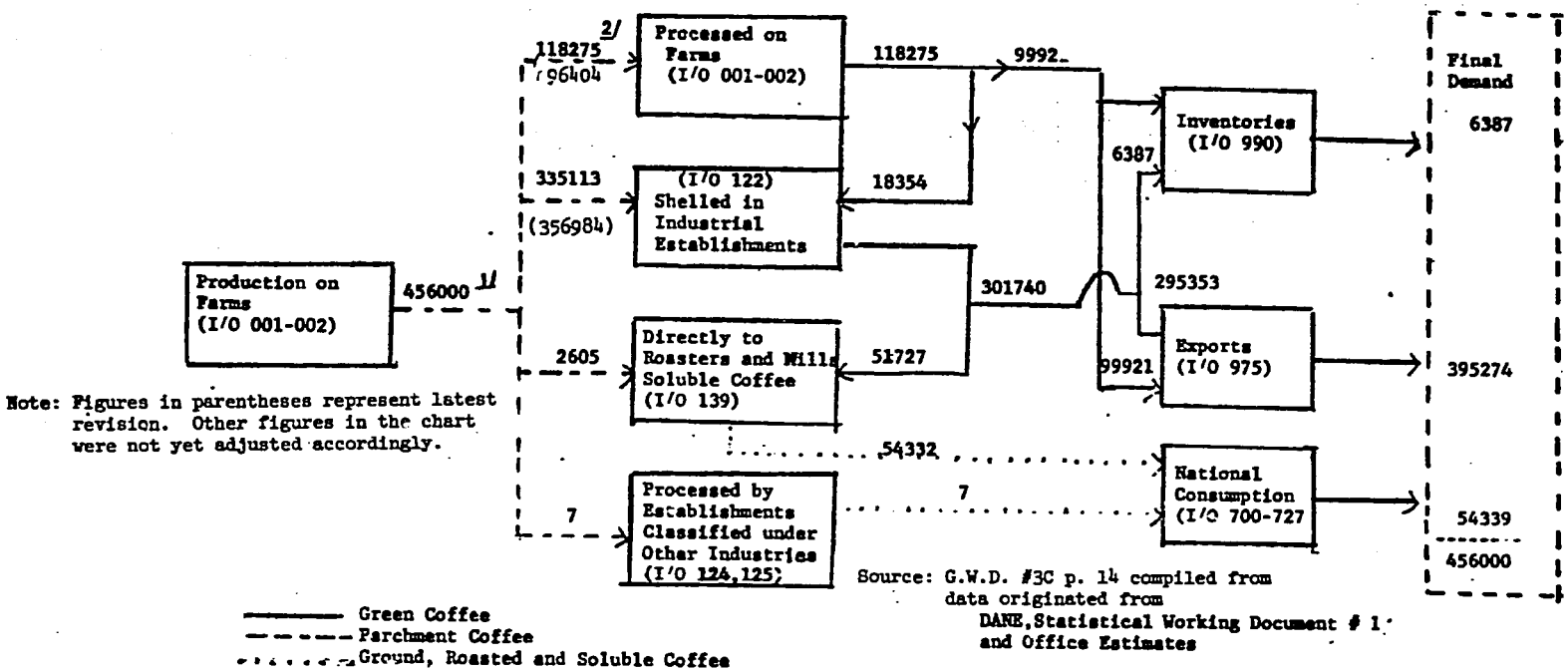
FigureB1: Diagram of the Movement of the 1968 Coffee Production in Colombia
(In Equivalent Metric Tons of Green Coffee)



Note: Figures in parentheses represent latest revision. Other figures in the chart were not yet adjusted accordingly.

Source: G.W.D. #3C p. 14 compiled from data originated from DANE, Statistical Working Document # 1 and Office Estimates

1/ 570000 MT of Parchment Coffee x 0.8 = 456000 MT Green Coffee

2/ 456000 - 335113 - 2605 - 7 = 118275
(356984) =(96404)

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(3) Rice- The non-commercial production of milled rice, was simply derived by substracting from the primary production data the amount of rice milled in registered industrial plants, including small plants (less than 5 workers).

Rough Rice production= 780,000 MT x .60 (conversion factor from rough to milled rice)

= 468000 MT of milled rice-297515 MT milled rice processed in registered plants

= 170485 MT produced at the farm level (in non-registered plants) which converted into monetary terms is as follows:

170,485 MT milled rice x 3.234 Colombia $/kg = 551.485 millions Colombia $ or 32.440 million U.S. $.

(4) Cotton- The same preceding procedure was used in estimating lint cotton farm production as follows:

seed cotton production = 339000 MT x .36 (conversion factor from seed cotton to lint cotton)

= 122040 MT of lint cotton-53959 MT processed in commercial registered plants

=68081 MT of lint cotton ginned at the farm level (in non-registered industrial plants).converted to monetary terms at an average unit price of $16.704 Col. $/kg is equal to 1137.237 million Col. $ or 66.896 millions U.S. $.

(5) Tobacco- In estimating the amount of raw (unmanufactured tobacco) consummed outside commercial establishments on being exported, the following steps were taken.

43000 MT = 1968 farm production

-8700 MT = Exports
35300 MT = Available for Domestic Used.
-22300 MT = Used by Commercial (Registered) plants for cigarrette and cigar manufacture.
13000 MT Difference for non-commercial uses of tobacco.

It was assumed that 13000 MT were utilized for cigar making by independent workers and tobacco growers using about 9 kg of raw tabacco per 1000 cigars, therefore $\frac{13000000 \text{ kg}}{9 \text{ kg}}$ = 1444,444 x 1000 = 1444.444 millions cigars

This figure was rounded to 1500 millions cigars, which at an estimated unit price of 11 Col. ¢/cigar = 165 million of Col. $ or 9.706 millions of U.S. $.

(6) and (7) Wheat Bread (Industry I/O #129) and cakes, crackers, cookies and other wheat products (Industry I/O 131).-The production of wheat bread, cakes, cookies, crackers make directly by housewives for home use and by independent workers in nonregistered bakeries, etc. were estimated as follows:

First the total flour and semolina which is utilized as input (raw materials) by each of the different food industries were added and converted to wheat equivalent basis. Then this amount was substracted from the total amount of wheat supplies (production + imports) available in Colombia in 1968. The difference in wheat equivalent was estimated to be total amount consumed at the household level in 1968. Then it was assumed that of this amount, converted again to flour basis, 90% were utilized for bread making, and the remainder 10% was used in the making of cakes, cookies, crackers, etc. Finally the apportioned amount of flour to each activity were converted to their final wheat products and these figures in physical units were then finally converted to Colombia pesos and U.S. dollars. All the conversion factors used were from the USDA/ERS, Statistical Bulletin No. 362 entitled "Conversion Factors and Weights and Measures".

Total Industry Utilization of wheat flour= 151554 MT, wheat equivalent basis

Total Wheat Flour Supplies (Production + Imputs=356117 MT, wheat equivalent basis

Difference=Utilized Directly by Households, etc=204563 MT, wheat equivalent basis

Assuming 90% is used for bread making and 10% for cakes and other products

For bread making (I/O#129) (non-industiral production) = 204567 x .90 = 184107 MT, W.E.B.; 184107 MT of wheat x .73 =134398 MT of flour; 134398 MT x 1.58 = 212349 MT of wheat bread

For cakes, crackers, etc (I/O #131) (Non-Industrial Production) = 204567 x .10 = 20456 MT, W.E.B.
20476 x .73 = 14933 MT of flour
14933 MT x 2.0 = 29866 MT of cakes, crakers, etc.

Then converting both physical quantities to monetary terms by multiplying them by the average unit price of their respective industry outputs we have our final non-industrial production constraints in monetary terms as follows:

Non-Industrial production of bread..... =212349 MT x 6.22 Col $/kg = 1320 millions of Col. $ = 77.669 millions of U.S. $

Non-Industrial production of cakes, crackers, etc =29866 MT x 8.33 Col. $/kg = 248.713 millions of Col. $ = 14.630 millions of U.S. $

Market Estimations

For most processed commodities with little or no participation in international trade the 1968 market constraints were derived from the estimated domestic consumption figures shown in tables B3 and B4. The 1975 market constraints were simply derived as shown in table B5, i.e. by multiplying the 1968 domestic consumption estimates by a growth factor, which derivation was previously explained in Section A. For those processed commodities which are internationally traded, total market restrictions were simply obtained by adding domestic consumptions and projected 1975 exports.

For the livestock slaughter industry, for which no data was available from the 1968 DANE sample of the 1964 Industrial Census, the 1968 market estimates were simply derived from the value of production data presented in Statistical Working Document #1 for cattle and hog production.

Value of Production of Cattle Production=5,755.277 millions Col. $

Value of Production of Hog Production = 545.140 millions Col. $

6,300.417 million Col. $

6300.417÷ 17 = 370.612 millions U.S. $

For the wood processing industries estimates of processing capacity were used as a proxy in determining the the market constraints, see table B6.

Table B3 Production, Imports, Exports and Consumption of Processed Commodities, Columbia, 1968

INDUSTRY NAME	I/O	PRODUCTION [1]		IMPORTS [2]		EXPORTS [2]		ESTIMATED DOMESTIC CONSUMPTION	
		1000 Pesos	1000 MT	1000 Pesos	1000 MT	1000 Pesos	1000 MT	1000 Pesos	1000 MT
LIVESTOCK SLAUGHTER	103	NA	NA	-	-	23947	2485	NA	NA
CARNE-ENVAS	104	122390	6063	2218	105	-	-	124608	6168
LECHE PASTE	105	768665	311220	191	31	-	-	768856	311251
MANTYCREMA	106	19650	9653	5990	201	-	-	25640	9836
QUESOS	107	75543	3015	215	13	697	76	75061	2952
LECHE OTROS	108	3406	1419	-	-	-	-	3406	1419
LECHEHELADO	109	33112	6868	-	-	-	-	33112	6868
LECHECONDPOL	110	216167	10240	13850	1254	4820	157	230017	11337
CONVFRUTLEG	111	16899	1649	321	35	128	16	17092	1668
JUGOFRUTLEG	112	27077	3248	2201	24	109	28	29169	3244
MERELADAS	113	11525	2030	7	1	687	133	11532	1898
SALSAS ENCU	114	63355	4394	220	5	76	15	63499	3484
ENCNGFRUTLEG	115	6257	1414	7197	899	366	12	13088	2301
ENVASPESCAD	117	24854	3314	5007	606			29861	3920
CRUSTMOLUSC	118	27670	1264	201	9			27871	1273
PILD-ARROZ	121	962386	297503	16	12	-	-	962402	297515
TRILL-CAFE	122	3369580	359596	-	-	-	-	3369580	359596
FAB CUCHUCO	123	5471	5869	-	-	-	-	5471	5869
MOL-TRIGO	124	711783	252450	4461	2183	-	-	716199	254633
MOL-OTROS	125	304357	241042	287	170	-	-	304644	124212
PANTRIGO	129	616293	99186	-	-	-	-	161073	99080
PANYUCAMAIZ	130	19894	5917	-	-	-	-	19894	5917
GALL-PASTEL	131	282239	33894	149	10	131	10	282257	33894
CEREAL-OTRO	132	31182	2672	2	Less	-	-	31184	2672
AZUCAR	133	1079519	811655			235313	285010	844206	526645
FAB-CHOCOLA	135	629219	70521	351	13	5703	774	623867	69760
MANTVEGATIM	136	619617	49368	602	72	-	-	620219	49440
ACEITE MESA	137	638997	19963	10181	1417	149	15	649029	21365
ALM-LEV-PAS	138	377022	59703	3457	2	8907	39815	374581	19890
CAFETOSTMOL	139	609846	58025	-	-	-	-	609846	58025
OTR-HUM-ANI	141	494658	175752	31353	6791	59635	50375	466376	132168
BEB ESPIRIT	142	952199	34720	32661	1204	-	-	984860	35924
IND-VINVICOL	143	45711	4502	12270	993	229	24	57752	5471
CERVEZA	144	2086413	558112	13965	291	-	-	2100378	558403

Table B3 Production, Imports, Exports and Consumption of Processed Commodities, Columbia, 1968

INDUSTRY NAME	I/O	PRODUCTION 1/		IMPORTS 2/		EXPORTS 2/		ESTIMATED DOMESTIC CONSUMPTION	
		1000 Pesos	1000 MT	1000 Pesos	1000 MT	1000 Pesos	1000 MT	1000 Pesos	1000 MT
IND-TABACO	145	1074493	21500	51637	4	269	7	1126130	21497
TEXT-HILTEJ	146	901164	53947	177	12	-	-	901341	53959
CORDAJE	147	191124	4739	19179	260	194	-	202758	4999
MAD-ASERRADO	149	61039	-	1	Less	57532	-	3508	-
MAD-ACEPILL	150	64770	-	-		6733	-	58037	-
MAD-CAJAS	151	17440	1820	-		426	-	17054	1828
MAD-PRENSAD	152	127473	9722	123	10	-	-	127596	9832
MAD-PARQUET	153	3225	38	-		50	-	3175	38
MAD-CONSTRU	155	34876	-	21	3	3761	-	31136	3
PULPAS	156	93483	42677	145322	663661	-	-	238805	106338
PAPEL	157	4444650	-	209464	59415	-	18118	635996	59415
CARTON	158	384510	-	45565	13044	954	-	429121	13044
PAPEL-BOLSA	159	251168	-	4181	1230	128157	-	127192	1230
CARTON-TERM	161	242665	-	5145	1348	-	-	247810	1348
CUERO-CURT	162	461897	673782	1625	159	97317	793	331242	572822
NEUMATICOS	163	-	-	-	-	17094	-	366145	673148
ACEITEMOALI	164	67059	6958	162226	67872	272	27	229013	74803
FABFOSFOROS	165	53560	-	-	-	-	-	53560	-
TRIPILAMAIZ	166	1238544	769282	-	-	-	-	1238544	769282
FAB-BEBIDAS	167	643868	686109	60	Less	-	-	643868	686109

NA:Not available

1/ DANE, 1968 Uplated sample of 1964 Industrial Census

2/ DANE, 1968 Foreign Trade Yearbook

TABLE B4 , COLOMBIAN ESTIMATED DOMESTIC MARKET CONSUMPTION, 1968

INDUSTRY DESCRIPTION	SYMBOL	UNITS	VALUE IN THOUSANDS COL. PESOS 1968 (1 U.S. Dol. = 17 Col. $)	PHYSICAL UNITS IN THOUSANDS	ADJUSTED TO INCLUDE NON-INDUSTRIAL (FARMS, ETC.) CONSUMPTION AND PRODUCTION IN 1968	
					000's COL. PESOS	000's UNITS
LIVESTOCK SLAUGHTER	M103V	$	6300417	-	N.A.	N.A.
LIVESTOCK SLAUGHTER	M103P		-		N.A.	N.A.
MEAT PKG. & PROD.	M104V	$	124608	-	N.A.	N.A.
MEAT PKG. & PROD.	M104P	M.T.	-	6168	N.A.	N.A.
MFG. PAST. MILK PROD.	M105V	$	768856	-	N.A.	N.A.
MFG. PAST. MILK PROD.	M105P	Liters	-	311251	N.A.	N.A.
MFG. BUTTER & CREAM	M106V	$	25640	-	N.A.	N.A.
MFG. BUTTER & CREAM	M106P	M.T.	-	9836	N.A.	N.A.
MFG. CHEESE	M107V	$	75758	-	N.A.	N.A.
MFG. CHEESE	M107P	M.T.	-	2952	N.A.	N.A.
MFG. CASEIN & OTHER MILK PROD.	M108V	$	3406	-	N.A.	N.A.
MFG. CASEIN & OTHER MILK PROD.	M108P	Liters	-	1419	N.A.	N.A.
MFG. ICE CREAM & MILK SHERBET	M109V	$	33112	-	N.A.	N.A.
MFG. ICE CREAM & MILK SHERBET	M109P	M.T.	-	6858	N.A.	N.A.
MFG. & PKG. COND. EVAP. DRY MILK	M110V	$	230017	-	N.A.	N.A.
MFG. & PKG. COND. EVAP. DRY MILK	M110P	M.T.	-	11494	N.A.	N.A.
PKG. PRESERV. FRUIT & VEG. CANNING	M111V	$	17092	-	N.A.	N.A.
PKG. PRESERV. FRUIT & VEG. CANNING	M111P	M.T.	-	1668	N.A.	N.A.
PREP. CANNING FRUITS & VEG. JUICES	M112V	$	29169	-	N.A.	N.A.
PREP. CANNING FRUITS & VEG. JUICES	M112P	M.T.	-	3244	N.A.	N.A.
PREP. & PKG. JAMS, MARMALADES	M113V	$	11532	-	N.A.	N.A.
PREP. & PKG. JAMS, MARMALADES	M113P	M.T.	-	2031	N.A.	N.A.
PREP. & PKG. SUACES ESCABECHE	M114V	$	63499	-	N.A.	N.A.
PREP. & PKG. SUACES ESCABECHE	M114P	M.T.	-	3484	N.A.	N.A.
DRHYD. & FREEZING FRUITS & VEG.	M115V	$	13088	-	N.A.	N.A.
DRHYD. & FREEZING FRUITS & VEG.	M115P	M.T.	-	2301	N.A.	N.A.
PREP. & CANNING FISH, SARDINES	M117V	$	29861	-	N.A.	N.A.
PREP. & CANNING FISH, SARDINES	M117P	M.T.	-	3920	N.A.	N.A.
PREP. & PKG. SHELLFISH	M118V	$	27871	-	N.A.	N.A.
PREP. & PKG. SHELLFISH	M118P	M.T.	-	1273	N.A.	N.A.

TABLE B4 , (cont.)

COLOMBIA' [illegible]

INDUSTRY DESCRIPTION	SYMBOL	UNITS	VALUE IN THOUSANDS COL. PESOS 1968 (1 U.S. Dol. = 17 Col. $)	PHYSICAL UNITS IN THOUSANDS	ADJUSTED TO INCLUDE NON-INDUSTRIAL (FARMS, ETC.) CONSUMPTION AND PRODUCTION IN 1968	
					000's COL. PESOS	000's UNITS
RICE HULLING	I1121V	$	962402	-	1513087	N.A.
RICE HULLING	I1121P	M.T.	-	297515	N.A.	468000
COFFEE HULLING	I1122V	$	3369580	-	1272085	N.A.
COFFEE HULLING	I1122P	M.T.	-	359596	N.A.	456000
MANUFACTURING OF CUCHUCOS	I1123V	$	5471	-	N.A.	N.A.
MANUFACTURING OF CUCHUCOS	I1123P	M.T.	-	5869	N.A.	N.A.
WHEAT MILL (FLOUR)	I1124V	$	716199	-	N.A.	N.A.
WHEAT MILL (FLOUR)	I1124P	M.T.	-	254633	N.A.	N.A.
CORN MILL, OTHER GRAINS	I1125V	$	304614	-	N.A.	N.A.
CORN MILL, OTHER GRAINS	I1125P	M.T.	-	241212	N.A.	N.A.
BAKING WHEAT BREAD	I1129V	$	616073	-	1936445	N.A.
BAKING WHEAT BREAD	I1129P	M.T.	-	99030	N.A.	311429
BAKING CORNBREAD, MANDIOCA, OTHER	I1130V	$	19894	-	N.A.	N.A.
BAKING CORNBREAD, MANDIOCA, OTHER	I1130P	M.T.	-	5917	N.A.	N.A.
BAKING COOKIES, PIES, SPONGE CAKE	I1131V	$	282257	-	530970	N.A.
BAKING COOKIES, PIES, SPONGE CAKE	I1131P	M.T.	-	33894	-	63760
FRIED POTATOES, CORNFLAKES, FLAKES	I1132V	$	31184	-	N.A.	N.A.
FRIED POTATOES, CORNFLAKES, FLAKES	I1132P	M.T.	-	2672	N.A.	N.A.
SUGAR, REFINED AND OTHER	I1133V	$	1079519	-	2201519	N.A.
SUGAR, REFINED AND OTHER	I1133P	M.T.	-	811655	N.A.	1186645
MFG. CHOCOLATE CANDY	I1135V	$	62386	-	N.A.	N.A.
MFG. CHOCOLATE CANDY	I1135P	M.T.	-	69760	N.A.	N.A.
MFG. VEG. & ANIMAL LARD	I1136V	$	620219	-	N.A.	N.A.
MFG. VEG. & ANIMAL LARD	I1136P	M.T.	-	49440	N.A.	N.A.
MFG. TABLE OIL, SAUCES CONDIMENTS	I1137V	$	649029	-	N.A.	N.A.
MFG. TABLE OIL, SAUCES CONDIMENTS	I1137P	M.T.	-	21365	N.A.	N.A.
MFG. CORNSTARCH-YEAST-SPAG. PASTE	I1138V	$	383488	-	N.A.	N.A.
MFG. CORNSTARCH-YEAST-SPAG. PASTE	I1138P	M.T.	-	19890	N.A.	N.A.
GROUND AND TOASTING OF COFFEE	I1139V	$	609846	-	N.A.	N.A.
GROUND AND TOASTING OF COFFEE	I1139P	M.T.	-	58025	N.A.	N.A.

TABLE B4 , (cont.)

COLOMBIAN ESTIMATED DOMESTIC MARKET SUPPLY, 1968

INDUSTRY DESCRIPTION	SYMBOL	UNITS	VALUE IN THOUSANDS COL. PESOS 1968 (1 U.S. Dol. = 27 Col. $)	PHYSICAL UNITS IN THOUSANDS	ADJUSTED TO INCLUDE NON-INDUSTRIAL (FARMS, ETC.) CONSUMPTION AND PRODUCTION IN 1968	
					000's COL. PESOS	000's UNITS
MFG. OTHER FOOD PROD., ANIMAL FOODS	10.41V	$	526011	-	N.A.	N.A.
MFG. OTHER FOOD PROD., ANIMAL FOODS	10.41P	M.T.	-	132168	N.A.	N.A.
DIST. REST. & MIXING ALCHOLIC BE.	10.42V	$	904860	-	N.A.	N.A.
DIST. REST. & MIXING ALCHOLIC DR.	10.42P	Liters	-	35924	N.A.	N.A.
WINE INDUSTRIES	10.43V	$	57752	-	N.A.	N.A.
WINE INDUSTRIES	10.43P	Liters	-	5471	N.A.	N.A.
MFG. BEER & MALTS	10.44V	$	2100378	-	N.A.	N.A.
MFG. BEER & MALTS	10.44P	Liters	-	558403	N.A.	N.A.
MFG. CIGARS AND CIGARETTES	10.45V	$	1126130	-	1354891	N.A.
MFG. CIGARS AND CIGARETTES	10.45P	M.T.	-	21497	N.A.	34397
MFG. COTTON & GINNING	10.46V	$	901341	-	2038578	N.A.
MFG. COTTON & GINNING	10.46P	M.T.	-	53959	N.A.	122040
MFG. ROPE & CORDAGE	10.47V	$	210109	-	N.A.	N.A.
MFG. ROPE & CORDAGE	10.47P	M.T.	-	N.A.	N.A.	N.A.
LUMBER MILL	10.49V	$	7182	-	N.A.	N.A.
LUMBER MILL	10.49P	M.T.	-	N.A.	N.A.	N.A.
PLANNING WOOD, WHITE FRAMES	10.50V	$	7620	-	N.A.	N.A.
PLANNING WOOD, WHITE FRAMES	10.50P	M.T.	-	N.A.	N.A.	N.A.
MFG. WOODEN BOXES FOR PACKING	10.51V	$	2052	-	N.A.	N.A.
MFG. WOODEN BOXES FOR PACKING	10.51P	M.T.	-	N.A.	N.A.	N.A.
MFG. CHIPBOARD & PRESSED WOOD	10.52V	$	14998	-	N.A.	N.A.
MFG. CHIPBOARD & PRESSED WOOD	10.52P	M.T.	-	N.A.	N.A.	N.A.
MFG. OF PARQUETS	10.53V	$	380	-	N.A.	N.A.
MFG. OF PARQUETS	10.53P	M.T.	-	N.A.	N.A.	N.A.
MFG. CONSTRUCT. & INSTALL. BUILD PROD.	10.55V	$	4446	-	N.A.	N.A.
MFG. CONSTRUCT. & INSTALL. BUILD PROD.	10.55P	M.T.	-	N.A.	N.A.	N.A.
MFG. PULPWOOD, BAGS & OTHER FIBERS	10.56V	$	10998	-	N.A.	N.A.
MFG. PULPWOOD, BAGS & OTHER FIBERS	10.56P	M.T.	-	N.A.	N.A.	N.A.
CORN HULLING	10.66V	$	1238544	-	N.A.	N.A.
CORN HULLING	10.66P	M.T.	-	769282	N.A.	N.A.
MFG. SOFT DRINKS, BOTTLED WATER	10.67V	$	643868	-	N.A.	N.A.
MFG. SOFT DRINKS, BOTTLED WATER	10.67P	Liters	-	686109	N.A.	N.A.
LEATHER PROCESSING & FINISHING	10.62V	$	463462	-	N.A.	N.A.
LEATHER PROCESSING & FINISHING	10.62P	M.T.	-	673148	N.A.	N.A.
MFG. OF EDIBLE FATS & OILS	10.64V	$	229013	-	N.A.	N.A.
MFG. OF EDIBLE FATS & OILS	10.64P	M.T.	-	74803	N.A.	N.A.

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TABLE E5 , COLOMBIA: ESTIMATED DOMESTIC MARKET CONSUMPTION, 1975

INDUSTRY DESCRIPTION	SYMBOL	UNIT	ESTIMATED 1968 DOMESTIC CONSUMPTION		ESTIMATED 1975 DOMESTIC CONSUMPTION					
					E=0; G.F.1/= 1.2514		E=0.5; G.F.1/= 1.3389		E=1.0; G.F.1/= 1.4313	
			000's Col. $	000's Units	000's Col. $	000's Units	000's Col. $	000's Units	000's Col. $	000's Units
LIVESTOCK SLAUGHTER	M103V	$	6300417	-	-	-	-	-	9017787	-
LIVESTOCK SLAUGHTER	M103P	Head	-		-	-	-	-	-	
MEAT PKG & PROD.	M104V	$	124608	-	-	-	-	-	178351	-
MEAT PKG & PROD.	M104P	M.T.	-	6168	-	-	-	-	-	5529
MFG. PAST. MILK PROD.	M105V	$	768856	-	-	-	-	-	1100463	-
MFG. PAST. MILK PROD.	M105P	Liter	-	311251	-	-	-	-	-	445494
MFG. BUTTER & CREAM	M106V	$	25640	-	-	-	-	-	36699	-
MFG. BUTTER & CREAM	M106P	M.T.	-	9836	-	-	-	-	-	14078
MFG. CHEESE	M107V	$	75758	-	-	-	-	-	108432	-
MFG. CHEESE	M107P	M.T.	-	2952	-	-	-	-	-	4225
MFG. CASEIN & OTHER MILK PROD.	M108V	$	3406	-	-	-	-	-	4875	-
MFG. CASEIN & OTHER MILK PROD.	M108P	Liter	-	1419	-	-	-	-	-	2031
MFG. ICE CREAM & MILK SHERBET	M109V	$	33112	-	-	-	-	-	47393	-
MFG. ICE CREAM & MILK SHERBET	M109P	M.T.	-	6668	-	-	-	-	-	9830
MFG. & PKG. COND. EVAP. DRY MILK	M110V	$	230017	-	-	-	-	-	329223	-
MFG. & PKG. COND. EVAP. DRY MILK	M110P	M.T.	-	11494	-	-	-	-	-	16227
PKG. PRESERV. FRUIT & VEG. CANNING	M111V	$	17092	-	-	-	22884	-	-	-
PKG. PRESERV. FRUIT & VEG. CANNING	M111P	M.T.	-	1668	-	-	-	2233	-	-
PREP. CANNING FRUITS & VEG. JUICES	M112V	$	29169	-	-	-	39054	-	-	-
PREP. CANNING FRUITS & VEG. JUICES	M112P	M.T.	-	3244	-	-	-	4343	-	-
PREP. & PKG. JAMS, MARMALADES	M113V	$	11532	-	-	-	15540	-	-	-
PREP. & PKG. JAMS, MARMALADES	M113P	M.T.	-	2031	-	-	-	2541	-	-
PREP. & PKG. SUACES ESCABECHE	M114V	$	63499	-	-	-	85019	-	-	-
PREP. & PKG. SUACES ESCABECHE	M114P	M.T.	-	3484	-	-	-	4665	-	-
DEHYD. & FREEZING FRUITS & VEG.	M115V	$	13088	-	-	-	17524	-	-	-
DEHYD. & FREEZING FRUITS & VEG.	M115P	M.T.	-	2301	-	-	-	3081	-	-
PREP. & CANNING FISH, SARDINES	M117V	$	29861	-	-	-	-	-	42740	-
PREP. & CANNING FISH, SARDINES	M117P	M.T.	-	3920	-	-	-	-	-	5611

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TABLE B5 , (cont.) COLOMBIA: ESTIMATED DOMESTIC MARKET CONSUMPTION, 1975

INDUSTRY DESCRIPTION	SYMBOL	UNIT	ESTIMATED 1968 DOMESTIC CONSUMPTION		ESTIMATED 1975 DOMESTIC CONSUMPTION					
					E=0; G.F.1/= 1.2514		E=0.5; G.F.1/= 1.3389		E=1.0; G.F.1/= 1.4313	
			000's Col. $	000's Units	000's Col. $	000's Units	000's Col. $	000's Units	000's Col. $	000's Units
PREP. & PKG. SHELLFISH	M118V	$	27871	-	-	-	-	-	39892	-
PREP. & PKG. SHELLFISH	M118P	M.T.	-	1273	-	-	-	-	-	1822
RICE HULLING	M121V	$	962402	-	1894478 2/	-	-	-	-	-
RICE HULLING	M121P	M.T.	-	297515	-	585655 2/	-	-	-	-
COFFEE HULLING	M122V	$	3569580	-	5347088 2/	-	-	-	-	-
COFFEE HULLING	M122P	M.T.	-	359596	-	570638 2/	-	-	-	-
MANUFACTURING OF CUCHUCOS	M123V	$	5471	-	-	-	7325	-	-	-
MANUFACTURING OF CUCHUCOS	M123P	M.T.	-	5869	-	-	7858	-	-	-
WHEAT MILL (FLOUR)	M124V	$	716199	-	896251	-	-	-	-	-
WHEAT MILL (FLOUR)	M124P	M.T.	-	254633	-	318648	-	-	-	-
CORN MILL, OTHER GRAINS	M125V	$	304644	-	381232	-	-	-	-	-
CORN MILL, OTHER GRAINS	M125P	M.T.	-	241212	-	301853	-	-	-	-
BAKING WHEAT BREAD	M129V	$	616073	-	2423267 2/	-	-	-	-	-
BAKING WHEAT BREAD	M129P	M.T.	-	99080	-	389722 2/	-	-	-	-
BAKING CORNBREAD, MANDIOCA, OTHER	M130V	$	19894	-	24895	-	-	-	-	-
BAKING CORNBREAD, MANDIOCA, OTHER	M130P	M.T.	-	5917	-	7405	-	-	-	-
BAKING COOKIES, PIES, SPONGE CAKE	M131V	$	282257	-	-	-	710916 2/	-	-	-
BAKING COOKIES, PIES, SPONGE CAKE	M131P	M.T.	-	33894	-	-	-	853682/	-	-
FRIED POTATOES, CORNFLAKES, FLAKES	M132V	$	31184	-	-	-	41752	-	-	-
FRIED POTATOES, CORNFLAKES, FLAKES	M132P	M.T.	-	2672	-	-	-	3578	-	-
SUGAR, REFINED AND OTHER	M133V	$	1079519	-	-	-	2460510 2/	-	-	-
SUGAR, REFINED AND OTHER	M133P	M.T.	-	811655	-	-	-	1484967 2/	-	-
MFG. CHOCOLATE CANDY	M135V	$	623867	-	-	-	927282	-	-	-
MFG. CHOCOLATE CANDY	M135P	M.T.	-	69760	-	-	-	93402	-	-
MFG. VEG. & ANIMAL LARD	M136V	$	620219	-	-	-	830411	-	-	-
MFG. VEG. & ANIMAL LARD	M136P	M.T.	-	49440	-	-	-	66195	-	-
MFG. TABLE OIL, SAUCES CONDIMENTS	M137V	$	649029	-	-	-	868985	-	-	-
MFG. TABLE OIL, SAUCES CONDIMENTS	M137P	M.T.	-	21365	-	-	-	28606	-	-
MFG. CORNSTARCH-YEAST-SPAG. PASTE	M138V	$	383488	-	479897	-	-	-	-	-
MFG. CORNSTARCH-YEAST-SPAG. PASTE	M138P	M.T.	-	19890	-	24890	-	-	-	-

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TABLE B5 , (cont.)

COLOMBIA: ESTIMATED DOMESTIC MARKET CONSUMPTION, 1975

INDUSTRY DESCRIPTION	SYMBOL	UNIT	ESTIMATED 1968 DOMESTIC CONSUMPTION		ESTIMATED 1975 DOMESTIC CONSUMPTION					
					E=0; G.F.1/= 1.2514		E=0.5; G.F.1/= 1.3339		E=1.0; G.F.1/= 1.4313	
			000's Col. $	000's Units	000's Col. $	000's Units	000's Col. $	000's Units	000's Col. $	000's Units
GROUND AND TOASTING OF COFFEE	M139V	$	609846	-	763161	-	-	-	-	-
GROUND AND TOASTING OF COFFEE	M139P	M.T.	-	58025	-	72612	-	-	-	-
MFG. OTHER FOOD PROD., ANIMAL FOODS	M141V	$	526011	-	-	-	704276	-	-	-
MFG. OTHER FOOD PROD., ANIMAL FOODS	M141P	M.T.	-	132168	-	-	-	176960	-	-
DIST. RECT. & MIXING ALCOHOLIC DR.	M142V	$	984860	-	-	-	1318629	-	-	-
DIST. RECT. & MIXING ALCOHOLIC DR.	M142P	Liter	-	35924	-	-	-	48099	-	-
WINE INDUSTRIES	M143V	$	57752	-	-	-	77324	-	-	-
WINE INDUSTRIES	M143P	Liter	-	5471	-	-	-	7325	-	-
MFG. BEER & MALTS	M144V	$	2100378	-	-	-	2812196	-	-	-
MFG. BEER & MALTS	M144P	Liter	-	558403	-	-	-	747646	-	-
MFG. CIGARS AND CIGARETTES	M145V	$	1126130	-	-	-	1814064 2/	-	-	-
MFG. CIGARS AND CIGARETTES	M145P	M.T.	-	21497	-	-	-	28782	-	-
MFG. COTTON & GINNING	M146V	$	901341	-	-	-	2729452 2/	-	-	-
MFG. COTTON & GINNING	M146P	M.T.	-	53959	-	-	-	163399	-	-
MFG. ROPE & CORDAGE	M147V	$	210109	-	-	-	281315	-	-	-
MFG. ROPE & CORDAGE	M147P	M.T.	-	N.A.	-	-	-	-	-	-
LUMBER MILL	M149V	$	7182	-	-	-	-	-	10280	-
LUMBER MILL	M149P	M.T.	-	N.A.	-	-	-	-	-	N.A.
PLANTING WOOD, WHITE FRAMES	M150V	$	7620	-	-	-	-	-	10907	-
PLANTING WOOD, WHITE FRAMES	M150P	M.T.	-	N.A.	-	-	-	-	-	N.A.
MFG. WOODEN BOXES FOR PACKING	M151V	$	2052	-	-	-	-	-	2937	-
MFG. WOODEN BOXES FOR PACKING	M151P	M.T.	-	N.A.	-	-	-	-	-	N.A.
MFG. CHIPBOARD & PRESSED WOOD	M152V	$	14998	-	-	-	-	-	21467	-
MFG. CHIPBOARD & PRESSED WOOD	M152P	M.T.	-	N.A.	-	-	-	-	-	N.A.
MFG. OF PARQUETS	M153V	$	380	-	-	-	-	-	544	-
MFG. OF PARQUETS	M153P	M.T.	-	N.A.	-	-	-	-	-	N.A.
MFG. CONSTRUCT. & INSTALL. BUILD PROD.	M155V	$	4446	-	-	-	-	-	6364	-
MFG. CONSTRUCT. & INSTALL. BUILD PROD.	M155P	M.T.	-	N.A.	-	-	-	-	-	N.A.
MFG. PULPWOOD, RAGS & OTHER FIBERS	M156V	$	10998	-	-	-	-	-	15741	-
MFG. PULPWOOD, RAGS & OTHER FIBERS	M156P	M.T.	-	N.A.	-	-	-	-	-	15741
CORN HULLING	M166V	$	1238544	-	1549913	-	-	-	-	-
CORN HULLING	M166P	M.T.	-	769282	962879	-	-	-	-	-
MFG. SOFT DRINKS, BOTTLED WATER	M167V	$	643868	-	-	-	862075	-	-	-
MFG. SOFT DRINKS, BOTTLED WATER	M167P	Liter	-	686109	-	-	-	918631	-	-
LEATHER PROCESSING & FINISHING	M162V	$	463462	-	-	-	490232	-	-	-
LEATHER PROCESSING & FINISHING	M162P	M.T.	-	673148	-	-	-	901278	-	-
MFG. OF INEDIBLE FATS & OILS	M164V	$	229013	-	-	-	306626	-	-	-
MFG. OF INEDIBLE FATS & OILS	M164P	M.T.	-	74803	-	-	-	74803	-	-

1/ G. F. stand for growth factor, see pages 24-25 for the assumptions made and the actual calculations of the three hypothesized growth factors.

2/ Includes estimated non-industrial consuption and production for 1975.

TABLE B6 MARKET CONSTRAINTS FOR WOOD PROCESSING INDUSTRIES, 1968 and 1975

Industry Description	I/O Code	1968 Processing Capacity $1000 U.S. $	1968 Adjusted Production (incl. exp)	1968 Exports 1000 U.S. $	Estimated[1] 1968 Market	1974 Market Estimates[3]	Projected 1975 Exports 1000 U.S. $
Lumber Mill	149	6748	3591	3384	7182	10289	3863
Planing wood, white frames	150	8354	3800	396	7620	10907	-
Mfg. wooden boxes for packing	151	1883	1026	25	2052	2937	-
Mfg. chipboard & pressed board	152	13811	7499	-	14998	21467	-
Mfg. of parquets	153	347	190	-	380	544	-
Mfg., construct., & install. build. prod.	155	4446	2052	221	4446[2]	6364	-
Mfg. pulpwood, bags & other fibers	156	6469	5499	-	10998	15741	-

[1]Simply estimated at twice the registered industrial production reported on the DANE 1968 updated sample of the 1964 Inustrial Census.

[2]Processing capacity was used as a proxy for the market constraint.

[3]Estimated by applying a growth factor (1.4313, (i.e. considering income elasticity (E) of wood products = 1.0: population growth of 3.26 annual and real per capita income increase at 2% rate annually) to the 1968 domestic market.:

Table 87 Colombia: Prices of 1)Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities

I/O#	Industry Name	Agricultural Raw Materials	Columbia 1968 Pesos $ Price of Major Agricultural Raw Products Paid by Industries	Columbia 1968 Pesos $ Prices of Major Processed Products and By-Products at F.O.B. Plant
103	Cattle & Hog Slaughter	Live cattle		Pork=21.73-kg-Beef liver=18.32kg Beef=1st 18.32kg; 2nd 15.33 kg
104	Prep. of Meat Products	Meat beef & pork	Beef (8.81 kg pork) 12.59 kg (9.13 kg) 11.64 kg	Ham=33.06 kg; other cold meats=18.43 kg Sausage and triped meats=18.48kg
105	MFG Pasteurized Milk	Milk	Fresh milk 1.56 L Milk (skim)#Fresh 0.97 L	Pasteurized milk=1.96 kg
106	MFG Butter & Cream	Milk	Cream 7.74 kg Dried 15.02 kg	Butter=15.32 - 18.55 kg Cream=14.80 - 7.58 kg
107	MFG Cheeses	Milk	Fresh milk 1.24 L Dried milk	Cured cheese=15.36 kg White cheese=7.37 kg
108	MFG Caseing other milk Products	Milk	Fresh milk 1.80 L	Yogurt, kumis 2.4 - 4.0kg
109	MFG Icecream & Milk Sherbert	Milk	Fresh milk 1.61 L N.F.D. 11.96kg Dried 13.02kg	Icecream=4.70 kg
110	MFG Condensed milk, evap. milk & Dry milk	Milk	Dried 12.77kg, Skim Fresh 1.30 L milk 0.75 L	Condensed=12.30 kg Dried whole milk=28.0 kg
111	Pkg. & Preserved Fruits & Vegetables Canning	Fruit & Vegetables Peas & Olives	Arveja 5.52kg;Olives (imported) Fresa.....fresh 14.09kg	Legumbres (canned)=11.43kg
112	Prep. & Canning Fruits & Vegetables (juices)	Fruits & Vegetables Tomato	Fresh, Tomatoes 0.68kg	Jugos y Nectares=8.8kg - 8.33kg

Table B7 Columbia: Prices of 1) Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities

I/O#	Industry Name	Agricultural Raw Materials	Columbia 1968 Pesos $ Price of Major Agricultural Raw Products Paid by Industries	Columbia 1968 Pesos $ Prices of Major Processed Products and By-Products at F.O.B. Plant
113	Prep. & Pkg. Jams & Marmalades	Fruits & Vegetables guavas	Fresh Tomatoes 0.96kg Guava, fresh 0.80kg	Jaleas y mermeladas 13.33 - 11.84kg
114	Prep. & Pkg. Sauces, Escabeche & Pickles	Fruits & Vegetables onions, tomatoes	Fresh tomatoes 0.87kg onions 2.70kg	Salsa de Tomate-16.55 - 11.88kg
115	Dehydration & Freezing Fruits & vegetables	Fruits & Vegetables cocos, mani	Coco 1.28H Mani (shelled) 6.76kg	Pasta de Tomate-13.02 - 12.45kg
117	Prep. & canning Fish & Sardines	Sardines	Fish-1.35	Sardines-11.0 - 8.81; All canned fish-6.20
118	Seashell Prep.	Mollus	Shrimp-8.41kg Shrimp & others 17.80kg	Canned shrimp-25.85kg Frozen Lobster & other-15.87kg
121	Rice Hulling (Milling)	Rice	Rice (rough) 1.70 - 1.75kg	Arroz Trillado 3.37kg - 3.17kg Granza-1.19kg; Bran-0.82; Grits-1.50kg Ave. of By-0.88kg
124	Wheat Flour	Wheat	Wheat imported-2.12kg Wheat total-2.06	Flour-2.96 Bran 0.78kg Ave. (All)-2.45kg
125	Corn Meal, Other Mill Products	Corn & Grains	Maize-1.40kg Rice 1.80kg Grains 1.64kg Cebada P. 1.58kg	Corn Meal-2.51kg; Grits-1.90kg Bran-1.20kg Ave. (All)-1.93kg
132	Fried potatoes, corn flakes, etc.	Potatoes, cereals	Papa 1.10kg	
141	MFG Other Food Products & Feed	Fish meal, cakes By-products	corn-1.39kg; Millo 1.13kg Soya cake-1.57kg; Ajon. cake 1.46 kg Cotton-1.26 kg	Feed-poultry-1.52kg Ave. 1.48kg

Table B7 Colombia: Prices of 1) Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities

I/O#	Industry Name	Agricultural Raw Materials	Colombia 1968 Pesos $ Price of Major Agricultural Raw Products Paid by Industries	Colombia 1968 Pesos $ Prices of Major Processed Products and By-Products at F.O.B. Plant
145	MFG Cigarettes & Cigars	Tobacco	Tobacco 1st=9.71kg } Ave. 7.80kg Tobacco 1st 7.75kg }	Cigarettes-0.99 pack Cigars 0.21-0.11-0.08kg
146	MFG Cotton Yarn	Cotton	Seed cotton 3.72kg 3.56	Algodon desmotado-7.93kg cotton seed (clean)=1.05kg; (mota) 0.93kg
1468	Of Wool Yarn	Wool	Lana sin } 23.77kg Lavar }	Sacos de Fique=4.98 each Cordage Fique 6.73-7.07kg
147	MFG Of Rope Cordage	Fique	Hojas de Fique=3480 MT Fibras Fique=3.47-2.52kg=	Hilo Fique 4.03kg
149	Lumber Mill	Timber Logs	Madera } Bruta }	
150	Planing Wood, White Frames	Sawn Lumber	Madera } Asserrada }	
151	MFG Wood Packing Boxes	Sawn Lumber		
152	MFG Chipboard & Pressed Wood	Sawn Lumber	Maderas } 19.05 M2 Laminas }	
153	MFG Of Parquets	Sawn lumber		
155	MFG Const. Installation Bldg Products	Sawn lumber		
156	MFG Pulpwood Bags Other Fibers	Bagasse	Bagasse 194MT Pulp=0.76kg (imported) Wood pulp=3.10kg	
162	Leather Processing & Finishing	Hides	Hides=3.80kg Calf skins=6.35kg	

Table B7 Columbia: Prices of 1) Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities

I/O#	Industry Name	Agricultural Raw Materials	Columbia 1968 Pesos $ Price of Major Agricultural Raw Products Paid by Industries	Columbia 1968 Pesos $ Prices of Major Processed Products and By-Products at F.O.B. Plant
166	Corn Grasing & Hulling	Corn	Corn-1.23kg	Mais Pilado-1.55kg 1.54kg Bran-0.99kg Ave. of By-1.01kg
129	Baking Wheat Bread	Flour	Flour imported-2.88kg 1st. Total-2.70kg; 2nd 2.00kg	Wheat bread-5.03kg-4.69kg
130	Bread from corn, yucca Similar	Grain flour	Flour 1st. imported-3.08kg 2nd 2.13kg Total x 2.14kg	Yucca bread-9.61kg: 8.06kg Corn bread-9.95kg-7.42; 9.21
131	Cookies, crackers, cakes, etc.	Flour	Flour 1st. imported-3.08kg 2nd 2.13kg Total x 2.12 kg	Crackers-10.94kg cakes-10.8 Ave.-9.74
133	MFG of Sugar Products	Sugarcane	Cane 70.04 mt	Sugar 1.64-1.80kg: Miel0.50kg (7%) (92%)1 Bagasse 35 MT, Panela 1.69kg
139	Grounding & Toasting of Coffee	Green Coffee	Cafe Trillado-6.93kg Cafe Trillado Cons.-6.98-6.80	Cafe molido: 9.94kg Cafe Tostado 9.60kg
122	Coffee Hulling	Unhulled coffee	Cafe / Pergamino: 6.71-6.68kg 7.36 (consumo)kg	Cafe Trillado-9.31 kg 9.56kg (excelso) Java.
142	Distilling & Alcoholic Beverages	Molasses	Molasses, Final 0.66kg'	
143	Wine Industries	Grapes & others	Fresh Grapes 4.40kg	
144	MFG of Beer & Malts	Barley	Cebada (imported) 2.38kg malta (both) Pelada Total 1.98 kg 3.50	Beer light 3.12L
167	MFG of Soft Drinks, Bottled water	Fruits		Soft Drinks 1.13 L & Miweral waters 1.21

Table B7 Colombia: Prices of 1)Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities

I/O#	Industry Name	Agricultural Raw Materials	Colombia 1968 Pesos $ Prices of Major Agricultural Raw Products Paid by Industries	Colombia 1968 Pesos $ Prices of Major Processed Products and By-Products at F.O.B. Plant
136	MFG Vegetable & Animal Lard	1/ Oil Seeds	Ajonjoli→4.31kg 4.15; 3.85 Soya→2.13kg 2.10kg	Vegetable lard→7.84kg; margarina 8.57kg Ajonjoli oil R.→25.96kg; Ave.Cakes 1.43kg
137	MFG Of Table Oils, Suaces Vinegars & Condiments	1/ Oil seeds	Cotton seed→1.24kg 1.31 kg Palma Afr→2.81kg 0.56kg Copra→4.01kg (imported) 3.97kg	Vegetable lard 7.90kg Cook oil-MES→30.30kg Cakes (ave) 1.28kg Soya oil R.→28.41kg Palma 0.56/0.48 = 1.117
164	MFG Oils, Vegetable & Animal Oils	1/ Tallow & Fish oil	Sebo Sin Der. 2.44kg; 2.05 Sebo Derretido 4.80kg; 4.38(imported)	Sebo Refinado→4.80kg
123	MFG Of "Cuchucos"	2/ Corn & Wheat	Cebada / Raspa } 1.67kg	Cuchucos Cebada→2.30-2.06kg Trigo→2.55 ; Maiz 1.80-0.85kg
135	MFG Chocolates and Candy	1/ Cocoa beans	Cacao en imported 11.63kg Grano } Total 10.56kg	Manteca de Cacao 35.3kg Chocolate Paste 16.59kg
138	MFG Of Cornstarch - Pastas	2/ Imported Wheat	Imported Wheat 2.11kg	Pastas Alimenticias-5.46 kg Ave. ind. starch-5.02kg

Table B7 Colombia: Prices of 1) Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities (continuation)

I/O#	Industry Name	Agricultural Raw Material	Raw Agricultural Products Ratio of Producer Prices by Prices Paid by Industries 4/	Conversion Factors (Physical Output)
103	Cattle & Hog Slaughter	Live cattle		Cattle Live=.58 beef; 0.08 Tallow; 0.0233 Blood & Meat meal ; Hides=0.093 Total 0.7263 Phy. = .9963 Hogs Live =.68 pork (with bones); 0.15 Lard; Total 0.83 Phy. =1.17
104	Prep. of meat products	Meat, beef & pork		
105	MFG Pasteurised Milk	Milk	1.56/1.30 =1.20	
106	MFG Butter & Cream	Milk		
107	MFG Cheeses	Milk	1.24/1.30 =1	
108	MFG Casein & other milk Products	Milk	1.80/1.30 =1.38 1.61/1.30 =1.24	
109	MFG Icecream & milk Sherbert	Milk		
110	MFG Condensed milk, evap. milk & dry milk	Milk	1.30/1.30 =1	
111	Pkg. & Preserv. Fruits & Vegetables Canning	Fruits & Vegetables peas & olives	5.52/4.280 =1.29	
112	Prep. & canning Fruits & Vegetables (juices)	Fruits & Vegetables Tomato	0.68/1.02 =1	
113	Prep. & Pkg. Jams & Marmalades	Fruits & Vegetables Guava	0.88/0.54 =1.63	
114	Prep. & Pkg. Sauces, Escabeche & Pickles	Fruits & Vegetables Onions & Tomatoes		
115	Dehydration & Freezing Fruits & Vegetables	Cocos, Mani	6.76/ 3.86 =1.75	

Colombia: Prices of 1)Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities (continuation)

I/O#	Industry Name	Agricultural Raw Material	Raw Agricultural Products Ratio of Producer Prices by Prices Paid by Industries 4/	Conversion Factors (Physical Output)
117	Prep. & Canning Fish & Sardines	Sardines		
118	Seashell Prep.	Molluos		
121	Rice Hulling(Milling)	Rice	1.75/1.806 = 1	Rice rough = .62 milled Rice; .07 Powder; broken kernels .07 Total = 0.76 Phy. = 1.07
124	Wheat Flour	Wheat	2.06/1.956 = 1.05	Wheat = .73 1st class flour; .17 bran; .06 Flour 2nd & 3rd
125	Corn meal, other Mill Products	Corn & grains	1.40/1.294 = 1.08	Corn starch .67; flour .59; Bran .16 Total = 80 Phy = 116.5
132	Fried Potatoes, Corn Flakes, etc.	Potatoes, cereals		
141	MFG Other food Products & Feed	Fish meal by-products	1.13/1.363 = 1	
166	Corn threshing & hulling	Corn	1.123/1.29 = 1	
129	Baking Wheat Bread	Flour		
130	Bread from corn, yucca Similar	grain flour		
131	Cookies, crackers, cakes etc.	Flour		
133	MFG of Sugar Products	Sugarcane	70.04/74 = 1	Refined sugarcane = .074; molasses = .054; Total = .128 Phy = 0.165
139	Grounding & Toasting of Coffee	Green coffee		
122	Coffee Hulling	Unhulled coffee	7.36/7.08 = 1.04	
142	Distilling & Alcoholic Beverages	Molasses		

Table B7 Colombia: Prices of 1)Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities (continuation)

I/O #	Industry Name	Agricultural Raw Material	Raw Agricultural Products Ratio of Producer Prices by Prices Paid by Industries 4/	Conversion Factors (Physical Output)
143	Win Industries	Grapes & others	4.40/7.79 =1	
144	MFG of Beer & Malts	Barley	1.96/1.490= 1.33	
167	MFG of Soft Drinks, Bottled Water	Fruits		
145	MFG Cigarettes & Cigars	Tobacco	7.80/5.8 =1.34	
146	MFG of Cotton Yarn	Cotton		
146B	MFG of Wool Yarn	Wool		
147	MFG of Rope, Cordage	Fique	3.480/3.08 =1.13	
149	Lumber Mill	Timber logs		
150	Planing wood, White Frames	Sawn lumber		
151	MFG Wood Packing Boxes	Sawn lumber		
152	MFG Chipboard & Pressed Wood	Sawn lumber		
153	MFG of Parquets	Sawn lumber		
155	Const. Installation Bldg Products	Sawn lumber		
156	MFG Pulpwood, bags, other Fibers	Bagasse		
162	Leather Processing & Finishing	Hides	4.31/4.2 =1.03 ajonjoli	Afr. Palm Oil = .17; Cake = .51 Total = .68 Phy. = 7.65
136	MFG Vegetable & animal lard	oilseeds	2.13/2.16 =1 soya	Sesameseed oil .445; cake = .55 Total .995 Phy. = 1.2175
137	MFG Vegetable oils, sauces, vinegars & condiments	oilseeds	4.01/4.032 copra=1	Cottonseed oil = .16; cake = .465 Total = .625 Phy. = .705

Table B7 Colombia: Prices of 1) Basic Raw Materials, Intermediate Commodities and Final (Processed) and By-Products Agricultural Commodities (continuation)

I/O#	Industry Name	Agricultural Raw Material	Raw Agricultural Products Ratio of Producer Prices by Prices Paid by Industries 4/	Conversion Factors (Physical Output)
164	MFG Oils, Vegetable & Animal Oils	Tallow & fish oil		Soy beans oil =.17; cake =.78 Total =.95 Phy.=1.035
123	MFG of "Cuchucos"	Corn & Wheat	10.56/9.504=1.11	
135	MFG Chocolates and Candy	Cocoa beans		
138	MFG of Cornstarch-Pastas	Imported Wheat		

Sources: W.D. # IF Table III and Anrl W.D.# 11 Table A5, USDA - Statistical Bulletin No. 362 and DANE, 1968 Updated Sample - 1964 Industrial Census

1/ Basic Raw Product - must be [illegible]ared before consumed by Household or other sectors

2/ Imports Agricultural Raw Ma[illegible] Processed ag. of Imported Origin

3/ Physical Relation of Primary Outputs [illegible]t important By-Products - are converted to Monetary Terms by assumming a weighted factor of 1.5 for the primary products and 1 for the by-produ[illegible]

4/ If prices paid by processors (numerator) is less than farm prices (denominator) the ratio is made to be equal to 1, i.e., we assumed that prices paid by industries (which included some marketing services) are at least equal for farm prices, but never lower.

Section C

Analytical Results

The results and interpretation of optimum solutions for the different variants of the model and five alternative objective functions are separately presented in this section.

Optimum Solution for 1968 (COLPR 1)

Submodel or variant COLPR 1 (1968) is considered as the base solution, because it was designed to reproduce as closely as possible the economic conditions, i.e., production levels, trade patterns, etc., existing in Colombia in 1968. Thus, we expect this model solution to be closer to what was actually occured in 1968. However, because the linear programming model is largely normative and there are many data gaps and discontinuities in the system, exact correspondence between model results and the real world can hardly be expected. A large number of changes were made both in the magnitude of the input-output coefficients and in the reformulation of the model, before arriving at the final optimum solutions of the 1968 submodel. Table C1 shows the magnitude of several macro variables or sector accounting variables resulting from optimum solutions for all five objective functions.

Since all solutions were binding by the same resource constraints, mainly markets, the results for all five objective functions specify the same level of processed commodity production, except for the edible vegetable oils. There were only slight differences in the regional activity mix (see Appendix C,Table 1), and again in the activities representing oil extracting industries.

For the commodity that could be produced by different regional activities[1/] the program invariably select only one of these activities to produce the entire market assigned to this particular processed

1/ In the absence of disaggregated production cost data by region, all input-output coefficients are the

TABLE 01.

COLPR 1 [1] (1968) Optimum Solutions with Unlimited Working Capital (WK) and Restricted Agricultural Raw Material

Macro Variable \ Objective Function		MAX 'VA'	MAX 'EMPDW'	MAX 'EMPTO'	MAX 'LABOR'	MAX 'P'
Description	Symbol					
Value Added (Millions US$)	VA	561.26741	561.00583	597.81594	558.07752	561.26741
Employment of Direct Workers (Man/Yrs)	EMPDW	125006	125006	124928	124928	125006
Total Employment (Man/Yrs)	EMPTO	149287	149287	149462	149462	149287
Working Capital (Millions US$)	WK	348.72661	349.03839	349.56013	348.01775	349.03839
Payments to Labor (Millions US$)	LABOR	122.40172	122.29964	122.90063	123.00271	122.40172
Returns to Capital & Management (Millions US$)	P	391.44323	391.44323	388.13446	388.13446	391.44323
Supplies (Millions US$)	S	209.34535	209.34535	208.50000	208.50000	209.34533
Fixed Capital (Millions US$)	FC	705.73309	705.73309	706.21454	706.21454	705.73309
Installed Capacity of Electric Motors (HP)	HP	452093	452093	450237	450237	452093
Net Foreign Exchange [2] (Millions US$)	FX	-288.17411	-288.17411	-285.29297	-285.29297	-288.17411
Surplus Feedstuff by-products (Millions US$) [3]	AG141V	-58.52134	- 56.04515	-54.52807	- 52.97201	- 58.52134
Surplus Inedible Tallow by-products (Millions US$) [3]	AG164V	4/	4/	4/	4/	4/
Surplus Hide by-products (Millions US$)	AG162V	4/	4/	4/	4/	4/
Capital for Expanding Processing Capacity (Millions US$)	FIXCAP	5/	5/	5/	5/	5/

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ The negative sign indicates 'earned' foreign exchange, i.e. it is added to the FX row.

3/ Unused (surplus) by-products equivalent to total (potential) sector production of the specific by-product minus the quantity of the by-product utilized by other sector industries (inter-industry consumption), or may be interpreted as "waste" or failure of the sector to produce these amounts of by-products (a deficit gap or measure of inefficiency of the corresponding industries).

4/ Restricted as agricultural raw material in this early model.

5/ Relevant only to submodel "COLPR 3"

commodity.

Table C2, shows the magnitude of sector aggregate levels for the solutions of another version of the submodel (COLPR 1), with unrestricted agricultural raw materials. Again, the solution for the five objective functions specify approximately the same level of commodity production for all of them, with slight differences in the activity mix, (see Appendix C, Table 3). The relaxation of the raw material restrictions allows the program to increase the production of those activities in which raw materials were binding. This includes oilseeds[2/], corn, cotton and flour.

As we have noticed by comparing the results of the two versions of the 1968 model shown in tables C1 and C2, the level of the different sector aggregates are not far apart. When the model is not restricted by the availability of agricultural raw materials, value added and returns to capital and management increased by 4 percent; employment of direct workers and total employment increased by 11-12 percent.

On the other hand, the net foreign exchange earned by the sector declined about 3 percent, due to the fact that more earned dollars have to be allocated to the importation of raw materials and supplies, especially to wheat and/or flour.

The production of feed by-products was higher, of course, in the run with unrestricted raw materials, since production of corn and wheat milling activities from which some of the feed by-products originated were at a higher level in the solution. Some refinements such as, including coefficients representing crude

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same for the different regional activities except for the labor coefficient in man-years which is specific for each individual region.

2/ Cotton seed, soybeans, African Palm and sesame seed.

TABLE 02

COLPR 1[1] (1968) Optimum Solutions with Unlimited Working Capital (WK) and Unlimited Agricultural Raw Material

Macro Variable \ Objective Function		MAX 'VA'	MAX 'EMPDW'	MAX 'EMPTO'	MAX 'LABOR'	MAX 'P'
Description	Symbol					
Value Added (Millions US$)	VA	585.55220	583.92164	583.92164	583.92164	585.55220
Employment of Direct Workers (Man/Yrs)	EMPDW	139770	139791	139791	139791	139770
Total Employment (Man/Yrs)	EMPTO	168551	168777	168777	168777	168551
Working Capital (Millions US$)	WK	365.20654	367.87598	366.33360	367.87598	367.06070
Payments to Labor (Millions US$)	LABOR	129.78117	130.42677	130.42677	130.42677	129.78117
Returns to Capital & Management (Millions US$)	P	406.85359	404.95127	404.95127	404.95127	406.85359
Supplies (Millions US$)	S	228.48691	228.21515	228.21515	228.21515	228.48691
Fixed Capital (Millions US$)	FC	753.30712	753.49597	753.49597	753.49597	752.19153
Installed Capacity of Electric Motors (HP)	HP	475904	475360	475360	475360	475904
Net Foreign Exchange[2] (Millions US$)	FX	-282.77519	-280.62829	-280.62829	-280.62829	-282.77519
Surplus Feedstuff by-products[3] (Millions US$)	AG141V	- 64.36092	- 58.69344	- 64.08916	- 64.08916	- 63.84390
Surplus Inedible Tallow by-products[3] (Millions US$)	AG164V	- 25.61378	- 25.61378	- 25,61378	- 25.61378	- 25.61378
Surplus Hides by-products (Millions US$)	AG162V	- 22.54868	- 22.54868	- 22.54868	- 22.54868	- 22.54868
Capital for Expanding Processing Capacity (Millions US$)	FIXCAP	4/	4/	4/	4/	4/

1 Comprised only processing activities representing the existing 1968 Colombian technology.

2 The negative sign indicates 'earned' foreign exchange, i.e. it is added to the FX row.

3 Unused (surplus) by-products equivalent to total (potential) sector production of the specific by-product minus the quantity of the by-product utilized by other sector industries (inter-industry consumption), or may be interpreted as "waste" or failure of the sector to produce these amounts of by-products (a deficit gap or measure of inefficiency of the corresponding industries).

4 Relevant only to submodel "COLPR 3".

inedible tallow and uncured hide by-products in the livestock slaughter activity, were developed to be specified only in the latest 1968 submodel (unrestricted raw material). (See footnotes in tables C1 and C2). As it was previously mentioned, the total amount of working capital shown in the value added maximizing solution for 1968, amounting to $365 million, was assumed to be the total processing sector requirements of working capital for 1968, and based on this figure, the capital restrictions for 1975 were derived (see working capital constraints, p.22).

Shadow Prices, General Discussion and for 1968 Solutions

An important aspect of the programming solution is the level of resources used and their shadow prices. Appendix C, Table 2 and Appendix C, Table 4 show for all 1968 solutions the shadow or accounting prices for those resources which are exhausted. The value of the shadow prices for the abundant or unused resources, of course, is simply equal to zero and is not shown in these tables. The resources showing non-zero shadow prices are of course those binding the solution and consequently constituting the bottleneck of the system. Shadow prices must be interpreted with caution, since they measure quantitatively, in the units in which the objective function is expressed, the impact of one additional unit of 'scarce' resource on the objective. Consequently, they vary considerably in quantity and in units of measurements among solutions for different objective functions. Since each shadow price includes both direct and indirect impacts effects, they are very sensitive to changes in the structure of the model[1/], especially when there exists strong interrelationship among the activities of the model. On the other hand, when there is little or no interrelations between activities and especially in the specific case of specialized scarce resource, it is relatively simple by

1/ For example, changes in restrictions of other resources which may change the basis of the solution.

by examining their shadow prices to determine the new level of the activity directly affected by one unit change of this scarce resource. For example, in the value added maximizing solution of COLPR 1 (with restricted raw material) the processing capacity for slaughter cattle and hogs (PC103V) is binding the solution. The shadow price of this resource is -.24. Then if we just examine the coefficient matrix we may observe that the element of the livestock activity intersecting the processing capacity constraint (raw) for this activity, namely PC103V, is also .24. Consequently if we increase slaughter processing capacity by one unit (1 U.S.$) then the objective function (value added) would be increased by .24 dollars ($). It is interesting to notice that the highest shadow price is for scarce agricultural raw material (barley and malt) utilized by breweries. Again if we examined the coefficient nature the value of the elements under the column corresponding to the activity producing beer (BEER 1) and the rows corresponding to the objective function (VA), and raw material (AG144V) are .66 and .22 respectively. Thus, dividing .66 by .22 we get -3.0 or the value of the shadow price, indicating that by increasing the availability of barley products to the breweries by $1, the value added of the sector is increased by 3$.

Another peculiar set of shadow prices, which are worth being examined, are those corresponding to the non-industrial activities. These activities are forced into the solution in the form of equality equations (restrictions). However, only two of them showed positive non-zero shadow prices, while the rest have shadow prices equal to zero. The latter is explained by the fact that agricultural processed products from both non-industrial production and the commercial production are binding by the same market restriction, i.e., an increase of the non-industrial equality constraint by one unit will not increase the objective function at all, since it is (simultaneously) restricted by the corresponding market constraint. In the case of

the two equality restrictions with positive shadow prices (see restrictions NI146 and NI133 in Appendix C, table 2), undoubtedly some interrelation between activities and resource utilization takes place. For example, the shadow price of + .15761 corresponding to the restriction NI133 which, of course, indicates that by increasing (forcing into the solution) by one unit this restriction (equality) the objective function diminished by .15761 is derived as follows: the shadow price for the market restriction (MI33V) of the same processed product (refined and brown sugars) is -.47761 (see Appendix C, table 2) and the activity coefficient (for both commercial and non-industrial activities) corresponding to the objective function row (value added) is .32. Consequently, if we force into the solution one additional unit of the non-industrial production of "Panela" (brown sugar) we increased the objective function by .32, but at the same time since we have a market constraint for all kinds of sugar (MI33V) which put an upper limit in the production of these products, the value of the objective function is diminished by .47767 equal to the shadow price of this conconstraint. Thus, .47761 - .32 = .15761 which is actually the shadow price of the resource equality NI133 (see Appendix C, table 2).

Table 2, Appendix C shows the non-zero shadow prices for five runs of COLPR 1 with unrestricted raw material, and different objective functions. As the reader can notice the shadow price of the equanity restriction NI133 is positive for all the solutions, but varying its value, and of course, the unit of measurement for each of the five objective functions.

By-Products Utilization and Sector Efficiency

Some of the processing activities in the model produce important intermediate commodities during their production processes. The feedback of agro-industrial by-products into other processing activities or into

livestock activities is of great importance in "modeling" modern production technologies and in depicting the interrelationship between the processing and primary agricultural sectors.

Only some feedstuff by-products, tallow and hides were considered at this earliest stage of the model.

On table C2, and in other similar tables, it is shown the amount in millions of U.S. dollars of the "surplus" or unused intermediate or by-products produced by the entire processing sector during one-year. This figure simply represents total output emerging at the processing level minus by-products utilized as raw material (input) by other processing activities of the processing sector.

In regard to the sector efficiency, it was thought that this"alleged" unused amount of by-products can be looked out as an under-utilization of available resources (raw material for processing industries). Obsolence and lack of modern facilities, is a common characteristic of many processing plants in the LDC. This is especially true in the case of the slaughter of cattle and other livestock, since a large number of them are killed at the farm level or in obsolete and unsanitary municipal slaughter houses. In any case, there are not facilities to recover all, or almost all of the by-products which are wasted or not properly utilized. Consequently this "waste" may be considered a "deficit gap" or[2/] measure of inefficiency of the corresponding industries. Admittedly, that in the case of feed-stuff by-products it may be a valid argument to state that this "alleged" surplus could be already being used by livestock activities (beef, milk, etc.) of the primary agricultural sector, not included in the model, thus, invalidating the argument of inefficiency (unused surplus). In a more comprehensive model in which all economic activities are represented, the interactions between sectors is observable and any doubtful conclusion or misconception can be dissipated.

Our efficiency criteria for each industry is simply represented by the following ratio[1]:

$$\frac{\text{Surplus or amount unused by-products}}{\text{Total sector by-products production}}$$

The value of this ratio range from 0 to 1 and of course, 0 means no waste at a-1 or 100 percent efficiency and 1, a complete waste or zero efficiency at all. The total sector production of each specific by-product is simply calculated by the sum of the level of each activity producing this by-product multiplied by the technical coefficient corresponding to the specific by-product. For example, in the case of the production of the tallow which is produced by one industry, e.g., cattle slaughter, the calculations are as follows: level of this activity was 343.911 and the tallow coefficient is .08, therefore crude tallow production is 343.911 x .08 million $ = 27.51288 million $. Hence, the efficiency ratio will be $\frac{\text{surplus}^{1/}}{\text{Production}} = \frac{25.61378 - 193}{27.51288}$ or in other words if you want to express it as efficiency percentage, then just subtract your ratio from 1 and multiply the results by 100 as follows: (1 - .93) x 100 = 7% efficiency.

Optimum Solutions for 1975

As mentioned before, three submodels or variants were run with the 1975 restrictions and five different objective functions. The interpretation and comments of the optimum solutions of each submodel are separately shown below:

Optimum Solutions with only Colombian Technologies-COLPR 1 (1975)

Table C3, shows the level of the macro variables for optimum solutions with restricted capital at $457 million, for the five objective functions. The level of these macro variables vary very little among solu-

1/ This ratio combined with other production indicators, specific of each individual industry may be developed in a useful yardstick for the measurement of the degree of modernization of processing industries and others in the process of economic development.

1/ From table C2.

TABLE C3

COLPR 1 [1/] (1975) Optimum Solutions with Unlimited Agricultural Raw Material but Restricted Working Capital (WK) at $457 millions.

Macro Variable \ Objective Function		MAX 'VA'	MAX 'EMPDW'	MAX 'EMPTO'	MAX 'LABOR'	MAX 'P'
Description	Symbol					
Value Added (Millions US$)	VA	756.80807	755.89826	755.89826	756.46089	753.56564
Employment of Direct Workers (Man/Yrs)	EMPDW	170820.	172960.	172960.	172823.	170780.
Total Employment (Man/Yrs)	EMPTO	205893	208457.	208457.	208332.	205[illegible].
Working Capital (Millions US$)	WK	457. [5/]	457.0 [5/]	457.0 [5/]	457.0 [5/]	457.0 [5/]
Payments to Labor (Millions US$)	LABOR	170.89975	170.63022	170.77646	171.19843	168.54211
Returns to Capital & Management (Millions US$)	P	523.78224	523.44200	523.44200	523.30134	5[illegible].14851
Supplies (Millions US$)	S	287.99173	286.95416	286.95416	287.93877	286.03426
Fixed Capital (Millions US$)	FC	933.97008	931.81675	931.81675	934.99561	915.87194
Installed Capacity of Electric Motors (HP)	HP	565101	570345.	570345.	569362.	567622.
Net Foreign Exchange[2] (Millions US$)	FX	-461.80441	-461.65645	-461.65645	-461.65645	-464.40628
Surplus Feedstuff by-products (Millions US$) [3]	AG141V	- 65.95730	- 65.93857	- 65.44028	-65.44028	- 65.44028
Surplus Inedible Tallow by-products (Millions US$) [3]	AG164V	- 32.49194	- 32.49194	- 32.49194	- 32.49194	- 32.49194
Surplus Hides by-products (Millions US$)	AG162V	- 24.00537	- 24.00537	- 24.00537	- 24.00537	- 24.00537
Capital for Expanding Processing Capacity (Millions US$)	FIXCAP	[4/]	[4/]	[4/]	[4/]	[4/]

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ The negative sign indicates 'earned' foreign exchange, i.e. it is added to the FX row.

3/ Unused (surplus) by-products equivalent to total (potential) sector production of the specific by-product minus the quantity of the by-product utilized by other sector industries (inter-industry consumption), or may be interpreted as "waste" or failure of the sector to produce these amounts of by-products (a deficit gap or measure of inefficiency of the corresponding industries).

4/ Relevant only to submodel "COLPR 3". 5/ Binding restriction

tions for different objective functions. The results for all five objective functions specify about the same level of processed commodity production, with only slight differences in the regional activity mix (see Appendix C, table 5).

An examination of the shadow prices[2/] (see Appendix C, table 6) indicates the importance that working capital and processing capacities now binding the solution are exerting upon the expansion of the processing sector in 1975. A more meaningful comparison is between solutions maximizing value added with alternative working capital constraints. Table C4, shows the magnitude of the sector aggregates levels for the solutions at the three different level of working capital. For an explanation how these three levels were developed, refer back to the section dealing with the working capital constraints.

Capital was binding for the two solutions with more restricted capital at $365 and $457 million, respectively. By relaxing this restriction, that is, by increasing it approximately by 7% to $489 million, the magnitude of the sector's macro variables actually changes very little between the two solutions as can be observed from the results presented in table C4. However, changes in the macro variables level, with the exception of foreign exchange, were more pronounced, ranged from 7 to 12 percent when the working capital available was increased from $365 to $457 million.

The apparent foreign exchange "paradox" in which the processing sector, in a solution[1/] showing a lower level of output, as measured by the value added magnitude ($708 million) is earning more net foreign exchange ($498 million) than in a solution [2/] at a higher level of aggregate output (value added=$751 million)

2/ Only those resources (constraints) showing non-zero shadow prices are binding the solution.

1/ With working capital equal to $365 million.

2/ With working capital equal to $457 million.

TABLE - C4

COLPR 1 [1] (1975) Optimum Solutions, Maximizing Value Added, with Unlimited Agricultural Raw Material with alternative Working Capital (WK)

Macro Variable \ Objective Function		WK = 365 Millions $	WK = 457 Millions $	WK = 489 Millions $		
Description	Symbol					
Value Added (Millions US$)	VA	708.02125	756.80807	758.26116		
Employment of Direct Workers (Man/Yrs)	EMPDW	152511	170820	173022		
Total Employment (Man/Yrs)	EMPTO	183901	205893	208535		
Working Capital (Millions US$)	WK	365. [3]	457. [3]	462.43183		
Payments to Labor (Millions US$)	LABOR	160.60641	170.89975	171.29605		
Returns to Capital & Management (Millions US$)	P	486.49772	523.78224	524.83903		
Supplies (Millions US$)	S	271.26872	287.99173	288.52013		
Fixed Capital (Millions US$)	FC	889.14651	933.97008	936.61206		
Installed Capacity of Electric Motors (HP)	HP	496204	565101	570385		
Net Foreign Exchange [2] (Millions US$)	FX	-457.75722	-461.80441	-461.80441		
Surplus Feedstuff by-products [3] (Millions US$)	AG141V	- 55.87923	- 65.95730	- 65.95730		
Surplus Inedible Tallow by-products (Millions US$) [3]	AG164V	- 32.49194	- 32.49194	- 32.49194		
Surplus Hides by-products (Millions US$)	AG162V	- 24.00537	- 24.00537	- 24.00537		
Capital for Expanding Processing Capacity (Millions US$)	FIXCAP	[4]	[4]	[4]		

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ The negative sign indicates 'earned' foreign exchange, i.e. it is added to the FX row.

3/ Unused (surplus) by-products equivalent to total (potential) sector production of the specific by-product minus the quantity of the by-product utilized by other sector industries (inter-industry consumption), or may be interpreted as "waste" or failure of the sector to produce these amounts of by-products (a deficit gap or measure of inefficiency of the corresponding industries).

4/ Relevant only to submodel "COLPR 3 ".

[3] Binding restriction

earning only $462 millions of dollars (net foreign exchange), is simply explained as follows: exports activities (the earners of foreign exchange) are forced into all solutions, at predetermined levels, so the volume of the foreign exchange coming into the country is the same for all solutions, however, the amount of foreign exchange spent in imported raw materials and supplies is usually greater when the aggregate level of output increases, since the processing activities will be required to purchase more inputs from both domestic and imported sources.3/

The results of the solutions with medium ($457 million) and high working capital ($489 million) constraints, specify approximately the same level of commodity production, again with slight differences in the regional activity mix and in those representing oil plants: (see Appendix C, table 5).

However, the results from the solution with low.capital ($365 million) specify zero or a very low level for the production of some processing activities which add very little value to the raw material (and purchased inputs) in their production processes. This is the case of industries such as milling or hulling grains and cereals and also in the hulling of coffee. This is probably the major weakness of the model in which the external sector (exports activities) are independently (exogenously) conceived within the conceptual framework of the model to "only" consider the "foreign exchange issue", and are not interrelated to the corresponding production activities.1/ Hence, the level of commodity production and the activity mix, vary substantially between the solution with low capital level and the other two solutions (with higher level of capital). See Appendix C, table 5.

3/ Of course, this is not necessarily true. For example, in the case that the aggregate level of production increased only from processing activities which do not utilize imported inputs in their production processes.

1/ A more elaborated and concise comment and explanation on this issue will be treated in the section on conclusions and recomendations.

Shadow prices at non-zero levels (for binding resources) are shown in Appendix C, table 6. Their interpretation does not need any further elaboration and the reader is referred to the above mentioned table. However, it appears to be quite interesting to briefly discuss the shadow prices for working capital shown for the three value added maximizing solutions. The referred shadow prices are as follows: (a) for the solution with working capital = $365 million, is -.72727; (b) for the solution with working capital = $457 million, is -.47826 and (c) for the solution with working capital = $489 million, is zero. These results indicate that as a resource becomes more scarce, its shadow price increases, in this case from zero (abundant resource) to -.47826 (relatively scarce resource), and to -.72727 (highly scarce resource).

Optimum Solutions with Alternative Foreign Technologies-COLFR 2 (1975)

Results from optimum solutions, with restricted capital at $457 dollars for all five objective functions are presented in table C5. The programs seem to fall into three groups. The first one includes the value added and the profit (returns to capital and management) maximizing programs. The results of which, of course, yields the larger sector output, measure as value added and the higher profitability respectively, than the other solutions. The second group are the solutions maximizing employment (in man-years) of direct workers in production, and total (direct and indirect) workers. Finally the program maximizing payments to labor, in monetary terms (including all fringe benefits) stands by itself, surprisingly showing contrasting results in comparison to the solutions of the other four objective functions. Surprisingly, the total employment situation (in man-years) is aggravated, even to the extent to be 12 percent lower than the profit maximizing solution or employing 35 percent less workers (man-year) than in the program maximizing total employment. In addition, the aggregate output of the sector, expressed as value added, is substantially

TABLE 25

COLPR 2 [1] (1975) Optimum Solutions with Restricted Working Capital (WK) at $457 millions and Unlimited Agricultural Raw Material

Macro Variable \ Objective Function		MAX 'VA'	MAX 'EMPDW'	MAX 'EMPTO'	MAX 'LABOR'	MAX 'P'
Description	Symbol					
Value Added (Millions US$)	VA	866.33769	806.46667	804.51632	668.09082	850.34192
Employment of Direct Workers (Man/Yrs)	EMPDW	138126.	189023.	185709.	115653.	140172.
Total Employment (Man/Yrs)	EMPTO	175994.	233540.	236338.	153628.	174411.
Working Capital (Millions US$)	WK	443.31298	451.63618	456.58482	457.0 [5]	439.35062
Payments to Labor (Millions US$)	LABOR	198.67715	178.09218	196.72434	254.02378	177.36479
Returns to Capital & Management (Millions US$)	P	611.27436	574.47931	557.64280	351.72475	624.42953
Supplies (Millions US$)	S	236.68922	257.30366	239.60662	353.54585	242.44640
Fixed Capital (Millions US$)	FC	713.05721	865.37592	879.56917	847.65166	685.01517
Installed Capacity of Electric Motors (HP)	HP	497237.	569068.	598729.	478059.	439917.
Net Foreign Exchange [2] (Millions US$)	FX	-461.55299	-461.65645	-461.65645	-462.58033	-461.80441
Surplus Foodstuff by-products [3] (Millions US$)	AG141V	- 32.38664	- 69.92489	- 64.72177	- 59.35159	- 32.90366
Surplus Inedible Tallow by-products (Millions US$) [3]	AG164V	- 31.40674	- 32.49194	- 32.49194	- 31.18970	- 31.40674
Surplus Hides by-products (Millions US$)	AG162V	- 24.00537	- 24.00537	- 18.99099	- 25.43805	- 24.00537
Capital for Expanding Processing Capacity (Millions US$)	FIXCAP	[4]	[4]	[4]	[4]	[4]

[1] Comprised processing activities representing both the existing 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development.

[2] The negative sign indicates 'earned' foreign exchange, i.e. it is added to the FX row.

[3] Unused (surplus) by-products equivalent to total (potential) sector production of the specific by-product minus the quantity of the by-product utilized by other sector industries (inter-industry consumption), or may be interpreted as "waste" or failure of the sector to produce these amounts of by-products (a deficit gap or measure of inefficiency of the corresponding industries).

[4] Relevant only to submodel "COLPR 3". [5] Binding Restriction

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'lower' than those produced by both the solution maximizing employment (21$) and, of course, the value added maximizing solution (23$).

This paradoxical solution, in which for the most part, the program selects the most capital-intensive technique is explained as follows: (a) Those alternative technologies used by the program correspond largely to the 1968 U.S. average factors combination. It is true that these U.S. technologies were highly capital-intensive in the sense that they employed less number of worker per unit of output, but as the same time, due to the great disparity in the wage differential paid by the U.S.and Colombia and other countries, the actual monetary payments to the labor factor were proportionally higher in the U.S., with its advance and capital-intensive technology than in the less sophisticated techniques employed by Colombia or in the alternative technologies from other countries.[1/] (b) The relatively excessive payments to the labor factor exhausted the working capital resources. Hence, the capital is binding for the 'labor' maximizing solution, but is not binding in any other of the four programs. Consequently as a result of a shortage of capital, production of some activities were at zero or very low levels of productions, and the value added of the whole sector was much less than for the solutions for the other objectives. Table 7, of Appendix C, shows the commodity level and activity mix for the solutions for the five objective functions and table 8, of Appendix C, shows the non-zero shadow prices of their binding restrictions. Table 36 shows the magnitude of macro variable levels for the COLPR 2 submodel with alternative capital restrictions, using value added as the objective function. Capital was not binding for the two higher capital alternatives, and therefore the solutions were exactly the the same, i.e., they specify the same level of commodity production as well as the same activity mix. For

See footnote on next page.

TABLE 06

COLPR 2 1/ (1975), Optimum Solutions with Unlimited Agricultural Raw Material and Alternative Working Capital (WK)

Macro Variable \ Objective Function		WK = 365 Millions $	WK = 457 Millions $	WK = 489 Millions $		
Description	Symbol					
Value Added (Millions US$)	VA	825.10644	866.33769	866.33769		
Employment of Direct Workers (Man/Yrs)	EMPDW	120674.	138126.	138126.		
Total Employment (Man/Yrs)	EMPTO	155292.	175994.	175994.		
Working Capital (Millions US$)	WK	365.0 5/	443.31298	443.31298		
Payments to Labor (Millions US$)	LABOR	189.46264	198.67715	198.67715		
Returns to Capital & Management (Millions US$)	P	579.52254	611.27436	611.27436		
Supplies (Millions US$)	S	219.82562	236.68922	236.68922		
Fixed Capital (Millions US$)	FC	684.26391	713.05721	713.05721		
Installed Capacity of Electric Motors (HP)	HP	444607.	497237.	497237.		
Net Foreign Exchange 2 (Millions US$)	FX	-461.55299	-461.55299	-461.55299		
Surplus Feedstuff by-products 3 (Millions US$)	AG141V	- 32.38664	- 32.38664	- 32.38664		
Surplus Inedible Tallow by-products (Millions US$) 3	AG164V	-31.40674	- 31.40674	- 29.98716		
Surplus Hides by-products (Millions US$)	AG162V	-24.00537	- 24.00537	- 24.00537		
Capital for Expanding Processing Capacity (Millions US$)	FIXCAP	4/	4/	4/		

1/ Comprised processing activities representing both the existing 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development.

2/ The negative sign indicates 'earned' foreign exchange, i.e. it is added to the FX row.

3/ Unused (surplus) by-products equivalent to total (potential) sector production of the specific by-product minus the quantity of the by-product utilized by other sector industries (inter-industry consumption), or may be interpreted as "waste" or failure of the sector to produce these amounts of by-products (a deficit gap or measure of inefficiency of the corresponding industries).

4/ Relevant only to submodel "COLPR 3".

5/ Binding Restriction

the program with low capital constraint, this resource (capital) is binding the solution and therefore the level of commodity production of some activities with low value added coefficient was zero or at a very low level. In addition, there was some differences in the activity mix. (See Appendix C. table 7). The shadow prices for all the solutions are shown in Appendix C, table 8. Of course, the only solution showing a non-zero shadow price for working capital is the one which restricted capitals are the same 1968 level, i.e. at $365 million, thus binding the solution.

Optimum Solution for 1975 with Alternative Foreign Technologies and Expanding Processing Capacities.

By adding investment activities to the model which allow for expansion of processing capacities, with no fixed capital (long-term-credit) limitation, most of the major constraints of the 1975 submodels are relaxed. Markets and working capital are now binding the solutions for all the objective functions, except for the program maximizing employment of direct workers in production (EMPDW). In this program, surprisingly, the working capital restricted at 457 million U.S. $, is almost but not completely exhausted. This is apparently due to the fact that the national technical labor force 'resource' (direct workers trained in agricultural processing) which is the objective of this program, is actually exhausted with still a little working capital available, and consequently the level of commodity production was probably a little less than the level that would be obtained if all the working capital were completely used.

Table C7 shows the level of the different sector accounting aggregates for optimum solutions for all five objectives. It is worth it to notice that the level of these macro-variables changed more drastically from one program (objective function) to another than it was the case of the solutions for the submodels

1/ For a detailed information on hourly wages paid to workers and total labor payments in processing industries in various countries, see tables 15.1 and 15.2 in Ricardo, Working Document #3E Vol. I.

TABLE C7

COLPR 3 1/ Optimum Solutions with Unlimited Agricultural Raw Materials and Restricted Working Capital (WK) at $457 millions U.S. $

Macro Variable \ Objective Function		MAX 'VA'	MAX 'EMPDW'	MAX 'EMPTO'	MAX 'LABOR'	MAX 'P'
Description	Symbol					
Value Added (Millions US$)	VA	1014.39023	756.83053	841.32979	703.93515	1000.57848
Employment of Direct Workers (Man/Yrs)	EMPDW	121305.	224678.	224660.	105861.	144662.
Total Employment (Man/Yrs)	EMPTO	156941.	266393.	274288.	145498.	173701.
Working Capital (Millions US$)	WK	457.0 4/	456.26306	457.0 4/	457.0 4/	457.0 4/
Payments to Labor (Millions US$)	LABOR	250.02643	180.41687	210.46604.	299.46376	205.76434
Returns to Capital & Management (Millions US$)	P	695.05146	519.25262	566.45307	339.93062	738.05404
Supplies (Millions US$)	S	247.55625	329.30477	330.37843	379.39196	274.18761
Fixed Capital (Millions US$)	FC	828.90866	1148.27811	1234.70092	927.70323	905.80021
Installed Capacity of Electric Motors (HP)	HP	595881.	680340.	747917.	515346.	557245.
Net Foreign Exchange 2 (Millions US$)	FX	-149.63033	- 46.18746	- 30.32504	-254.78714	- 16.99204
Surplus Feedstuff by-products 3 (Millions US$)	AG141V	- 66.83162	16.09986 5/	- 50.44555	10.44332 5/	- 59.99491
Surplus Inedible Tallow by-products (Millions US$) 3	AG164V	- 46.10345	6.31295 5/	- 17.02724	- 36.70130	- 46.10345
Surplus Hides by-products (Millions US$)	AG162V	- 49.69427	16.83399 5/	- 5.86810	- 40.81866	- 49.69427
Capital for Expanding Processing Capacity (Millions US$)	FIXCAP	300.02350	386.74716	394.81090	237.69814	456.84470

1/ Comprised processing activities representing: (1) the existing 1968 Colombian technology, (2) alternative foreign technologies from various countries at different stages of development, and (3) investment activities for expanding processing capacities of all 48 agro-industries in the model.

2/ The negative sign indicates 'earned' foreign exchange, i.e. it is added to the FX row.

3/ Unused (surplus) by-products equivalent to total (potential) sector production of the specific by-product minus the quantity of the by-product utilized by other sector industries (inter-industry consumption), or may be interpreted as "waste" or failure of the sector to produce these amounts of by-products (a deficit gap or measure of inefficiency of the corresponding industries). 4/ Binding Restriction

5/ Represents total amount of by-products produced and utilized within the processing sector without any surplus at all.

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COLPR 1 and COLPR 2. These more accentuated differences, are principally due to the fact that processing capacities in submodel COLPR 3 are not any more limiting the model solution. The program is now less restricted and consequently it is allowed to vary more drastically in finding their optimum solution for different objectives. Again it is striking to observe that the 'Labor' maximizing solution, only generated less than half employment opportunities (man-year jobs) for direct workers than 'employment' (both total and direct workers) maximizing programs. As previously explained, the wide wage differential paid between the U.S. and Colombia accounted for the explanation of this paradox. A noticeable drastic change in the solution for COLPR 3 is that experienced in the accumulation of net foreign exchange. In previous models, little or no differences at all were encountered in the sector net earning of foreign exchange from one solution to the other. However, as it can be seen in table C7, the sector generation of net foreign exchange varies from a low of 17 million U.S. $ for the "profit" maximizing solution to a high of 255 million U.S. $ for the "Labor" maximizing program. This apparant inconsistency of the model is simply explained by the fact that in COLPR 3 investment activities were included in the model and since it was assumed that all fixed capital (machinery, motors, etc.) is imported, thus, the larger the level of these activities, the lesser will be the net foreign exchange generated, since all exports are forced at the same predetermined level for all submodels and solutions. Also, if we observed the macro variable magnitudes corresponding to the amount spent in capital for expanding processing capacity, it can be noticed that it is negatively correlated with the net foreign exchange macro variable, as one increases the other variable decreases.

Table C8 presents a comparison of three solutions for COLPR 3 with alternative working capital constraints. As it can be noticed, working capital is binding the three solutions. Again it is worth to focus our atten-

TABLE 08

COLPR 3 1/ (1975) Optimum Solutions with Unlimited Agricultural Material and Alternative Working Capital (WK)

Macro Variable \ Objective Function		WK = 365 Millions $	WK = 457 Millions $	WK = 489 Millions $		
Description	Symbol					
Value Added (Millions US$)	VA	899.58289	1014.39023	1042.86642		
Employment of Direct Workers (Man/Yrs)	EMPDW	110150.	121305.	140122.		
Total Employment (Man/Yrs)	EMPTO	138005.	156941.	175486.		
Working Capital (Millions US$)	WK	365.0 4/	457.0 4/	489.0 4/		
Payments to Labor (Millions US$)	LABOR	202.85003	250.02643	250.21691		
Returns to Capital & Management (Millions US$)	P	645.28596	695.05146	722.86099		
Supplies (Millions US$)	S	187.25377	247.55625	297.84196		
Fixed Capital (Millions US$)	FC	682.16372	828.90866	951.72771		
Installed Capacity of Electric Motors (HP)	HP	515101.	595881.	597119.		
Net Foreign Exchange 2/ (Millions US$)	FX	-247.62043	-149.63033	- 12.60938		
Surplus Feedstuff by-products 3 (Millions US$)	AG141V	- 77128	- 66.83162	- 66.83162		
Surplus Inedible Tallow by-products (Millions US$) 3	AG164V	-46.10345	- 46.10345-	- 46.10345		
Surplus Hides by-products (Millions US$)	AG162V	-49.69427	- 49.69427	- 49.69427		
Capital for Expanding Processing Capacity (Millions US$)	FIXCAP	252.35436	300.02350	422.84255		

1/ Comprised processing activities representing: (1) the existing 1968 Colombian technology, (2) alternative foreign technologies from various countries at different stages of development, and (3) investment activities for expanding processing capacities of all 48 agro-industries in the model.

2/ The negative sign indicates 'earned' foreign exchange, i.e. it is added to the FX row.

3/ Unused (surplus) by-products equivalent to total (potential) sector production of the specific by-product minus the quantity of the by-product utilized by other sector industries (inter-industry consumption), or may be interpreted as "waste" or failure of the sector to produce these amounts of by-products (a deficit gap or measure of inefficiency of the corresponding industries).

4/ Binding Restriction

tion to the net foreign exchange variable. The value of this variable is higher, when the working capital, which is a resource binding the solution, is at its lower restricted level or 365 million U.S. $. Then if we relax this restriction i.e. we allocate more working capital to the system, the net foreign exchange generated by the sector becomes less and less. This, of course, is due to the fact that as more working capital is available in the system the level of commodity production increases and when processing capacities are limited, it becomes necessary to invest in expanding capacities with the corresponding imports of capital goods and a drainage in the net foreign exchange accounting variable. Some changes in the level of commodity production and in the activity mix can be observed from the results obtained from the different optimum solutions maximizing different objectives, especially the results from the "EMPDW" employment (direct workers) maximizing program.

Table 9, Appendix C presents the level of activities for the different solutions of COLPR 3. In table 10, Appendix C it is presented all shadow prices for exhausted resources for the different program solutions. It is interesting to notice that for a few solutions, for example, those maximizing employment (EMPDW) and profits (P) the available trained labor force (LTD) for region 'D' is exhausted, however, the value of its shadow price remains equal to zero. This is explained by the structure of the model in which the regional activities are structurally constructed the same, i.e., all input-coefficients are exactly the same, except for the labor coefficients which although of the same magnitude are qualitatively different since each regional activity employ "trained labor" from a specific regional trained labor force, (constraint). For example, in this case the 'LTD' constraint above mentioned, specify only labor available in region 'D'. The program after finding all trained labor in region 'D' completely exhausted, thus change the level of com-

modity production to another regional activity without altering the solution. This is to say that there "alternative" mix of regional activities which gives the same program solution. On the other hand, the total trained labor (national basis) constraint is exhausted in the total employment (EMPO) maximizing solution. However, the program shows a shadow for this resource equal to - .58608, indicating that there is no alternative factor substitution (since all trained labor is exhausted at the national level) and by increasing the resource base by one additional trained labor the objective function increases by .58608, which is a little more than half a man-year employment.

Comparison of Optimum Solution for 1968 and 1975 Submodels

For planning purposes a meaningful comparison is between programs in different years with the same objective, as well as the trade-off between policy objectives amoung individual planning strategies. In table C9, C1C and C11 it is presented in a comparison of the results of five maximizing solutions with different policy objectives for the base model in 1968 and in three differently structured submodels in 1975. These three submodels or variants can be also viewed it as three alternative planning strategies as follows: (1) submodel COLPR 1 (1975) represents an extension of the same processing sector structure prevailing in 1968, of course, with expanded resources; markets and labor force, but with the same 1968 processing capacities; (2) submodel COLPR 2 (1975) open the door to foreign technologies not currently existing in Columbia to be included as a possible alternative for planning purposes, and (3) COLPR 3 strategy goes a step further and in addition , allows for the allocation of unlimited foreign exchange to import fixed capital goods (industrial machinery, etc.) for expanding processing capacities to meet the needs of 1975 Colombian markets.

Strategy 1 (Includes only existing Colombian Technology)

As we can observe from the data presented in table C9, the level of the major policy variable remains about the same for all solutions with different maximizing objectives. The level of production of processed commodities shows only very minor changes, mainly because of the large number of binding processing constraints in the model. The proportional increases from 1968 to 1975 slightly varies from one solution to the other, and their annual rate of growth, barely surpasses the annual population growth of 3.26. Only the net foreign exchange earned by the sector shows some substantial gains, and of course this is due to the fact that exports are forced into the system at predetermined levels, simply indicating either good export possibilities or over estimation of our forecasts. Since exports of green coffee are by large the major foreign exchange earning commodity of Colombia and exports of other processed commodities, like refined sugar and lint cotton are also important foreign exchange generators. The processing sector by itself is more than self-sufficient in its foreign exchange requirements.

Strategy 2 (Including Foreign Alternative Technologies)

The data presented in table C10 shows technology impacts of the various runs with different objective functions. The level of the macro variables (major policy objectives) vary considerably among solutions with different objectives and between programs in different years with the same objective function. Production of processed commodities, expressed in terms of 'value added', increases by 54% between 1968 and 1975 in the 'value added' and by 52% in the 'returns to capital and management' maximizing solutions, respectively. Total employment between the two years increases up to 58 percent in the program maximizing 'total employed' and the employment of trained labor in processing industries is increased by 51 percent in

Table C9. Comparison of Major Policy Objectives in Optimum Solutions with Different Objectives between Base Year 1968 [1] and 1975 (COLPR 1 Variant) [2] Solutions

Major Policy Objective \ Objective Function	Max. Value Added			Max. Employment of Trained Labor			Max. Total Employment			Max. Payments to Labor			Max. Return to Capital & Management		
	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.
Value Added (Millions U.S. $)	561.27	75681	35	561.01	755.90	35	557.82	755.90	36	558.08	756.46	36	561.27	753.57	34
Employment Trained Labor (Man/Yrs.)	125006	170280	36	125006	172960	38	124928	172960	38	124928	172823	38	125006	170780	37
Total Employment (Man/Yrs.)	149287	205893	38	149287	208457	40	149462	208457	39	149462	209332	39	149287	205528	38
Payments to Labor (Millions U.S.$)	122.40	170.90	40	122.30	170.63	40	122.90	170.78	39	123.00	171.20	39	122.40	168.54	38
Returns to Capital & Management (Millions U.S.$)	391.44	523.78	34	391.44	523.44	34	388.13	523.44	35	388.13	523.30	35	391.44	524.15	34
Net Foreign Exchange (Millions U.S. $)	288.17	461.80	60	288.17	461.66	60	285.29	461.66	62	285.29	461.66	62	288.17	464.41	61

1/ 1968 Base model with restricted agricultural raw material with unlimited working capital and with processing activities at about actual 1968 Colombian production levels.

2/ Comprised only processing activities representing the existing 1968 Colombian technology, with Unlimited Agricultural Raw Material but Restricted Working Capital (WK) at $457 Millions.

Table C10. Comparison of Major Policy Objectives in Optimum Solutions with Different Objectives between Base Year 1968 [1] and 1975 (COLPR 2 Variant) [2] Solutions

Major Policy Objective \ Objective Function	Max. Value Added			Max. Employment of Trained Labor			Max. Total Employment			Max. Payments to Labor			Max. Return to Capital & Management		
	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.
Value Added (Millions U.S. $)	561.27	866.34	54	561.01	806.47	44	557.82	804.52	44	558.08	668.09	20	561.27	850.34	52
Employment Trained Labor (Man/Yrs.)	125006	138126	10	125006	189023	51	124928	185709	49	124928	115653	-7	125006	140172	12
Total Employment (Man/Yrs.)	149287	175994	18	149287	233540	56	149462	236338	58	149462	153626	3	149287	174411	17
Payments to Labor (Millions U.S.$)	122.40	198.68	62	122.30	178.09	46	122.90	196.72	60	123.00	254.02	107	122.40	177.36	45
Returns to Capital & Management (Millions U.S.$)	391.44	611.27	56	391.44	574.48	47	388.13	557.64	44	388.13	351.72	-9	391.44	624.43	60
Net Foreign Exchange (Millions U.S. $)	288.17	461.55	60	288.17	461.66	60	285.29	461.66	62	285.29	462.58	62	288.17	461.80	60

1/ 1968 Base model with restricted agricultural raw material with unlimited working capital and with processing activities at about actual 1968 Colombian production levels.

2/ Comprised processing activities representing both the existing 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development, with Restricted Working Capital (WK) at $457 Millions and Unlimited Agricultural Raw Material.

the program maximizing 'direct worker employment'. Returns to capital and management increase up to a high 60 percent, of course, in the solution maximizing this objective, and finally the net foreign exchange increases to 60-62 percent for all the different solutions, or about the same than in the submodel COLPR 1, i.e. before introducing the alternative foreign technologies. The solution maximizing 'payments to labor' of course shows the greatest increase in this variable, up to 107 percent between 1968 and 1975, as well as some extreme peradoxically changes (decreases) in the employment and other major objectives. As previously mentioned, this is due to the fact to the wide wage differential between Colombia and the United States which is explicitly specified in the technical coefficient representing the monetary payments to labor of each processing activity of the model. Hence, the results of the solutions maximizing this objective function will be not, hereafter, be used in order to avoid misleading analytical comparison and conclusions. In general it can be said that the solutions maximizing employment (both total and direct workers in production) appears to be the ones who offer more stability to the system from the standpoint of view in compromizing all the different policy objectives. This is to say that these solutions show a consistent substantial growth in all macro variables, without any substantial sacrifice in the growth of any of the major policy objectives.

Strategy 3 (Includes Alternative Foreign Technologies and Expanding Processing Capacities)

It is interesting to notice that by relaxing the restriction imposed by limited processing capacities, in addition of having the alternative to select different technologies, allows the processing sector to expand considerably from 1968 to 1975. The data presented in table C11 shows that by maximizing different objectives, of course, in different programs, we can achieve the following goals: Production (value added)

Table C11. Comparison of Major Policy Objectives in Optimum Solutions with Different Objectives between Base Year 1968 [1] and 1975 (COLPR 3 Variant) [2] Solutions

Major Policy Objective \ Objective Function	Max. Value Added			Max. Employment of Trained Labor			Max. Total Employment			Max. Payments to Labor			Max. Return to Capital & Management		
	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.	1968	1975	% inc.
Value Added (Millions U.S. $)	561.27	1014.39	81	561.01	756.83	35	557.82	841.33	51	558.08	703.94	26	561.27	1000 58	78
Employment Trained Labor (Man/Yrs.)	125006	121305	-3	125006	224678	80	124928	224660	80	124928	105861	-15	125006	144662	16
Total Employment (Man/Yrs.)	149287	156941	5	149287	266393	78	149462	274288	84	149462	145498	- 3	149287	173701	16
Payments to Labor (Millions U.S.$)	122.40	250.03	104	122.30	180.42	48	122.90	210.47	71	123.00	299.46	143	122.40	205.76	68
Returns to Capital & Management (Millions U.S.$)	391.44	695.05	78	391.44	519.25	33	388.13	566.45	46	388.13	339.93	-12	391.44	738.05	89
Net Foreign Exchange (Millions U.S. $)	288.17	149.63	-48	288.17	46.19	-84	285.29	30.32	-89	285.29	254.79	-11	288.17	16.99	-94

1/ 1968 Base model with restricted agricultural raw material with unlimited working capital and with processing activities at about actual 1968 Colombian production levels.

2/ Comprised processing activities representing: (1) the existing 1968 Colombian technology, (2) alternative foreign technologies from various countries at different stages of development, and (3) investment activities for expanding processing capacities of all 48 agro-industries in the model, with Unlimited Agricultural Raw Materials and Restricted Working Capital (WK) at $457 Millions U.S.$.

between 1968 and 1975 may be increased by 81 percent; total employment may be increased by 84 percent; employment of direct workers in production (trained labor in processing) can be increased by 80 percent, and the returns to private capital and management can be increased by 89 percent. It is also interesting to notice that the levels of the six macro variables or policy objectives shown for any one solution, vary considerably much more between years for this strategy than in the previous strategies solutions. For example, in the value added maximizing solution, the changes of the magnitude of the policy variables ranges from -48 percent for the "net foreign exchange" variable to a high of 104 percent for "the payments to labor" variable. In COLPR 1 submodel the percentage changes in the growth of the macro variables from 1968 to 1975 ranges from a low of 34 percent (returns to capital and management) to a high of 60 percent for the foreign exchange variable and for the value added maximizing solutions of COLPR 2 the changes in the magnitude ranges from 10 percent for employment of direct workers (trained labor) to a high of 62 percent for the payments to the labor factor. It is noticeable the drainage of foreign exchange between 1968 and 1975 which characterized all the solutions of this submodel. For example, the level of net foreign exchange earned by the processing sector in the "private profits" 1/ program declined 94 percent from 288 million U.S. $ in 1968 to a low of only 17 millions in 1975. Although the absolute gains of foreign exchange is greater in 1975, due to increased level of exports, the net balance is tremendously reduced as a result of the large importation of fixed capital goods (machinery, etc.) necessary to expand processing capacities. Of course, this heavy drawing on the foreign exchange reverses will take place only during this first year of expansion of the sector.

1/ From hereinafter, we are going to start using interchangeable (a) "private profits" for returns to capital and management; (b) "production" for value added and "employment" for total employment".

Comparison of the Impacts (Results) of the Three Strategies (Submodels) for 1975

In the previous chapter, a brief intra-strategy comparison among five different major objectives were presented. Table C12, shows a comparison of the results obtained from optimum solutions maximizing three different objectives for each one of the three distinct submodels or strategies. For the sake of brevity and clarity the number of objectives to be compared from now on have been reduced from five to three objectives as follows: Two objectives representing "public goals" (representing also major goals of the Colombia National Plan) namely increase of employment and production (using the "total employment" and the "value added" maximizing solutions, respectively) and a private goal, i.e. increase of private profits (using the "returns to capital and management maximizing solution).1/

It is quite apparent by what the data in table C12 reveals that if the planner's philosophy is single-objective minded, whichever this objective is, they just have to closely follow the commodity level and the activity mix by optimum solutions from strategy 3 and the specific objective they choose. Since the simplicity of the above mentioned approach, which disregards any other political and economical consideration to the achievement of just one-specific goal, appear unrealistic or not likely to be pursued except under highly regimented society.2/ Undoubtedly not only the gains but "the opportunity cost" represented by what is loss in the potential gains or benefits of other objectives if we had pursued another strategy or development policy. The selection of the more adequate strategy-objective will be latter treated in this paper. We can also conclude based on the date presented in table C12, that if we follow a one-objective policy,

1/ These were the same objectives used in the decision-making analysis of the Agricultural Sector. For a detailed description of analytical techniques in selecting planning strategies for development, the reader is referred to the following working documents. Daines, Samuel, et. al., Analytical Working Document # 6. "Partial Implications of the Analysis for Decision-making in the Agricultural Sector.

2/ For example, to concentrate only in the expansion of industrial output during a certain five-year plan.

Table C12.

Comparison of the Impact of Three Alternative Strategies on Three Different Objectives of the Processing Sector (1968-1975)

Objective \ Strategy	Strategy 1 (1968 Colombian Technology)	Strategy 2 (Introduction of Foreign Technologies)	Strategy 3 (Introduction of Foreign Technologies plus Allocation of Capital for Expanding Processing Capacities)
(a) Total Employment			
Total Employment Max. Sol. (1968)	149462 (Man/Years)	149462 (Man/Years)	149462 (Man/Years)
Total Employment Max. Sol. (1975)	208457 "	236338 "	274288 "
Absolute Difference	58995 "	86876 "	124826 "
Percentage Change (+ or =)	+ 39% (increase)	+ 60% (increase)	+ 84 % (increase)
(b) Production (Value Added)			
Value Added 1/ Max. Sol. (1968)	561.27 (Millions US$)	561.27 (Millions US$)	561.27 (Millions US$)
Value Added 1/ Max. Sol. (1975)	756.81 "	866.34 "	1014.39 "
Absolute Difference	195.54 "	305.07 "	453.12 "
Percentage Change (+ or -)	+ 35% (increase)	+ 54% (increase)	+ 81% (increase)
(c) Private Profits 2/			
Private Profit Max. Sol. (1968)	391.44 (Millions US$)	391.44 (Millions US$)	391.44 (Millions US$)
Private Profit Max. Sol. (1975)	524.15 "	624.43 "	738.05 "
Absolute Difference	132.71 "	232.99 "	346.61 "
Percentage Change (+ or -)	+34% (increase)	+ 60% (increase)	+ 80% (increase)

1/ Production Objective

2/ Returns to Capital and Management Objective

strategy No. 2, is far superior than strategy 1 in reaching higher level in the magnitude of any single objective. It is important at this point, to recall the attention of the reader to the fact that a very important policy goal (objective) namely the "conservation of foreign exchange" is excluded from the data in table C12, and is precisely one of the major weaknesses of the strategy No. 3, namely the drainage of foreign exchange allocated to the importation of foreign machinery and other fixed capital goods.

Comparison of Gains and Losses and Trade-off Between Specific Objectives for Alternative Programs and Strategies

In the previous sections it was briefly discussed the highlights of comparing alternative optimum solutions for each individual strategy or submodel (see tables C9 through C11), as well as between strategies (see table C12), when only a single objective at the same time was analyzed. Considering the fact that most development plans have multiple goals, we have developed three additional tables, quantifying the gain and losses and trade-off (exchange rates) between our major objectives for different maximizing programs and alternative strategies.

By comparing in pairs the relative impacts that different maximizing programs had on specific objectives another analytical dimension or measuring stick is added to the process of evaluating the desirability of each program and strategy. For the purpose of this paper the process of evaluation (criteria) to be followed will take place in two separate steps. First we have to determine or at least to postulate for each strategy which is the chosen maximizing solution (production, employment or private profits). Then from the three chosen solutions (one for each strategy), we have to select the one (program-strategy) which presumably meets more adequately our over-all multi-objectives development plan. For a detailed explanation of an

analytical technique on the selection of development strategies, the reader is referred to Analytical Working Document number six.[1] In table C13, it is summarized the relative gains and losses, as well as the trade-off between objectives resulted from comparison of solutions of three maximizing programs under strategy No. 1. It can be observed in this table that only two programs are compared at one time. For example, when the programs maximizing employment and production are compared (first line) we can notice that the employment generated by the former is 2564 man-years greater than in the latter program, but that the value of the level of production and of the private profits are reduced by 0.91 and 0.34 million U.S.$, respectively. It is interesting to notice that if we select the program maximizing production over the one maximizing employment, for each million dollar increase in the value of production we have to give up employment amounted to 2818 man-years and for each million dollars increase in the private profits (return to capital and management) we must sacrifice employment for 7541 man-years. These figures represent the trade-off or exchange rates between objectives that constitute losses (sacrifices) or gains (benefits) that the planner must take into consideration in selecting any specific program or strategy.[2] The second comparison, between programs maximizing production vs maximizing private profits indicates that using the former we obtain slightly higher employment and value of production with a minor sacrifice in the earning of private profits. The last comparison between the maximization of private profits vs employment shows a reduction of employment and production with a slight gains in the private profit returns. Apparently both the production

1/ Daines, Samuel, et al. Analytical W.D. #6 "Partial Implications of the Anelysis For Decision-Making in the Agricultural Sector.

2/ The gains (benefits) or losses (sacrifices) are expressed in the context of relativity implied by the comparison between two program solutions and are always expressed in terms of the units in which the objectives are quantified in the programs.

Table C 13. TRADE OFF BETWEEN OBJECTIVES RESULTING FROM ALTERNATIVE MAXIMIZING PROGRAMS UNDER STRATEGY 1 [1], 197[illegible]

OBJECTIVE COMPARISON / MAXIMIZING PROGRAMS COMPARISONS	EMPLOYMENT (Man/Years)	PRODUCTION (Millions U.S. $)	PRIVATE PROFITS (Millions U.S. $)
1. Max. Total Employment vs. Max. Production (Value Added)	208457 vs. 205893	755.90 vs. 75[illegible].81	523.44 vs. 523.78
Gains or Losses (+ or -)	+ 2564	- 0.91	- 0.34
Ratio of Employment to Production or Private Profits [2]	N.A.	+2564 ÷ -0.91 = -2818	+2.64 ÷ -0.34 = -7,541
Trade off or Objective Exchange Rates (+ or -) [3]	N.A.	-2818 man-yr per 1 mill.$ of Production	-7,[illegible] man-yr per 1mill$ of Private Profits
2. Max. Production (Value Added) vs. Max. Private Profits	205893 vs. 205528	75[illegible].81 vs. 753.57	523.[illegible] vs. 524.1[illegible]
Gains or Losses (+ or -)	+ 365	+ 3.24	- 0.37
Ratio of Value Added to Private Profits or Employment [2]	+3.24 ÷ +365 = +.0089	N.A.	+3.24 ÷ -0.37 = -8.7[illegible]
Trade off or Objective Exchange Rates (+ or -) [3]	6900 dollars$ and 1man-yr. or 1 mill$ and 113 man-yr.	N.A.	-8.7[illegible] Mill.$ of Product. per 1 mill.$ of Profits
3. Max. Private Profits vs. Max. Employment	205528 vs. 208457	753.57 vs. 755.90	524.1[illegible] vs. 523.44
Gains or Losses (+ or -)	- 2929	- 2.33	+ 0.71
Ratio of Private Profits to Employment or Production [2]	+0.71 ÷ -2959 = -.00024	+0.71 ÷ 2.33 = -.30472	N.A.
Trade off or Objective Exchange Rates (+ or -) [3]	-240 dollars$ per man-yr. or 1 mill.$ per 4168 man-yr.	-.30472 mill.$ per 1 mill.$ of Production (VA)	N.A.

N.A. = Not Applicable

[1] Comprised only processing activities representing the existing 1968 Colombian technology, with Unlimited Agricultural Raw Material but Restricted Working Capital (WK) at $457 Millions.

[2] Referred to ratios of gains and losses shown in previous line.

[3] May be interpreted in either way as the sacrifice made or the benefit obtained in trading units of measurement or value of the specific objective being considered.

and employment maximizing profit maximizing program. Between the other two programs, the selection of either one has to be influenced to a great extent by the degree of importance given by the planners' preference for any specific goal. However, if appears to us that the gains in employment is of greater magnitude that the combined losses in production and private profits.[1/] The comparison of the three maximizing solutions of strategy 2 presented in table C14, shows by far more contrasting results than under strategy 1. The employment maximizing solution offer substantial total employment opportunities than the other two, although its level of production and profits is much lower than in any of the other two maximizing programs. The production maximizing programs offer more employment and, of course, higher level of value added that the private profits solution, but of course, less returns to capital and management. Now again, the questions we should ask ourselves is if the magnitude of the gains in employment merits the sacrifices that we have to make in obtaining less production of agricultural products and diminishing the incentives (less profits) to the private entrepreneurs.

For purpose of this paper, let's arbitrarily select the production maximizing program for Strategy 2.

The comparison of the results of the maximizing programs under strategy 3 are even further more striking than those under strategy 2. (see table C15). Under the employment maximizing program, employment in man-years, in substantially higher than if we choose any of the other two objective functions. However, the losses in both output (value added) and the private incentive of accumulation of profits is much more lower than in the former two strategies. The production maximizing program only offers gains in value added, while the private profit maximizing programs shows gains in two of the three objectives when compared

1/ This of course, is a very subjective approach to the selection criteria.

Table C 14. TRADE OFF BETWEEN OBJECTIVES RESULTING FROM ALTERNATIVE MAXIMIZING PROGRAMS UNDER STRATEGY 2 1/, 1975

MAXIMIZING PROGRAMS COMPARISONS \ OBJECTIVE COMPARISON	EMPLOYMENT (Man/Years)	PRODUCTION (Millions U.S. $)	PRIVATE PROFITS (Millions U.S. $)
1. Max. Total Employment vs. Max. Production (Value Added)	236338 vs. 175994	804.52 vs. 866.34	557.64 vs. 611.27
Gains or Losses (+ or -)	+ 60344	-61.82	-53.63
Ratio of Employment to Production or Private Profits 2/	N.A.	60344 ÷ -61.82 = 976	60344 ÷ -53.63 = 1125
Trade off or Objective Exchange Rates (+ or -) 3/	N.A.	-976 man-yrs per 1 mill.$ of Value Added	-1125 man-yrs per 1 mil. $ of Private Profits
2. Max. Production (Value Added) vs. Max. Private Profits	175994 vs. 174411	866.34 vs. 850.34	611.27 vs. 624.43
Gains or Losses (+ or -)	+ 1583	+ 16.0	-13.16
Ratio of Value Added to Private Profits or Employment 2/	16.0 ÷ 1583 = .010107	N.A.	16.0 ÷ -13.16 = 1.2158
Trade off or Objective Exchange Rates (+ or -) 3/	10107 $ and 1man-year	N.A.	-1.2158 mill.$ of value added per 1 mill$ profit
3. Max. Private Profits vs. Max. Employment	174411 vs. 236338	850.34 vs. 804.52	624.43 vs. 557.64
Gains or Losses (+ or -)	-61927	+ 45.82	+66.79
Ratio of Private Profits to Employment or Production 2/	66.79 ÷ 61927 = -.00108	66.79 ÷ 45.82 = +1.4577	N.A.
Trade off or Objective Exchange Rates (+ or -) 3/	-1080$ per 1 man-year	1 mill.$ of profits and 1.4577 mill.$ of VA.	N.A.

N.A. = Not Applicable

1/ Comprised processing activities representing both the existing 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development, with Restricted Working Capital (WK) at $457 Millions and Unlimited Agricultural Raw Material.

2/ Referred to ratios of gains and losses shown in previous line.

3/ May be interpreted in either way as the sacrifice made or the benefit obtained in trading units of measurement or value of the specific objective being considered.

Table C 15. TRADE OFF BETWEEN OBJECTIVES RESULTING FROM ALTERNATIVE MAXIMIZING PROGRAMS UNDER STRATEGY 3 1/, 1975

MAXIMIZING PROGRAMS COMPARISONS \ OBJECTIVE COMPARISON	EMPLOYMENT (Man/Years)	PRODUCTION (Millions U.S. $)	PRIVATE PROFITS (Millions U.S. $)
1. Max. Total Employment vs. Max. Production (Value Added)	274288 vs. 156941	841.33 vs. 1014.39	566.45 vs. 695.05
Gains or Losses (+ or -)	+ 117347	-173.06	- 123.60
Ratio of Employment to Production or Private Profits 2/	N.A.	117347 ÷ -173.06 =-678	117347 ÷-123.60 = -912
Trade off or Objective Exchange Rates (+ or -) 3/	N.A.	-678 man-yrs. per 1mill.$ of production	-912 man-yrs. per 1 mill. $ of Profits
2. Max. Production (Value Added) vs. Max. Private Profits	156941 vs. 173701	1014.39 vs. 1000.58	695.05 vs. 738.05
Gains or Losses (+ or -)	- 16760	+ 13.81	-43.0
Ratio of Value Added to Private Profits or Employment 2/	13.81 ÷ -16760 = -.000824	N.A.	13.81 ÷ -43.0 = -.321
Trade off or Objective Exchange Rates (+ or -) 3/	-824 $ per 1 man-yr.	N.A.	-.321 mill.$ of product. per 1 mill.$ of Profits
3. Max. Private Profits vs. Max. Employment	173701 vs. 274288	1000.58 vs. 841.33	738.05 vs. 566.45
Gains or Losses (+ or -)	-100587	+ 159.25	+ 171.6
Ratio of Private Profits to Employment or Production 2/	171.6 ÷ -100587=-.001706	171.6 ÷ +159.25 =-1.076	N.A.
Trade off or Objective Exchange Rates (+ or -) 3/	-1706$ per 1 man-yr	1.076 mill.$ of profits and 1 mill.$ of Value Added	N.A.

N.A. = Not Applicable

1/ Comprised processing activities representing: (1) the existing 1968 Colombian technology, (2) alternative foreign technologies from various countries at different stages of development, and,(3)investment activities for expanding processing capacities of all 48 agro-industries in the model, with Unlimited Agricultural Raw Materials and Restricted Working Capital (WK) at $457 Millions U.S. $.

2/ Referred to ratios of gains and losses shown in previous line.

3/ May be interpreted in either way as the sacrifice made or the benefit obtained in trading units of measurement or value of the specific objective being considered.

to either one, the employment or the production maximizing programs. Hence for strategy 3 we choose again with a degree of arbitrariness the private profit maximizing program, because (1) production reaches a high figure of 1 billion dollars and (2) of course, the incentive offer to private capital is greater than in the other two programs. The losses in employment, when compared to the "employment" program are admittedly great but are still less than in the "production" program.

Finally, after selecting a program which maximizes a specific objective for each of our three strategies, the tiresome process of elimination-evaluation reaches an end and we must now select the strategy to be followed by potential planners. In previous chapters, when the data presented in Table C12 was analyzed, it was mentioned that all programs under strategy 3, considering only one objective at the time, were overwhelmingly more favorable, but with the disadvantage that they exhausted almost all the foreign exchange reserves. Consequently programs under strategy 3 desregard the necessity to invest in the infrastructure, heavy industry and other sectors of the economy, since the conservation of foreign exchange for the importation of fixed capital for other sectors is not of prime importance. Based on the above-mentioned fact it appears that the production (value-added) maximizing program under strategy 2 (allowing for the introduction of foreign technologies) presumably would fulfill more adequately our overall multi-objective, hypothetical developing plan. Admittedly our selection offers much less employment possibilities than any maximizing program solution under any other strategy, but this costly sacrifice is in turn offset to a certain extent by better balance among all three alternative objectives as well as better conservation of the net foreign exchange generated by the processing sector.

Criticism

Admittedly the model has a number of shortcomings and imperfections in it yet. Some of these are of minor importance and easily correctable, while others are conceptually more important and should be corrected in further modifications of the analysis. Probably the most important shortcoming of the model is that the external components of the model i.e., export and import activities, are structurally independent from the other components of the model. This is to say that the production and trade activities are not interrelated through commodity balance equations. Since all exports are forced into the solution by means of equalities, i.e. the level of all export activities are equal to their respective external constraints, however, it may happen that the domestic production level of the specific commodity being exported, is at a very low level or even at zero level. This was the case of "green coffee," which exports were at the world market level while domestic production was negligible or at zero level in the run for 1975 (COLPR 1). This could not happen if the system of constraints and activities were expressed in physical units related to each other by commodity balance equations. As previously explained, the difficulties in adjusting import, export, and domestic prices to one common price (denominator) was our prime reason for omitting the commodity balance equations. Export restrictions (exhausted) do not show a shadow price, either because of the absence of the corresponding commodity balance equation or maybe because they are restriction-equalities. The regional labor constraints are redundant in the sense that they are not actually binding the solutions, while the "national trained labor force" does bind some of the solutions. This is explained by the fact that some of the "national activities," only utilized labor from the national labor force constraint and not proportionally from each region.(see recommendations below). Processing capacity constraints were

not regionalized, thus weakening the real effectiveness of the model in general and of some of the resource constraints in particular. There are also innumerable changes and minor adjustments that conceivably could be made in particular with respect to the determination and/or calculation of the technical coefficients of all the Colombian processing activities, in the alternative processing technology and in the methodology used in calculating and estimating processing capacities, markets, trade, labor, etc. Some of these changes undoubtedly would affect the solutions of the different submodels of this analysis, others would affect the solutions of the different submodels of this analysis, others however, would have little or no effect at all.

Conclusions

The analytical results presented in previous chapters are illustrative of the essential features of the model, however, they can serve no more than as a point of departure for further improvement of this analysis. Probably the most important contribution of the model is to constitute an important analytical tool to assist planners in the elaboration and evaluation of overall agro-industrial development strategies. In addition, the model facilitates analysis of some policy questions and objectives, in particular the following:

a) The effects of alternative investment policies related to agro-industries.

b) The impact (effects) of alternative technologies on major policy objectives (production, employment, etc.)

c) Foreign exchange generation/conservation.

d) Efficiency in by-product utilization.

e) Short-term (working capital) and long-term (fixed capital) requirements of the processing sector.

f) Employment possibilities, total employment and for trained workers in processing industries.

g) Sector contribution to G.D.P.

h) Detection of bottlenecks in the agro-industrial development (agricultural and processing sectors together).

We may conclude that in general the performance of the model may be considered fair to good and that with relatively minor modifications the results can be substantially improved. In addition the model can be used as a component of larger models in which the interrelationship of all sectors of the economy can be fully analyzed.

Recommendations

The specifications of the model could be improved by including regional limits of processing capacity, predetermined by the existing installed capacity in each region. These restrictions can be roughly estimated from the data compiled in Tables 3 and 4 of General Working Documents # 3F and # 3D, Part I, respectively. Clerical shortage and computer cost (by considerably increasing the number of rows) were the major limiting factors for excluding these restrictions from the 1968 model. Processing activities should specify technical coefficients measured in physical units in addition to the ones in monetary terms, in order that the input-output relationship between the agricultural raw materials and the production of final processed products and by-products can be properly quantified in physical units which are not subject to the problems of price adjusting and inflation. Then, commodity balance equations (in physical terms) can be specified for all commodities traded in the sector (for both processed products and essential agricultural raw materials). In this way the export and import activities are interrelated with the corresponding production activities in the model.

Processing activities which are specified at the national level (because they are located all over the country, like bakeries, breweries, etc.) should not only utlize labor from the national labor force, but also proportionally from each individual regional labor force. In this way the redundancy of the regional labor constraints can at least be atenuated if not completely eliminated. It is simply suggested to restructure the national processing activities so they will have a labor coefficient for each region, the sum of which will add to the total national labor employed by that processing industry. These coefficients are simply equal to the total labor employed by the industry multiply by the ratio of the regional labor

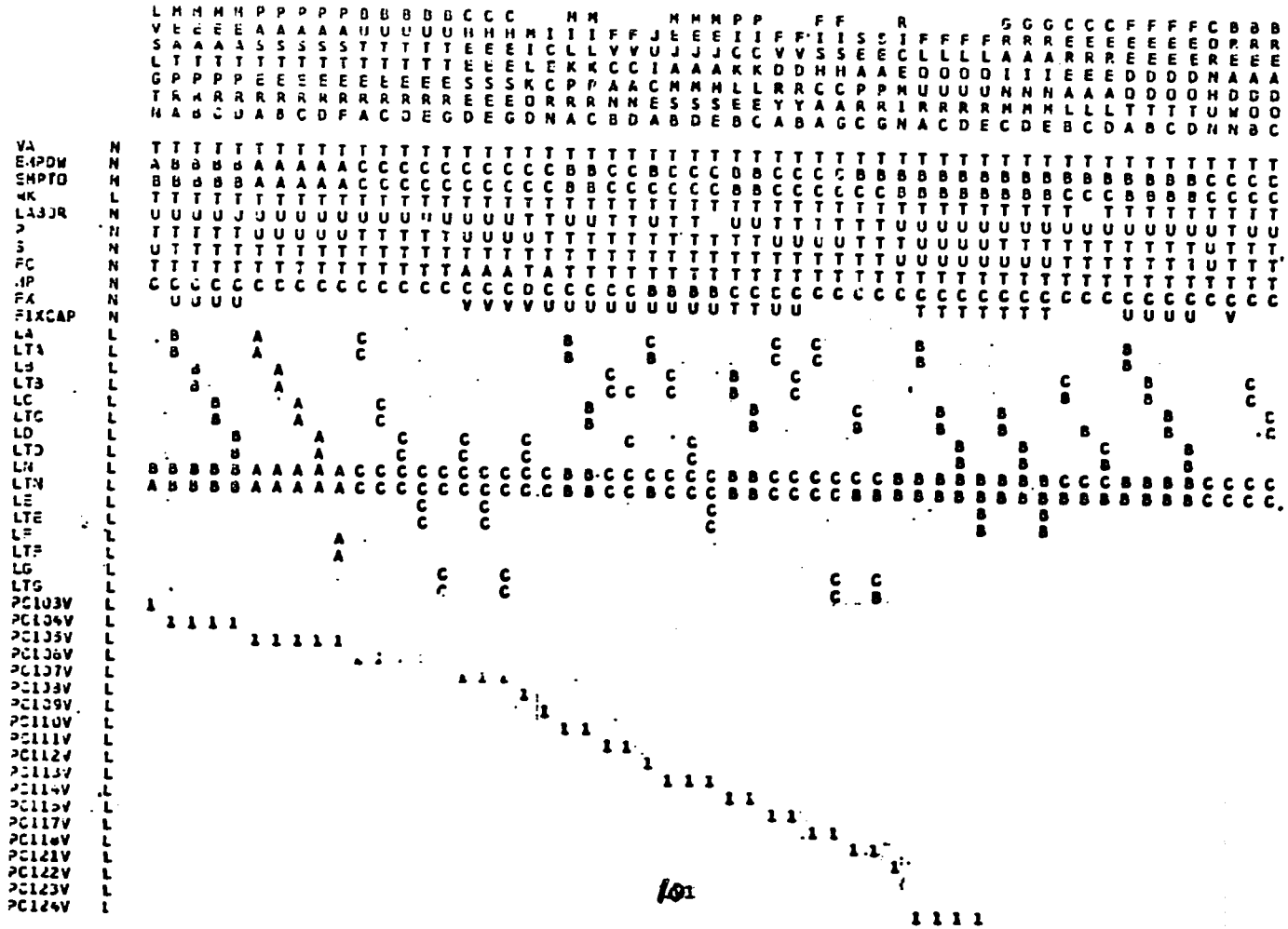
force/national labor force.

It is believed that the regionalization of processing capacities earlier suggested, will also help in solving this problem.

The above recommendations actually represent relatively minor changes in the structure of the model but do more reasonably reflect the structure of the Colombian processing sector. On the other hand, the addition of many rows (restrictions) will considerably add to the computer cost of each run as well as the clerical requirements in making the suggested changes.

Appendix A

This appendix contains two products of the L.P. (MPSX) computer printout, namely the picture and the summary. The picture is obtained by including the PICTURE statement in the control program. The picture is particularly helpful in tracing down errors such as incorrect signs and missing coefficients. The coefficients in the picture are represented by alphanumeric characters. The range of values of these alphanumeric characters are included in the summary of the matrix. The summary, is on a separate page following the picture in this appendix. (125)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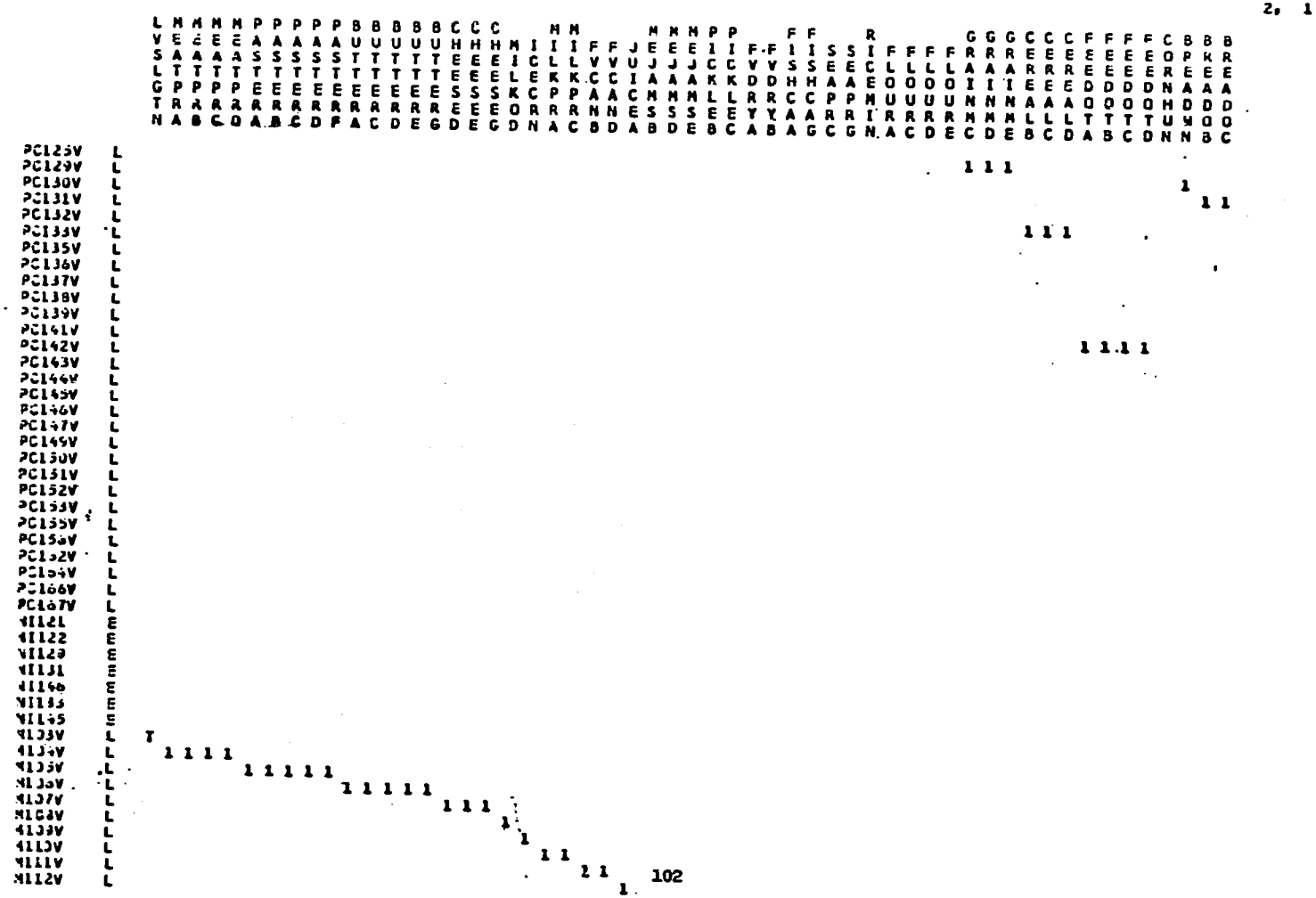
PC116V
PC121V
PC122V
PC123V
PC124V
101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MEATPRB
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MEATPRD
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BUTTEEE
BUTTEEG
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CHEESEE
CHEESEG
MILCORN
MILKPRA
MILKPRC
FVCANNB
FVCANND
JUICEA
MEJAMSB
MEJAMSD
MEJAMSE
PICKLEB
PICKLEC
FRYDDYA
FRYDDYB
FISHCAA
FISHCAG
SEAPRRC
SEAPRRG
RICEMIN
FLOURAC
FLOURCD
FLOURDE
GRAINMC
GRAINMD
GRAINME
CEREALB
CEREALC
CEREODA
FEEDTTB
FEEDTTC
FEEDTTD
CORNHUN
BREADWN
BREADWO
BREADOB
BREADOC
PC125V
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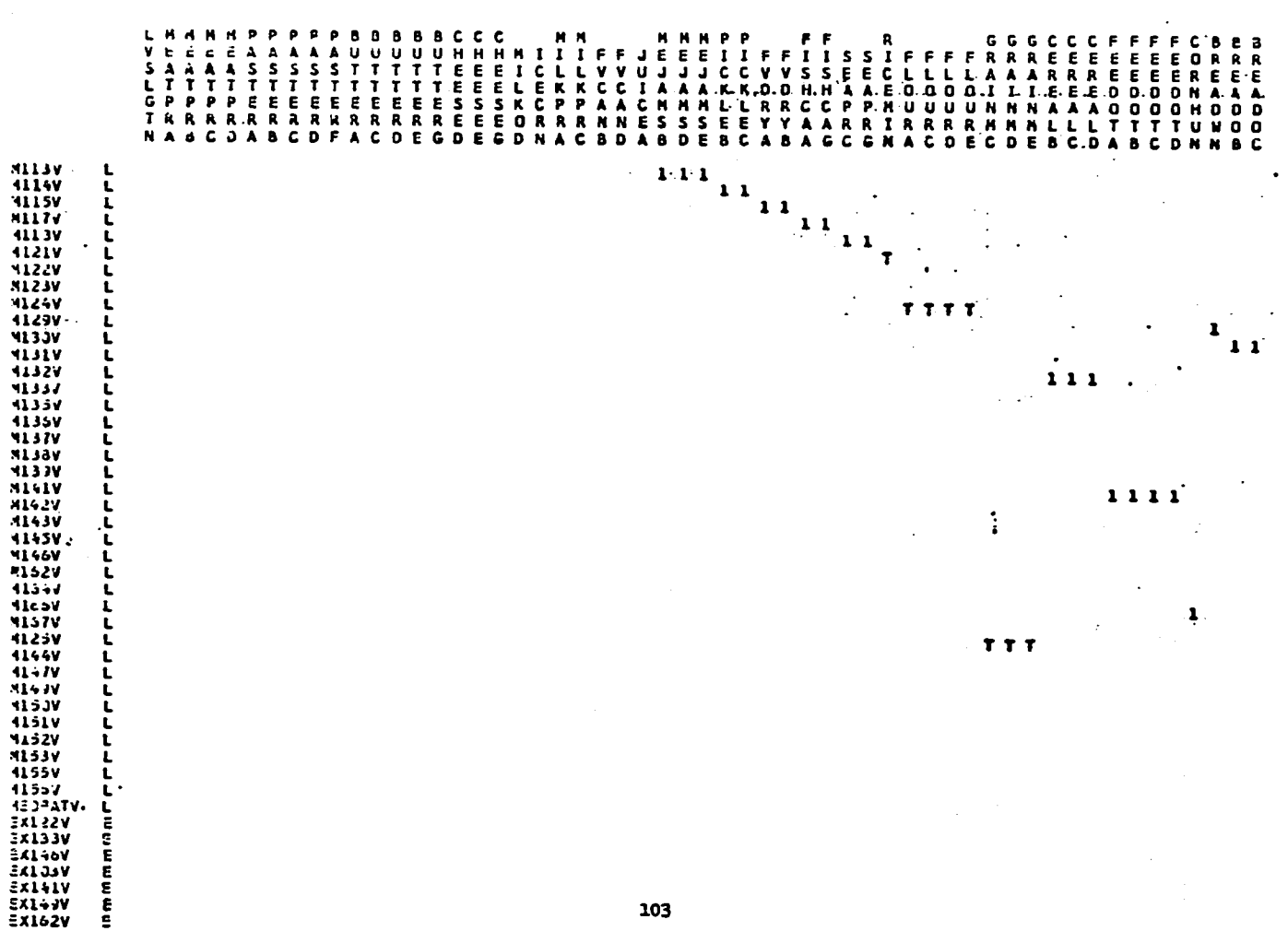
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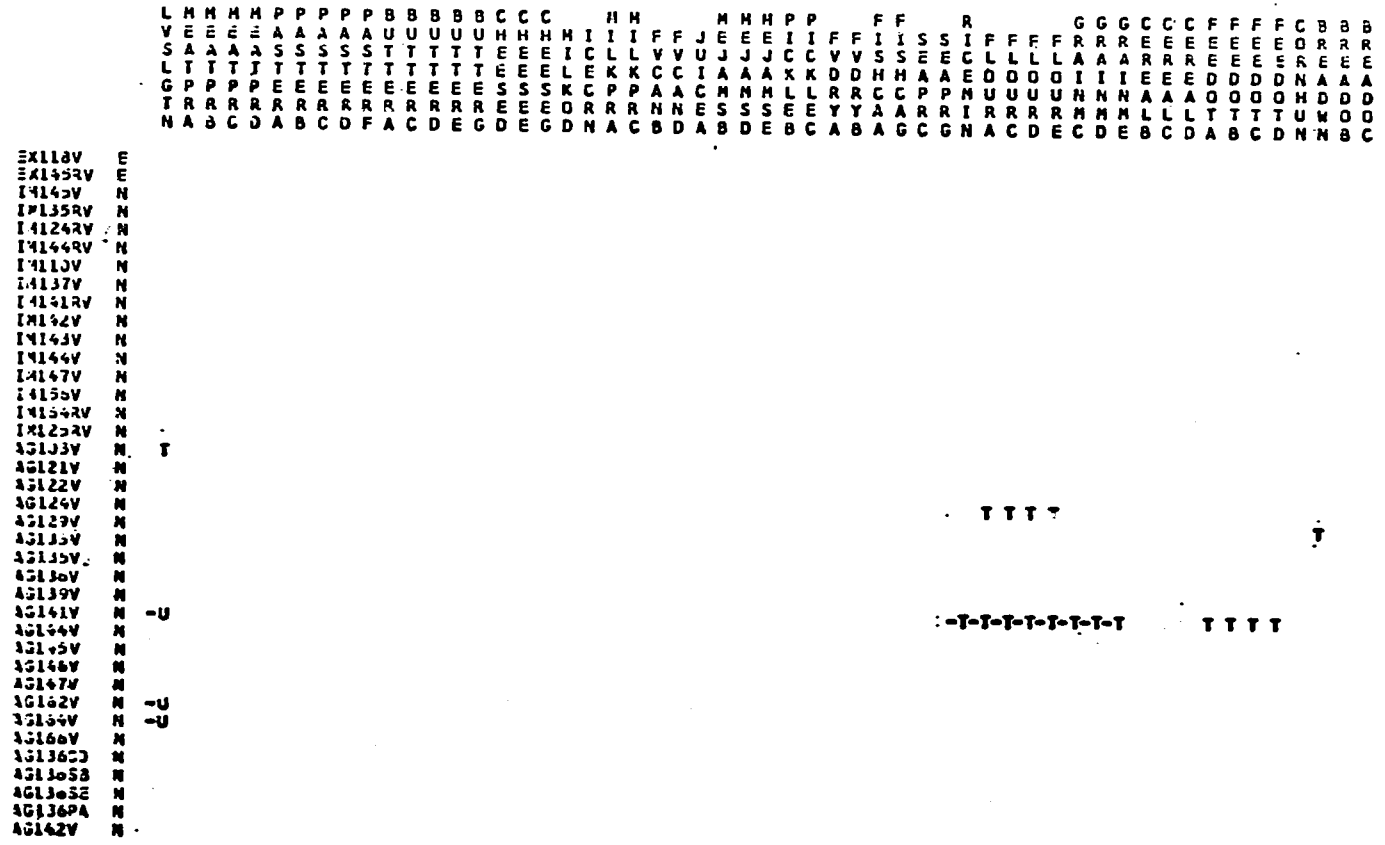
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EX118V E
EX145RV E
I4146V N
IP135RV N
I4124RV N
I4144RV N
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AG144V N
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AG146V N
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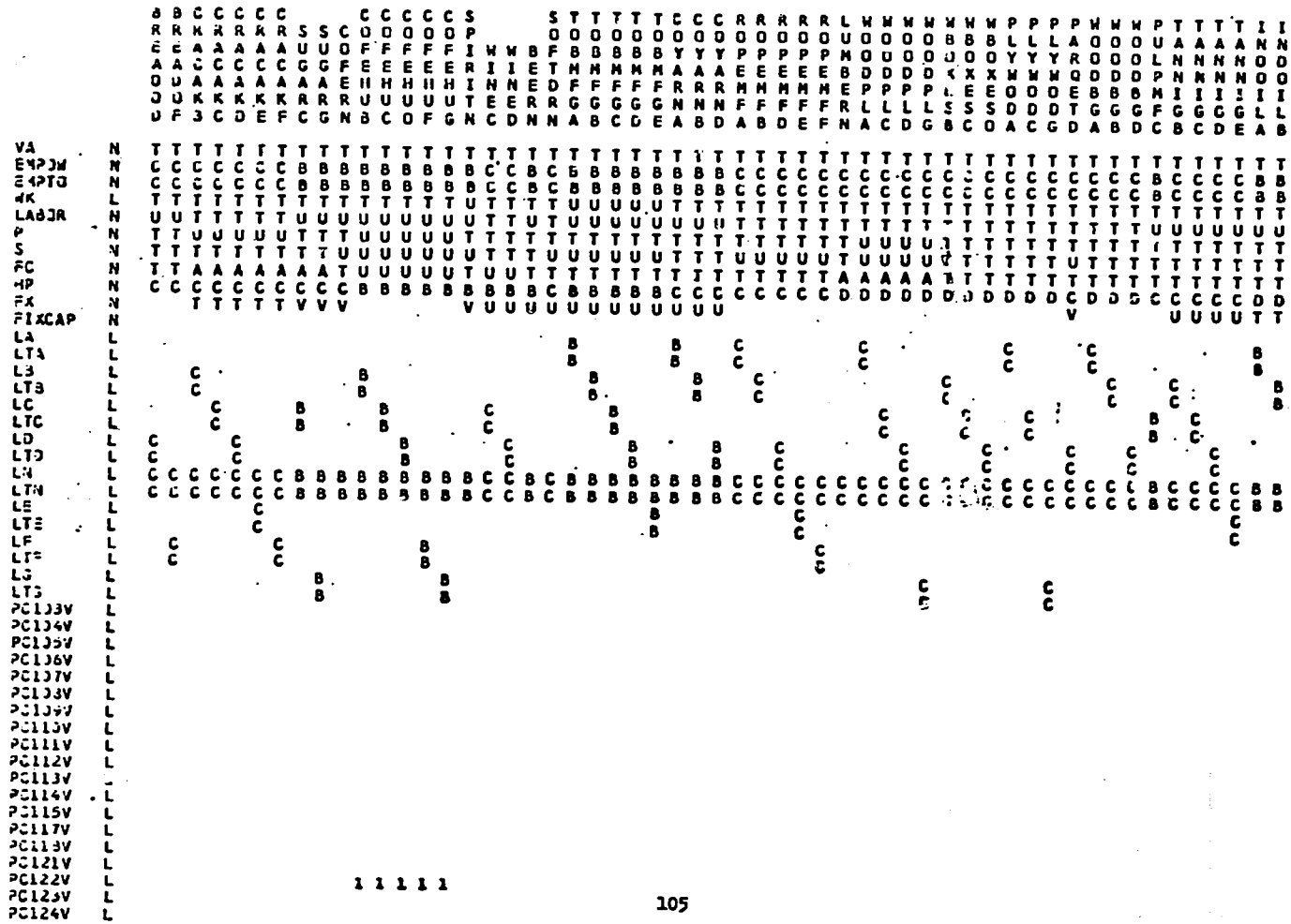
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CKAACKC
CRAACKD
CRAACKE
CRAACKF
SUGARC
SUGARG
COFERN
COFFEHUB
COFFEHUC
COFFEHUO
COFFEHUF
COFFEHUG
SPIRITN
WINEED
BEERN
STOFDRN
TOBMFFGA
TOBMFFGB
TOBMFFGC
TOBMFFGD
TOBMFFGE
TOBMAGNA
COYAARRNB
COYAARRND
REPEMFFA
REPEMFFB
REPEMFFD
REPEMFFE
REPEMFFF
LUMBERN
WOODPLAC
WOODPLCD
WOODPLDG
WOODPLFC
WOODXLSB
WOODXESC
WOODSOA
WOODWDOC
WOODWDOG
PAROQUET
WOODBGA
WOODBGB
WOODBGD
PULPMFGB
TANNINGC
TANNINGD
TANNINGE
TANNOILA
INDOILB
VA
EMPJM
EMPTD
4K
LABJR
P
S
PC
HP
FX
FIXCAP
LA
LTA
LB
LTB
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PC114V
PC115V
PC117V
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PC121V
PC122V
PC123V
PC124V

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EX122V	E																			
EX133V	E																			
EX146V	E																			
EX133V	E																			
EX141V	E																			
EX149V	E																			
EX162V	E																			

		SOFTDRN	TOBMFGA	TOBMFGB	TOBMFGC	TOBMFGD	TODMFGE	COYARNA	COYARNB	COYARND	ROPEMFA	ROPEMFB	ROPEMFD	ROPEMFE	ROPEMFF	LUMBERN	WOODPLA	WOODPLC	WOODPLD	WOODPLG
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FEDFATV	L																			
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EX146V	E																			
EX133V	E																			
EX141V	E																			
EX149V	E																			
EX162V	E																			

		WBOXESB	WBOXESC	WBOXESD	PLYWDDA	PLYWDDC	PLYWDDG	PARQETD	WOODBGA	WOODBGB	WOODBGD	PULPMFC	TANNIGB	TANNIGC	TANNIGD	TANNIGE	INDOILA	INDOILB
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FEDFATV	L																	
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EX141V	E																	
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EX162V	E																	

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NI12V	L																																																							

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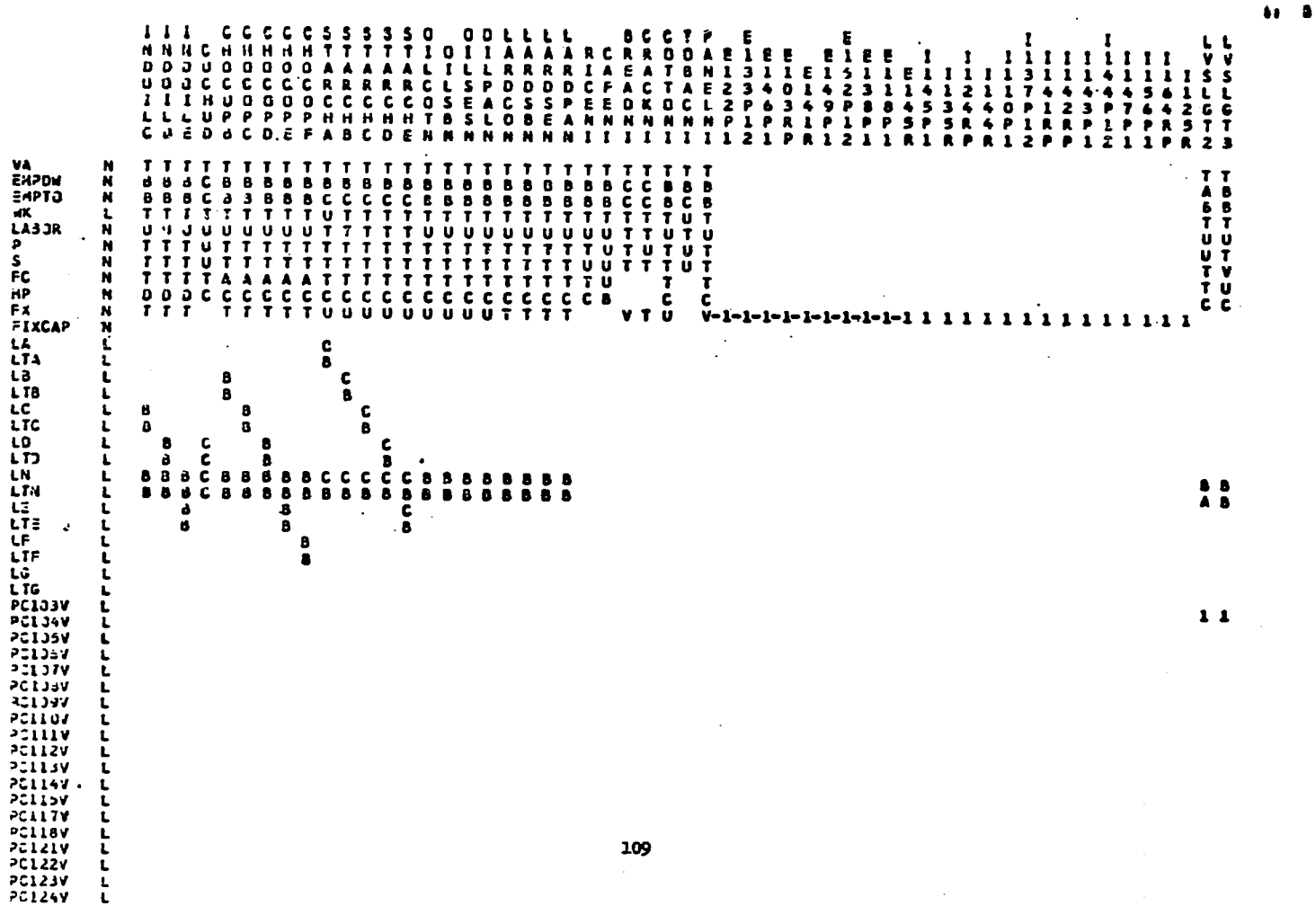
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INDOILE
INOUCHD
CHOOCUPG
CHOOCPC
CHOOCPD.E
CHOOCPF
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STARCHB
STARCHC
STARCHD
STARCHE
SOTARCHN
OILCOTN
OILSBSNN
OILSPEASNN
DILACSLNN
LARDLOBNN
LARDSBENN
LARDSEANN
LARDPEANI
RICFEENI
BREADNII
CRACKNII
COTOTNII
TBTAENII
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EMPTO
WK
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HP
FX
FIXCAP
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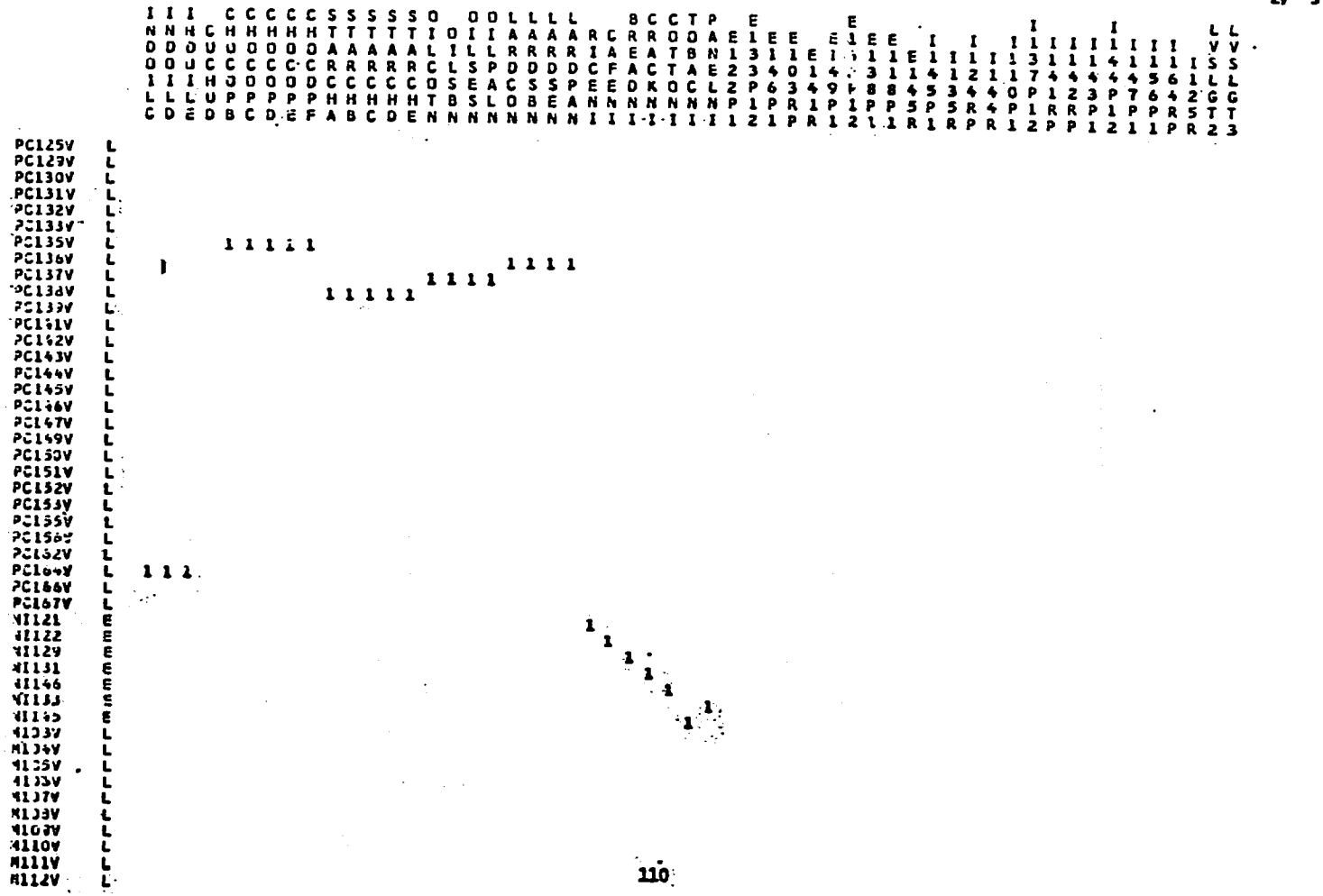

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MI38V L
MI40V L
MI10V L
MI11V L
MI12V L

		INDUILC	INDUILD	INDJIL2	CUCHUD	CHOCOPB	CHOCOPC	CHOCOPD	CHOCOPE	CHOCOPF	STARCHA	STARCHB	STARCHC	STARCHD	STARCHE	OILCOTN	OILSBN	OILSESN	OILPALN	LARDCON	LARDSBN	LARDSEN	LARDPAN	RICENI	CAFENI	BREADNI	CRACKNI	COTTONI	TOBACNI	PANELNI
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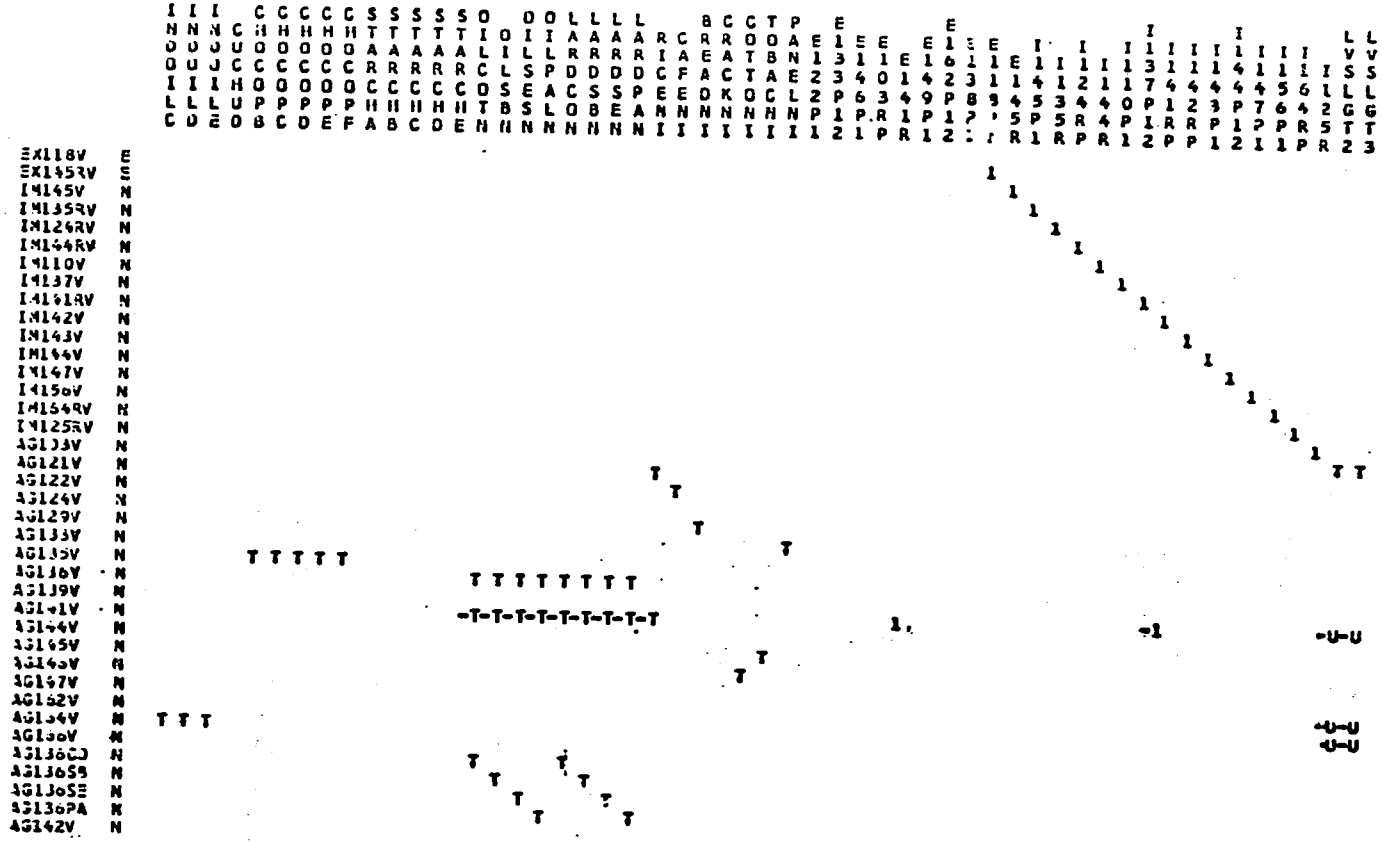
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TOOTHNI
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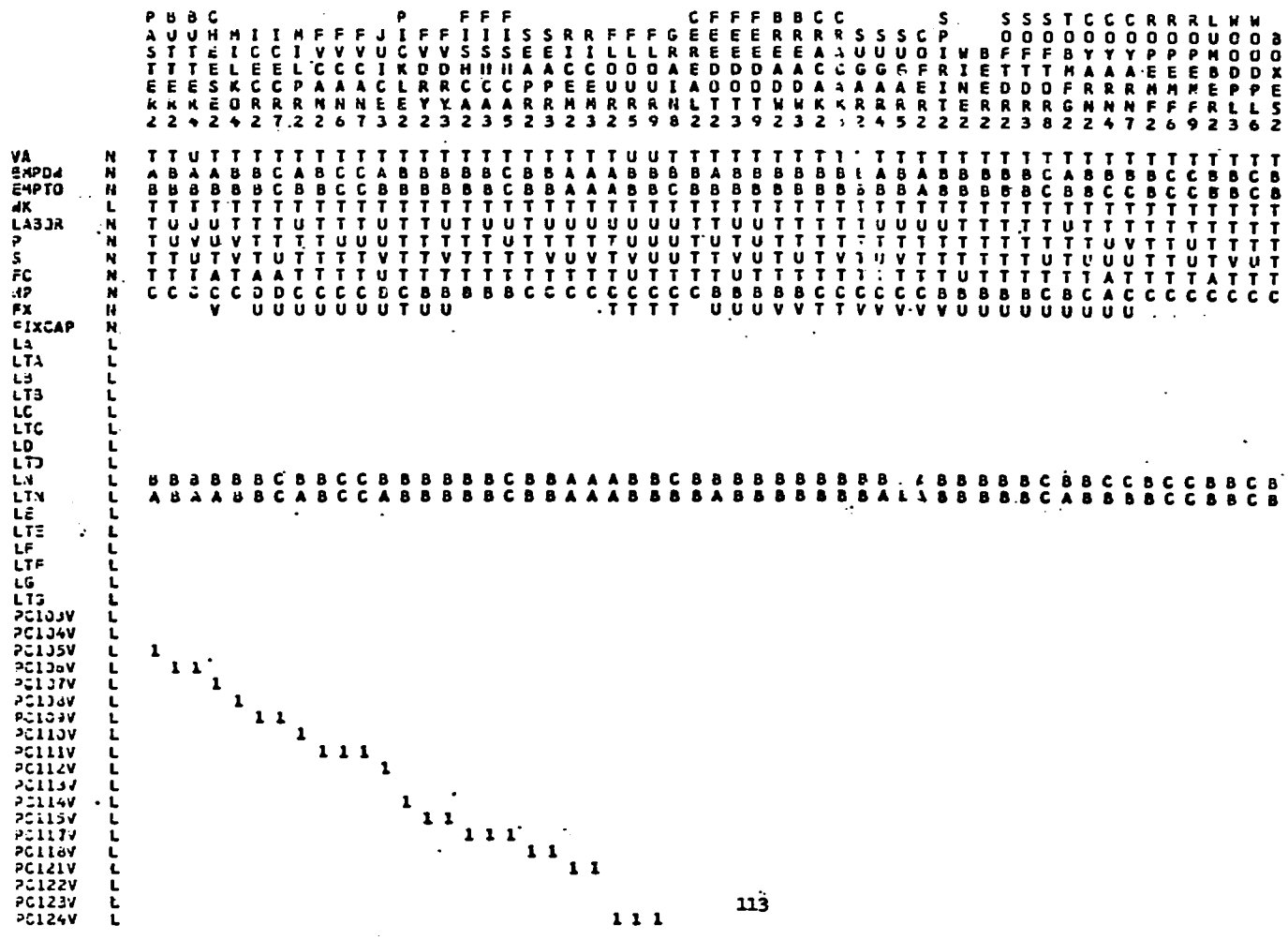
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PICKEE22
FFVDRY23
FVDHCR23
FISHCA23
FISHCA25
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SRICCE23
RICEMM23
FLOURR25
FLOURR29
FGRAIR28
GREALT22
CFEEDT22
FEEDDT39
FERDAW23
BRREAD23
CRACKK32
CRACKK24
SUGARR24
SUGARR25
SOFRIE22
SPRINT22
WINERR22
BEERFF22
SOFTDR23
SOFTDR38
STOFFD82
TOBMFG22
COMMAN24
COYARN47
COYARN26
RUGPEE26
RUGPEE29
LUMBER23
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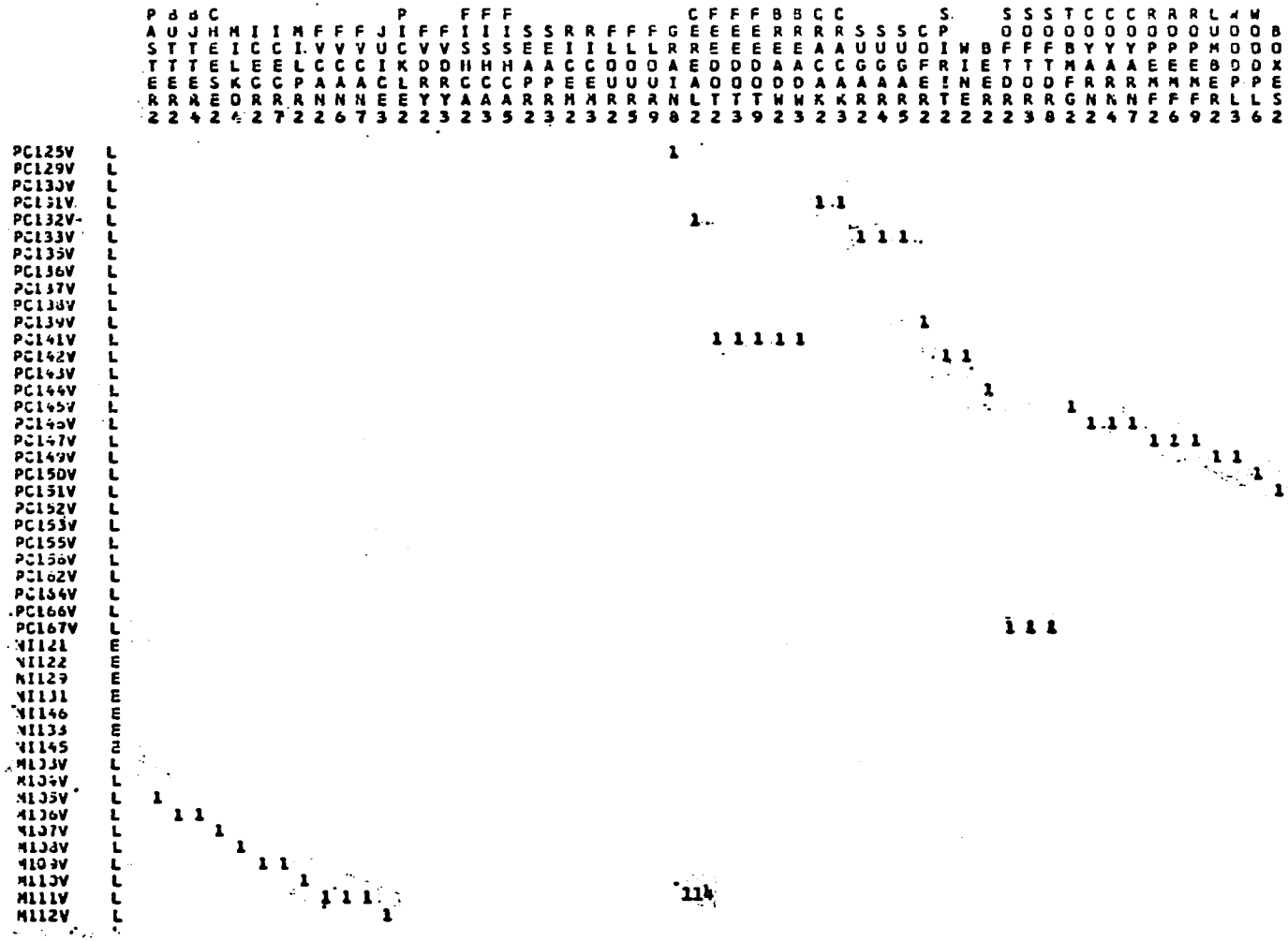
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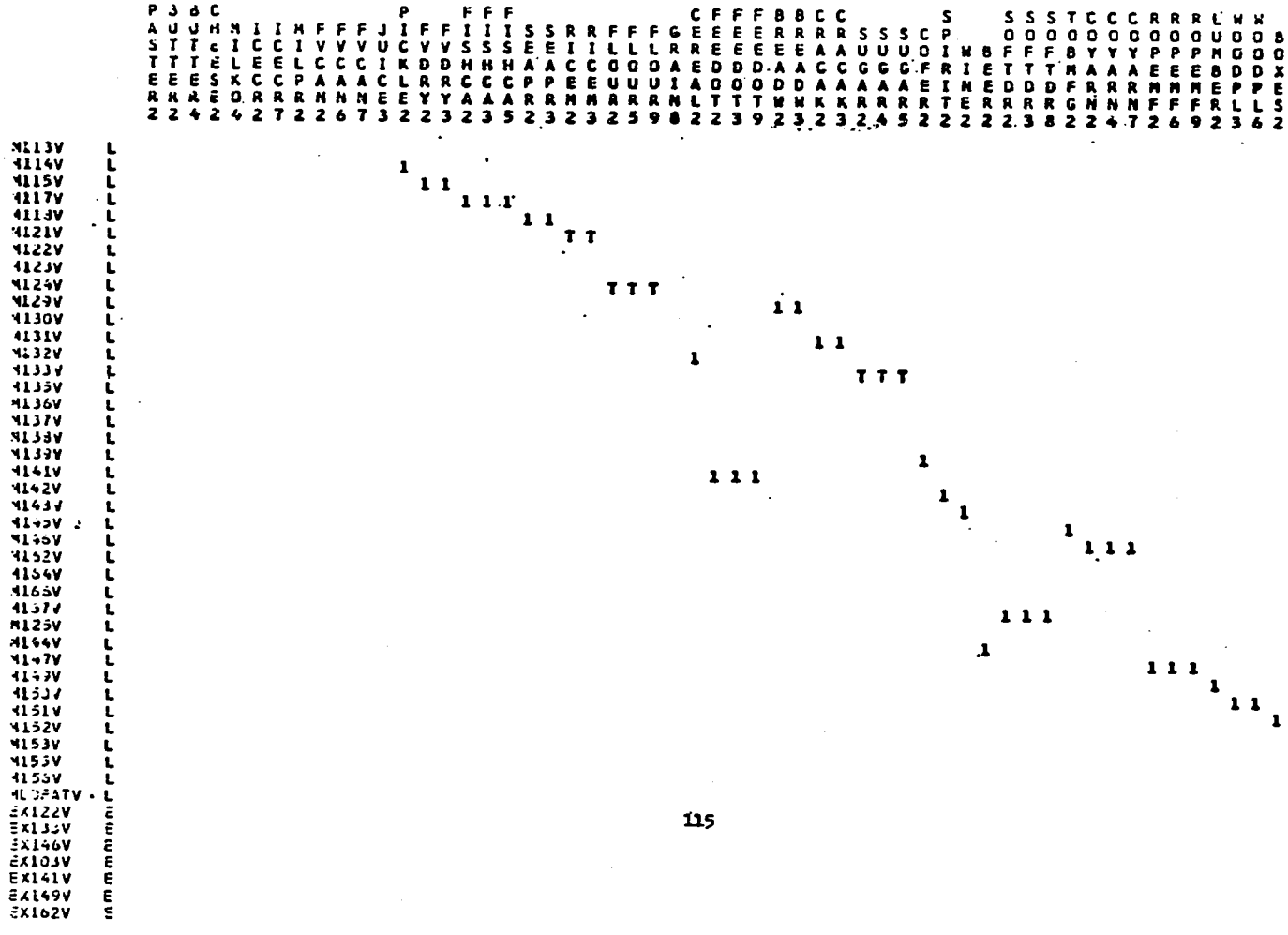
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PICKLE22
FFVDRY22
FFVDRY23
FISSHCA23
FISHCA25
FISEAR22
SEACPR23
RICEM23
FLOURR25
FLOURR29
FGRAIN80
CEREAL22
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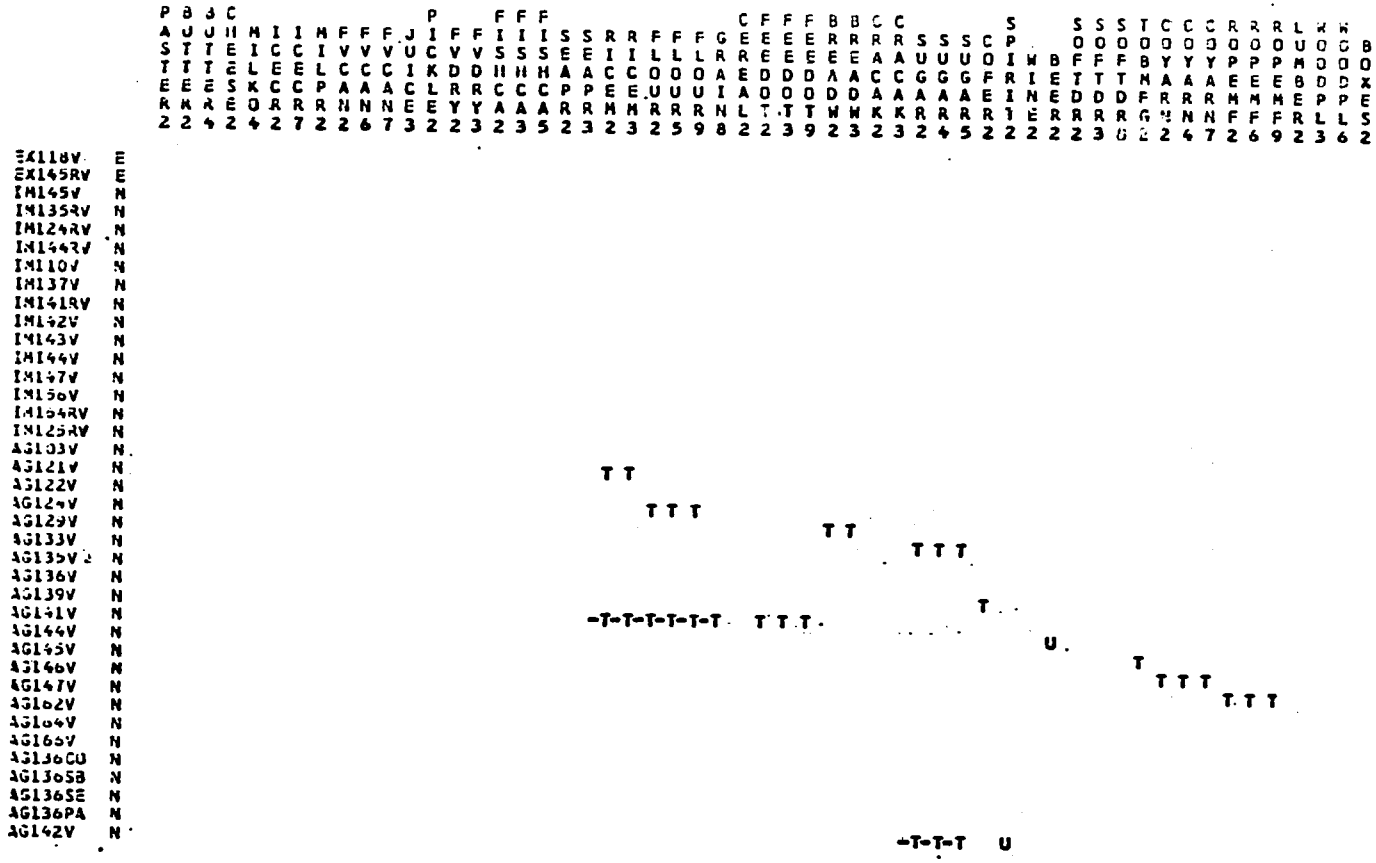
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FVDRY2
FVDRY3
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FISHCAP5
SEAPR3
RICEM2
RICEMI3
FLOURR5
FLOURR9
GRAIN8
CEREAL2
FEEDOT3
FEEDOT9
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BREADW3
BREACAK3
CAKE3
SUGARR2
SUGARR4
SUGARR5
COFFEER2
SPRINE2
WINE2
BEERR2
SOFTDR3
SOFTDR6
STODRG2
STOBMF2
COYARN4
COYARN7
CORMF2
REPEMF6
REPEMF9
LUMBER3
WOODPL3
WOODPL6
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EMPTO	N	C	B	C	C	B	B	B	B	B	B	C	A	B	B	B	B	B	C
WK	L	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
LABOR	N	T	T	T	T	T	T	T	T	T	T	T	U	U	T	U	T	T	T
P	N	T	T	T	T	T	T	T	T	T	V	U	T	U	T	T	T	T	U
S	N	V	T	U	U	V	T	T	T	U	U	U	T	U	V	U	T	T	U
FC	N	T	T	T	T	T	T	T	T	A	A	T	T	T	T	T	A	T	T
HP	N	C	C	D	C	C	D	C	C	D	D	C	C	C	C	C	C	C	C
FX	N					V				U	U	U	T	T	T	T	T	U	U
FIXCAP	N																		
LA	L																		
LTA	L																		
LB	L																		
LTB	L																		
LC	L																		
LTC	L																		
LD	L																		
LTD	L																		
LH	L	C	B	C	C	B	B	B	B	B	B	C	A	B	B	B	B	B	C
LTH	L	B	B	C	B	B	B	B	B	B	B	B	A	B	D	B	B	B	C
LE	L																		
LTE	L																		
LF	L																		
LTF	L																		
LG	L																		
LTG	L																		
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FX	T	T	T	T	A	T	A	T	T	T	T	T	T	T	T	T	U	T	T
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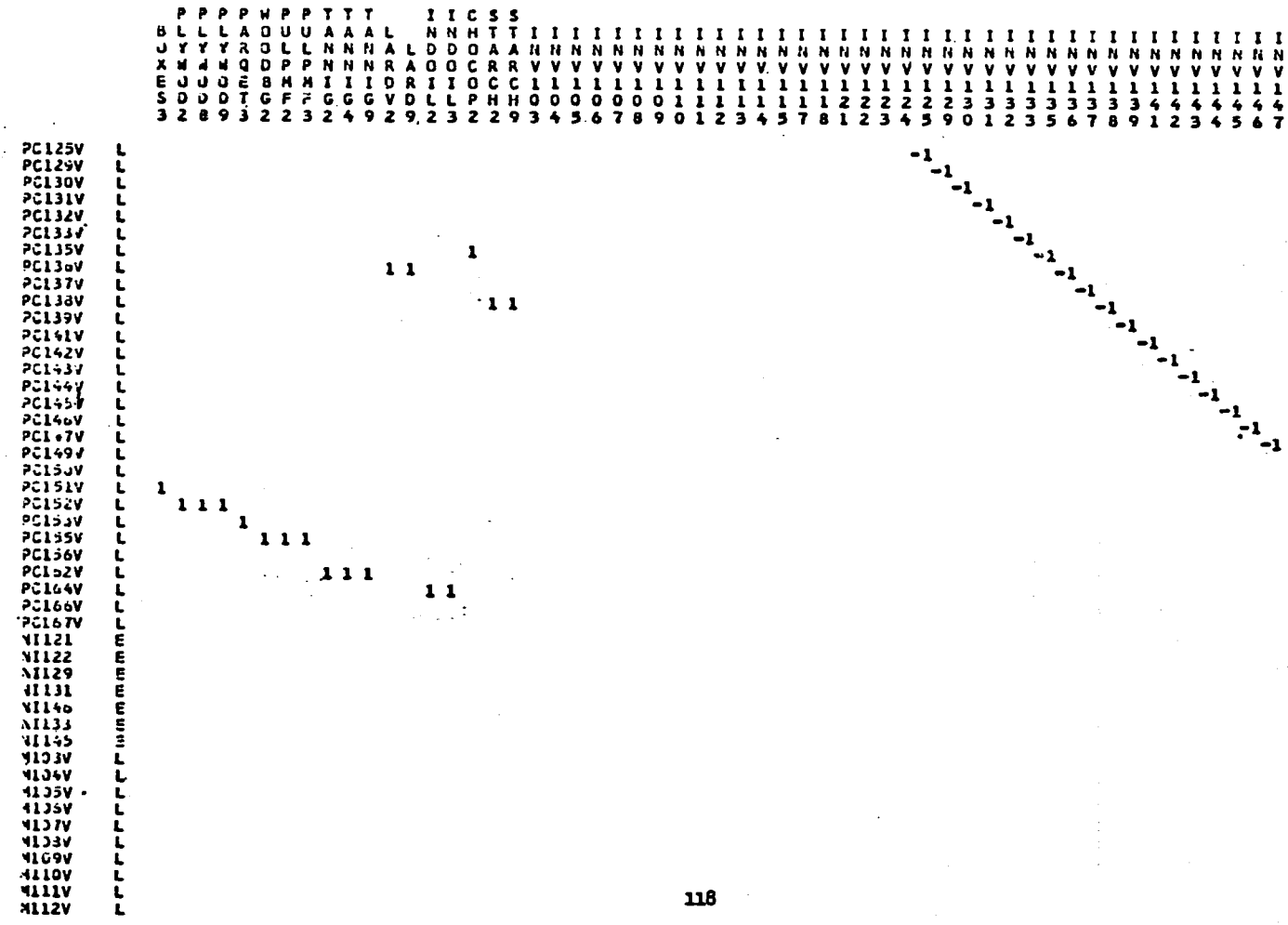

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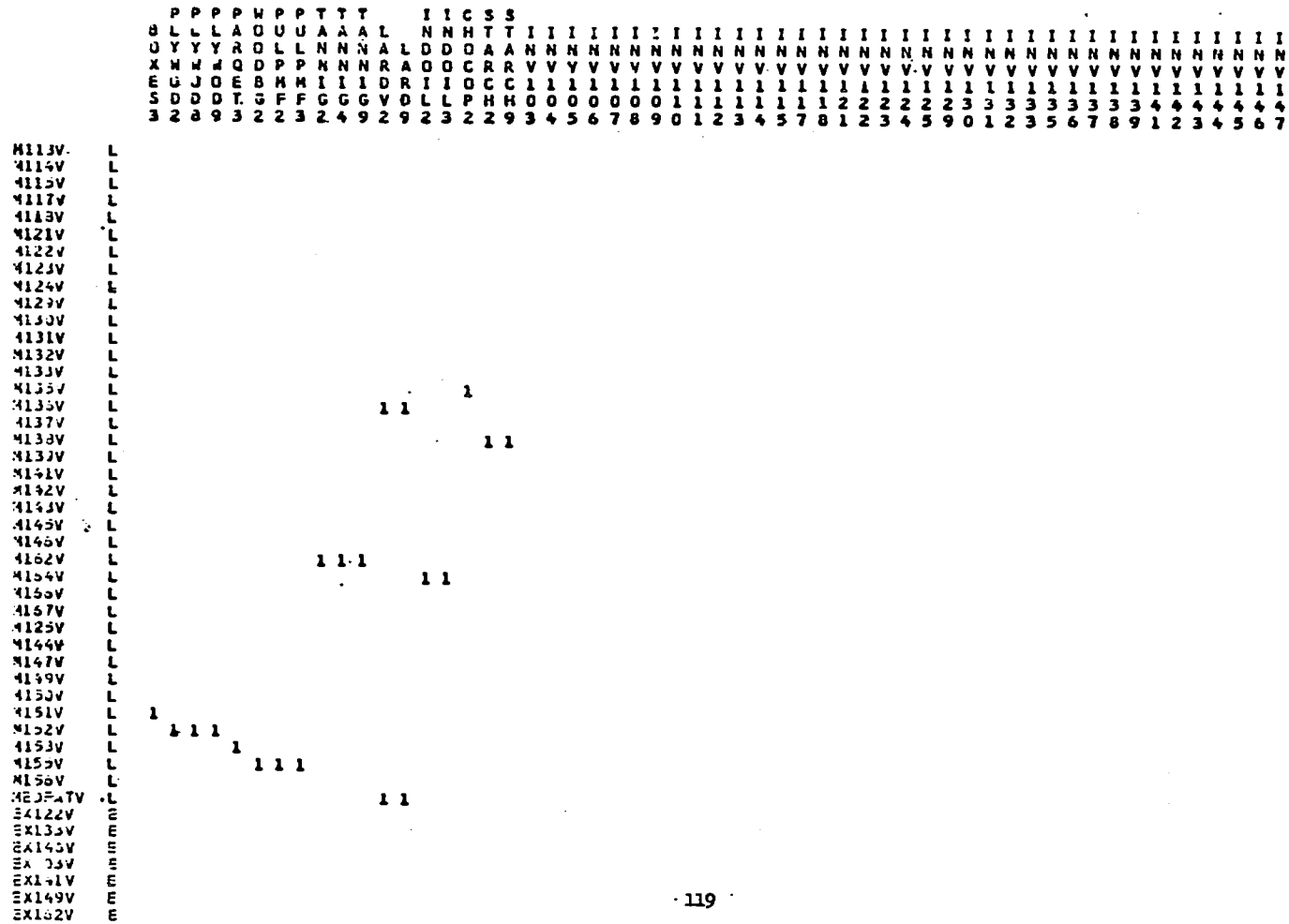
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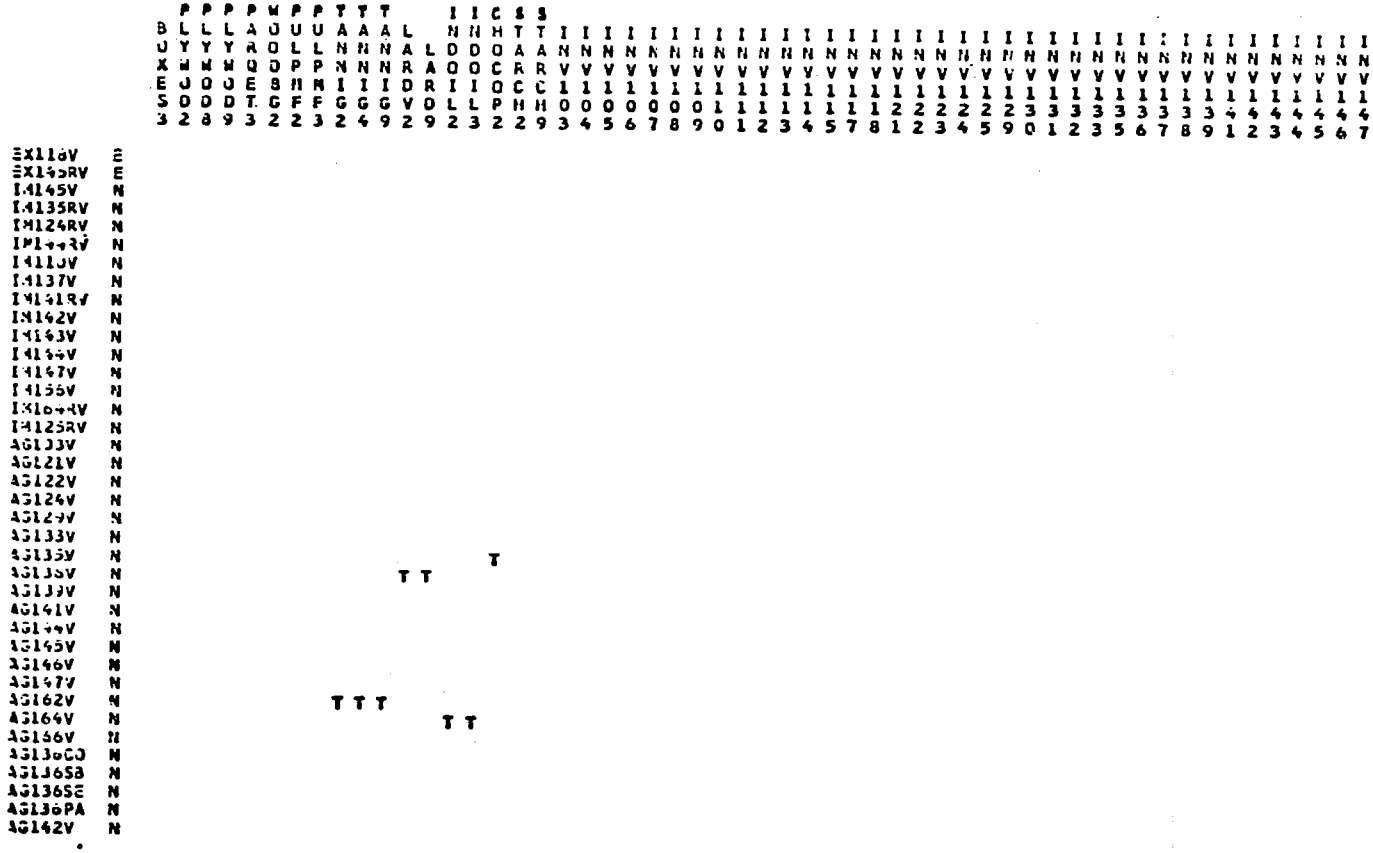
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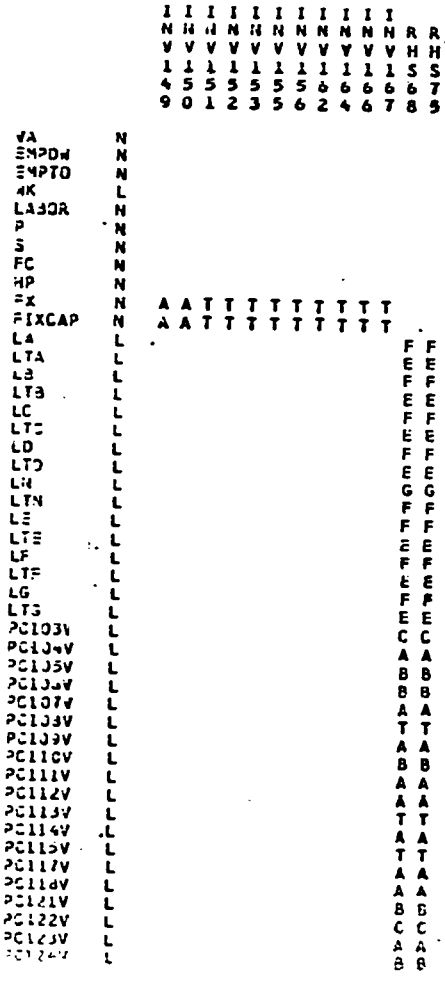
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P
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LG
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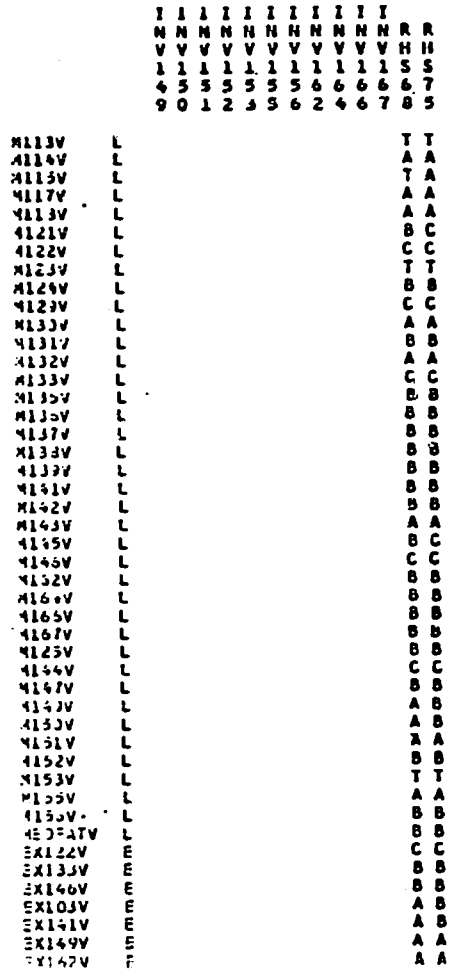
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RH568
RHS75

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EXI45RV	E										A	B
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IM147V	N										T	
IM156V	N										A	
IM166RV	N										A	
IM125RV	N										B	
AG133V	N										T	
AG121V	N										C	
AG122V	N										B	
AG124V	N										C	
AG129V	N										B	
AG133V	N										B	
AG135V	N										B	
AG136V	N										B	
AG139V	N										B	
AG141V	N										C	
AG144V	N										B	
AG145V	N										B	
AG146V	N										B	
AG147V	N										A	
AG162V	N										B	
AG134V	N										B	
AG165V	N										B	
AG130CO	N										B	
AG136SB	N										B	
AG136SS	N										S	
AG130PA	N										A	
AG142V	N										A	

MPSX-PTF13 EXECUTOR. MPSX RELEASE 1 MOD LEVEL 3

SUMMARY OF MATRIX

SYMBOL	RANGE		COUNT (INCL.RHS)
Z	LESS THAN	.000001	
Y	.000001 THRU	.000009	
X	.000010	.000099	
W	.000100	.000999	
V	.001000	.009999	39
U	.010000	.099999	340
T	.100000	.999999	1286
1	1.000000	1.000000	500
A	1.000001	10.000000	198
B	10.000001	100.000000	732
C	100.000001	1,000.000000	605
D	1,000.000001	10,000.000000	26
E	10,000.000001	100,000.000000	14
F	100,000.000001	1,000,000.000000	16
G	GREATER THAN	1,000,000.000000	2

MINIMUM = .300000E-02 MAXIMUM = .464830E+07

Appendix B

This appendix is comprised of two parts: a) a description of the nomenclature used in assigning symbolic names (symbols) to the activities and restrictions, and b) a computer printout of the linear programming matrix.

APPENDIX B (PART I)

Key to the Nomenclature of the Symbolic Names of the Activities and Restrictions

Since the MPS program restricted the names of the columns and rows of the L.P. matrix to only eight characters, the following nomenclature was derived:

Production Activities

The first seven characters (or six for some activities) were used to abbreviate as closely as possible the industry description corresponding to the processing activity. The last character was reserved to identify the country from which the technology originated.

Last Digit

2	1968 U.S. average (based on 1968 Industrial Census)
3	For AID (U.S.) representative establishment (AID Industrial Profiles)
4	For France (U.N. Industrial Profiles)
5.	For Japan " " "
6	Yugoslavia " " "
7	Israel " " "
8	Latin America " " "
9	Afrida " " "

The digit "1" was reserved for Colombia, but since the these activitées were regionalized , letters were used for the last character instead of numbers.

N	Stands for national activity-for those processed products which are actually produced all over Colombia without any particular regional specialization, such as bakeries, breweries, etc.
A-H	Stands for the regional activity of the specific region A through H.

For example, MEATPR2 stands for meat processing plants with the U.S. average (census data) technology and MEATPRC, stands for the meat processing plants (activity) located only in region 'C'. The non-industrial activities, those whose production takes place at the farm or in non-registered establishments are simply named by an abbreviation of the processed product (four to five letters) followed by the letter 'NI' for non-industrial production. For example CAFENI stands for coffee hulling (processing) at the farm level (or in non-registered establishments).

The export and import activities are named as follows:

The letter 'E; for exports or 'I' for imports is first, followed by the I/O code of the industry followed by the letter 'R' for agricultural raw material (such as wheat) or followed by the letter 'P' for processed product and the number '1' or '12' indicating processed products originating at the first or at the first and second stage of industrialization. For example lint cotton, '1' stage; cotton yarn, '2' stage; but lint cotton and cotton yarn '12' are at both stages of industrialization.

Finally, the investment activities symbols are just the letters 'INV' for investment followed by the I/O code of the corresponding industry.

Restrictions

The nomenclature of the agricultural raw material availability, processing capacity, markets, non-industrial production and trade restrictions are very simply as follows:

The last four characters stand for the I/O code of the industry followed by the letter 'V' for value. The first letter or the first two letters identify the type of restriction.

PC for processing capacity, like PC103V, etc.

M " market

NI " non-industrial production (equality)

EX " exports (at predetermined level)

IM " imports (only for 1968)

AG " agricultural raw material availability

For the external activities trading raw agricultural products, the letter 'R' for raw precedes the 'V'.

Other restrictions are as follows:

FX for foreign exchange

W " working capital

The economically active labor constraint symbol is formed by the letter 'L' for labor and the regional letter 'A-L' or 'N' for national. For the trained labor force the letter 'T' follows the 'L'.

Appendix B (Part II)

Mathematical Programming (MPSX) was used for solving all programs. One useful feature of the system is the printout of the matrix column by column as shown in the following pages of this appendix. An alphanumeric code of up to eight character is used to identify rows and columns. (The codes are defined in Part I) This matrix is produced by the computer when the TRANCOL statement is included in the control program. The TRANCOL is a duplication of the matrix compiled by the computer from the input data. This is also very helpful in tracing down errors.

	LVSLGT4	MEATPRA	MEATPRB	MEATPRC	MEATPRD	PASTERA	PASTERB	
VA	.24000	.29000	.29000	.29000	.29000	.16000	.16000	VA
EMPDW	9.00000	33.55000	33.55000	33.55000	33.55000	4.43000	4.43000	EMPDW
EMPTO	13.79000	40.27000	40.27000	40.27000	40.27000	6.64000	6.64000	EMPTO
HK	.21000	.20000	.20000	.20000	.20000	.22000	.22000	HK
LABOR	.07000	.07000	.07000	.07000	.07000	.05000	.05000	LABOR
P	.15000	.20000	.20000	.20000	.20000	.09000	.09000	P
S	.06000	.15000	.15000	.15000	.15000	.11000	.11000	S
FC	.15000	.99400	.99400	.99400	.99400	.26800	.26800	FC
HP	120.00000	250.00000	250.00000	250.00000	250.00000	160.00000	160.00000	HP
FX	.	.04700	.04700	.04700	.04700	.	.	FX
LA	.	40.27000	.	.	.	6.64000	.	LA
LTA	.	33.55000	.	.	.	4.43000	.	LTA
LB	.	.	40.27000	.	.	.	6.64000	LB
LTB	.	.	33.55000	.	.	.	4.43000	LTB
LC	.	.	.	40.27000	.	.	.	LC
LTC	.	.	.	33.55000	.	.	.	LTC
LD	.	.	.	.	40.27000	.	.	LD
LTD	.	.	.	.	33.55000	.	.	LTD
LN	13.79000	40.27000	40.27000	40.27000	40.27000	6.64000	6.64000	LN
LTN	9.80000	33.55000	33.55000	33.55000	33.55000	4.43000	4.43000	LTN
PC103V	1.00000	.	.	.	.	.	.	PC103V
PC104V	.	1.00000	1.00000	1.00000	1.00000	.	.	PC104V
PC105V	.	.	.	.	.	1.00000	1.00000	PC105V
M103V	.80000	.	.	.	.	.	.	M103V
M104V	.	1.00000	1.00000	1.00000	1.00000	.	.	M104V
M105V	.	.	.	.	.	1.00000	1.00000	M105V
AG103V	.66000	.	.	.	.	.	.	AG103V
AG141V	.02500-	.	.	.	.	.	.	AG141V
AG162V	.09500-	.	.	.	.	.	.	AG162V
AG164V	.06000-	.	.	.	.	.	.	AG164V

	PASTERC	PASTERD	PASTERF	BUTTERA	BUTTERC	BUTTERD	BUTTERE	
VA	.16000	.16000	.16000	.21000	.21000	.21000	.21000	VA
EMPDW	4.43000	4.43000	4.43000	187.50000	187.50000	187.50000	187.50000	EMPDW
EMPTO	6.64000	6.64000	6.64000	250.00000	250.00000	250.00000	250.00000	EMPTO
WK	.22000	.22000	.22000	.23000	.23000	.23000	.23000	WK
LABOR	.05000	.05000	.05000	.06000	.06000	.06000	.06000	LABOR
P	.09000	.09000	.09000	.14000	.14000	.14000	.14000	P
S	.11000	.11000	.11000	.32000	.32000	.32000	.32000	S
FC	.26800	.26800	.26800	.13600	.13600	.13600	.13600	FC
HP	160.00000	160.00000	160.00000	160.00000	160.00000	160.00000	160.00000	HP
LA	•	•	•	250.00000	•	•	•	LA
LTA	•	•	•	187.50000	•	•	•	LTA
LC	6.64000	•	•	•	250.00000	•	•	LC
LTC	4.43000	•	•	•	187.50000	•	•	LTC
LD	•	6.64000	•	•	•	250.00000	•	LD
LTD	•	4.43000	•	•	•	187.50000	•	LTD
LN	6.64000	6.64000	6.64000	250.00000	250.00000	250.00000	250.00000	LN
LTN	4.43000	4.43000	4.43000	187.50000	187.50000	187.50000	187.50000	LTN
LE	•	•	•	•	•	•	250.00000	LE
LTE	•	•	•	•	•	•	187.50000	LTE
LF	•	•	6.64000	•	•	•	•	LF
LTF	•	•	4.43000	•	•	•	•	LTF
PC105V	1.00000	1.00000	1.00000	•	•	•	•	PC105V
PC106V	•	•	•	1.00000	1.00000	1.00000	1.00000	PC106V
M105V	1.00000	1.00000	1.00000	•	•	•	•	M105V
M106V	•	•	•	1.00000	1.00000	1.00000	1.00000	M106V

	BUTTERS	CHEESED	CHEESEE	CHEESEG	MILKOD	ICECRN	MILKPRA	3....1
VA	.21000	.28000	.28000	.28000	.33000	.42000	.40000	VA
EMPDW	187.50000	125.00000	125.00000	125.00000	480.00000	333.33000	36.18000	EMPDW
EMPTD	250.00000	142.85000	142.85000	142.85000	480.00000	375.00000	49.94000	EMPTD
WK	.23000	.20000	.20000	.20000	.23000	.17000	.17000	WK
LABOR	.06000	.07000	.07000	.07000	.23000	.16000	.08000	LABOR
P	.14000	.09000	.09000	.09000	.10000	.16000	.31000	P
S	.32000	.11000	.11000	.11000	.19000	.29000	.23000	S
FC	.13600	1.97500	1.97500	1.97500	.19200	1.60000	.11700	FC
HP	160.00000	250.00000	250.00000	250.00000	2960.0000	920.00000	380.00000	HP
FX	.	.01000	.01000	.01000	.01000	.02600	.09200	FX
LA	.	.	.	.	.	.	49.94000	LA
LTA	.	.	.	.	.	.	36.18000	LTA
LD	.	142.85000	.	.	480.00000	.	.	LD
LTD	.	125.00000	.	.	480.00000	.	.	LTD
LN	250.00000	142.85000	142.85000	142.85000	480.00000	375.00000	49.94000	LN
LTN	187.50000	125.00000	125.00000	125.00000	480.00000	333.33000	36.18000	LTN
LE	.	.	142.85000	.	.	.	.	LE
LTE	.	.	125.00000	.	.	.	.	LTE
LG	250.00000	.	.	142.85000	.	.	.	LG
LTG	187.50000	.	.	125.00000	.	.	.	LTG
PC106V	1.00000	.	.	.	.	.	.	PC106V
PC107V	.	1.00000	1.00000	1.00000	.	.	.	PC107V
PC108V	.	.	.	.	-1.00000	.	.	PC108V
PC109V	.	.	.	.	.	1.00000	.	PC109V
PC110V	.	.	.	.	.	.	1.00000	PC110V
M106V	1.00000	.	.	.	.	.	.	M106V
M107V	.	1.00000	1.00000	1.00000	.	.	.	M107V
M108V	.	.	.	.	1.00000	.	.	M108V
M109V	.	.	.	.	.	1.00000	.	M109V
M110V	.	.	.	.	.	.	1.00000	M110V

	MILKPAC	FVCANB	FVCAND	JUICEA	MEJAMSB	MEJAMSD	MEJAMSE	
								.4....1
VA	.40000	.37000	.37000	.52000	.41000	.41000	.41000	VA
EMPDW	36.18000	160.12000	160.12000	84.09000	137.17000	137.17000	137.17000	EMPDW
EMPTO	49.94000	223.56000	223.56000	109.96000	190.26000	190.26000	190.26000	EMPTO
WK	.17000	.21000	.21000	.15000	.19000	.19000	.19000	WK
LABOR	.03000	.23000	.23000	.10000	.16000	.16000	.	LABOR
P	.31000	.11000	.11000	.38000	.22000	.22000	.22000	P
S	.23000	.44000	.44000	.33000	.46000	.46000	.46000	S
FC	.11700	.56300	.56300	.56800	.40000	.40000	.40000	FC
HP	380.00000	180.00000	180.00000	14.60000	90.00000	90.00000	90.00000	HP
FX	.09200	.03080	.03080	.01460	.09820	.09820	.09820	FX
LA	.	.	.	109.96000	.	.	.	LA
LTA	.	.	.	84.09000	.	.	.	LTA
LB	.	223.56000	.	.	190.26000	.	.	LB
LTB	.	160.12000	160.12000	.	137.17000	.	.	LTB
LC	49.94000	.	.	.	.	.	.	LC
LTC	36.18000	.	.	.	.	.	.	LTC
LD	.	.	223.56000	.	.	190.26000	.	LD
LTD	.	.	.	.	.	137.17000	.	LTD
LN	49.94000	223.56000	223.56000	109.96000	190.26000	190.26000	190.26000	LN
LTN	36.18000	160.12000	160.12000	84.09000	137.17000	137.17000	137.17000	LTN
LE	.	.	.	.	.	.	190.26000	LE
LTE	.	.	.	.	.	.	137.17000	LTE
PC110V	1.00000	.	.	.	.	.	.	PC110V
PC111V	.	1.00000	1.00000	.	.	.	.	PC111V
PC112V	.	.	.	1.00000	.	.	.	PC112V
PC113V	.	.	.	.	1.00000	1.00000	1.00000	PC113V
M110V	1.00000	.	.	.	.	.	.	M110V
M111V	.	1.00000	1.00000	.	.	.	.	M111V
M112V	.	.	.	1.00000	.	.	.	M112V
M113V	.	.	.	.	1.00000	1.00000	1.00000	M113V

	PICKLEB	PICKLEC	FVDRYA	FVDRYB	FISHCAA	FISHCAG	SEAPRC	
VA	.31000	.31000	.21000	.21000	.22000	.22000	.41000	VA
EMPDW	45.06000	45.06000	121.69000	121.69000	251.36000	251.36000	85.97000	EMPDW
EMPTO	64.38000	64.38000	158.73000	158.73000	300.55000	300.55000	108.60000	EMPTO
WK	.19000	.19000	.22000	.22000	.23000	.23000	.18000	WK
LABOR	.08000	.08000	.11000	.11000	.13000	.13000	.11000	LABOR
P	.21000	.21000	.08000	.08000	.07000	.07000	.27000	P
S	.57000	.57000	.51000	.51000	.39000	.39000	.17000	S
FC	.29900	.29900	.20800	.20800	.21200	.21200	.71900	FC
HP	150.00000	150.00000	120.00000	120.00000	980.00000	980.00000	420.00000	HP
FX	.26400	.26400	.04830	.04830	•	•	•	FX
LA	•	•	158.73000	•	300.55000	•	•	LA
LTA	•	•	121.69000	•	251.36000	•	•	LTA
LB	64.38000	•	•	158.73000	•	•	•	LB
LTB	45.06000	•	•	121.69000	•	•	•	LTB
LC	•	64.38000	•	•	•	•	108.60000	LC
LTC	•	45.06000	•	•	•	•	85.97000	LTC
LN	64.38000	64.38000	158.73000	158.73000	300.55000	300.55000	108.60000	LN
LTN	45.06000	45.06000	121.69000	121.69000	251.36000	251.36000	89.97000	LTN
LG	•	•	•	•	•	300.55000	•	LG
LTG	•	•	•	•	•	251.36000	•	LTG
PC114V	1.00000	1.00000	•	•	•	•	•	PC114V
PC115V	•	•	1.00000	1.00000	•	•	•	PC115V
PC117V	•	•	•	•	1.00000	1.00000	•	PC117V
PC118V	•	•	•	•	•	•	1.00000	PC118V
M114V	1.00000	1.00000	•	•	•	•	•	M114V
M115V	•	•	1.00000	1.00000	•	•	•	M115V
M117V	•	•	•	•	1.00000	1.00000	•	M117V
M118V	•	•	•	•	•	•	1.00000	M118V

	SEAPRC	RICEMIN	FLOURA	FLOURC	FLOURD	FLOURE	GRAINMC		6....1
VA	.41300	.17000	.12000	.12000	.12000	.12000	.20000	VA	
EMPDW	85.97000	26.74000	23.52000	23.52000	23.52000	23.52000	20.08000	EMPDW	
EMPTO	108.60000	37.43000	35.83000	35.83000	35.83000	35.82000	24.10000	EMPTO	
WK	.16000	.22000	.23000	.23000	.25000	.23000	.22000	WK	
LABOR	.11000	.03000	.04000	.04000	.04000	.04000	.07000	LABOR	
P	.27000	.13000	.06000	.06000	.06000	.06000	.11000	P	
S	.17000	.04000	.04000	.04000	.04000	.04000	.10000	S	
FC	.71900	.25800	.28700	.28700	.28700	.28700	.74200	FC	
HP	420.00000	400.00000	320.00000	320.00000	320.00000	320.00000	220.00000	HP	
FX	.	.	.62430	.62430	.62430	.62430	.10850	FX	
LA	.	.	35.83000	.	.	.	.	LA	
LTA	.	.	23.52000	.	.	.	.	LTA	
LC	.	.	.	35.83000	.	.	24.10000	LC	
LTC	.	.	.	23.52000	.	.	20.08000	LTC	
LD	.	.	.	.	35.83000	.	.	LD	
LTD	.	.	.	.	23.52000	.	.	LTD	
LN	108.60000	37.43000	35.83000	35.83000	35.83000	35.83000	24.10000	LN	
LTN	85.97000	26.74000	23.52000	23.52000	23.52000	23.52000	20.08000	LTN	
LE	.	.	.	.	.	35.83000	.	LE	
LTE	.	.	.	.	.	23.52000	.	LTE	
LG	108.60000	.	.	.	.	.	.	LG	
LTG	85.97000	.	.	.	.	.	.	LTG	
PC118V	1.00000	.	.	.	.	.	.	PC118V	
PC121V	.	1.00000	.	.	.	.	.	PC121V	
PC124V	.	.	1.00000	1.00000	1.00000	1.00000	.	PC124V	
PC125V	.	.	.	.	.	.	1.00000	PC125V	
M118V	1.00000	.	.	.	.	.	.	M118V	
M121V	.	.87000	.	.	.	.	.	M121V	
M124V	.	.	.82500	.82500	.82500	.82500	.	M124V	
M125V	.	.	.	.	.	.	.86000	M125V	
AG121V	.	.78000	.	.	.	.	.	AG121V	
AG124V	.	.	.83000	.83000	.83000	.83000	.	AG124V	
AG141V	.	.13000-	.17500-	.17500-	.17500-	.17500-	.15000-	AG141V	

	GRAIN4D	GRAINME	CEREALB	CEREALC	CEREALD	FEEDOTA	FEEDOTB	
								7....1
VA	.20000	.20000	.40000	.40000	.40000	.24000	.24000	VA
EMPDW	20.00000	20.08000	90.00000	90.00000	90.00000	29.82000	29.82000	EMPDW
EMPTD	24.10000	24.10000	115.00000	115.00000	115.00000	48.17000	48.17000	EMPTD
HK	.22000	.22000	.17000	.	.17000	.21000	.21000	HK
LABOR	.07000	.07000	.08000	.08000	.08000	.07000	.07000	LABOR
P	.11000	.11000	.26000	.26000	.26000	.16000	.16000	P
S	.10000	.10000	.25000	.25000	.25000	.12000	.12000	S
FC	.74200	.74200	.96900	.96900	.96900	.14900	.14900	FC
HP	220.00000	220.00000	110.00000	110.00000	110.00000	200.00000	200.00000	HP
FX	.10850	.10850	.	.	.	.02390	.02390	FX
LA	.	.	.	.	.	48.17000	.	LA
LTA	.	.	.	.	.	29.82000	.	LTA
LB	.	.	115.00000	.	.	.	48.17000	LB
LTB	.	.	90.00000	.	.	.	29.82000	LTB
LTC	.	.	.	90.00000	.	.	.	LTC
LD	24.10000	.	.	.	115.00000	.	.	LD
LTD	20.08000	.	.	.	90.00000	.	.	LTD
LH	24.10000	24.10000	115.00000	115.00000	115.00000	48.17000	48.17000	LH
LTH	20.08000	20.08000	90.00000	90.00000	90.00000	29.82000	29.82000	LTH
LE	.	24.10000	.	.	.	.	.	LE
LTE	.	20.08000	.	.	.	.	.	LTE
PC125V	1.00000	1.00000	.	.	.	.	.	PC125V
PC132V	.	.	1.00000	1.00000	1.00000	.	.	PC132V
PC141V	.	.	.	.	.	1.00000	1.00000	PC141V
M132V	.	.	1.00000	1.00000	1.00000	.	.	M132V
M141V	.	.	.	.	.	1.00000	1.00000	M141V
M125V	.86000	.86000	.	.	.	.	.	M125V
AG141V	.14000	.14000	.	.	.	.63000	.63000	AG141V

	FEEDJTC	FEEDOTD	CORNHUN	BREADWN	BREADOB	BREADOC	BREADOD		8....1
VA	.24000	.24000	.11000	.33000	.33000	.33000	.33000	VA	
EMPDW	29.82000	29.82000	166.67000	333.30000	266.67000	266.67000	266.67000	EMPDW	
EMPTO	48.17000	48.17000	200.00000	428.60000	400.00000	400.00000	400.00000	EMPTO	
WK	.21000	.21000	.23000	.19000	.22000	.22000	.22000	WK	
LABOR	.07000	.07000	.03000	.11000	.07000	.07000	.07000	LABOR	
P	.16000	.16000	.08000	.21000	.23000	.23000	.23000	P	
S	.12000	.12000	.04000	.27000	.26000	.26000	.26000	S	
FC	.14900	.14900	.20000	.19900	.49200	.49200	.49200	FC	
MP	200.00000	200.00000	400.00000	140.00000	200.00000	200.00000	200.00000	MP	
FX	.02390	.02390	•	.00680	•	•	•	FX	
LB	•	•	•	•	400.00000	•	•	LB	
LTB	•	•	•	•	266.67000	•	•	LTB	
LC	48.17000	•	•	•	•	400.00000	•	LC	
LTC	29.82000	•	•	•	•	266.67000	•	LTC	
LD	•	48.17000	•	•	•	•	400.00000	LD	
LTD	•	29.82000	•	•	•	•	266.67000	LTD	
LN	48.17000	48.17000	200.00000	428.60000	400.00000	400.00000	400.00000	LN	
LTN	29.82000	29.82000	166.67000	333.30000	266.67000	266.67000	266.67000	LTN	
PC129V	•	•	•	1.00000	•	•	•	PC129V	
PC130V	•	•	•	•	1.00000	1.00000	1.00000	PC130V	
PC141V	1.00000	1.00000	•	•	•	•	•	PC141V	
PC166V	•	•	1.00000	•	•	•	•	PC166V	
M129V	•	•	•	1.00000	•	•	•	M129V	
M130V	•	•	•	•	1.00000	1.00000	1.00000	M130V	
M141V	1.00000	1.00000	•	•	•	•	•	M141V	
M166V	•	•	1.00000	•	•	•	•	M166V	
AG129V	•	•	•	.38000	•	•	•	AG129V	
AG141V	.63000	.63000	•	•	•	•	•	AG141V	
AG166V	•	•	.85000	•	•	•	•	AG166V	

	BREADBF	CRACAKB	CRACAKC	CRACAKD	CRACAKE	CRACAKF	SUGARC	
VA	.33000	.34000	.34000	.34000	.34000	.34000	.32000	VA
EMPDW	266.67000	162.26000	162.26000	162.26000	162.26000	162.26000	73.18000	EMPDW
EMPTO	400.00000	217.69000	217.69000	217.69000	217.69000	217.69000	93.84000	EMPTO
WK	.22000	.22000	.22000	.22000	.22000	.22000	.19000	WK
LABOR	.07000	.21000	.21000	.21000	.21000	.21000	.07000	LABOR
P	.23000	.05000	.05000	.05000	.05000	.05000	.20000	P
S	.26000	.18000	.18000	.18000	.18000	.18000	.27000	S
FC	.49200	1.42100	1.42100	1.42100	1.42100	1.42100	1.45700	FC
HP	200.00000	200.00000	200.00000	200.00000	200.00000	200.00000	830.00000	HP
FX	.	.18840	.18840	.18840	.18840	.18840	.00300	FX
LB	.	217.69000	.	.	.	.	.	LB
LTB	.	162.26000	.	.	.	.	.	LTB
LC	.	.	217.69000	.	.	.	93.84000	LC
LTC	.	.	162.26000	.	.	.	73.18000	LTC
LD	.	.	.	217.69000	.	.	.	LD
LTD	.	.	.	162.26000	.	.	.	LTD
LN	400.00000	217.69000	217.69000	217.69000	217.69000	217.69000	93.84000	LN
LTN	266.67000	162.26000	162.26000	162.26000	162.26000	162.26000	73.18000	LTN
LE	.	.	.	.	217.69000	.	.	LE
LTE	.	.	.	.	162.26000	.	.	LTE
LF	400.00000	.	.	.	.	217.69000	.	LF
LTF	266.67000	.	.	.	.	162.26000	.	LTF
PC130V	1.00000	.	.	.	.	.	.	PC130V
PC131V	.	1.00000	1.00000	1.00000	1.00000	1.00000	.	PC131V
PC133V	.	.	.	.	.	.	1.00000	PC133V
M130V	1.00000	.	.	.	.	.	.	M130V
M131V	.	1.00000	1.00000	1.00000	1.00000	1.00000	.	M131V
M133V	.	.	.	.	.	.	.67000	M133V
AG133V	.	.	.	.	.	.	.39000	AG133V
AG142V	.	.	.	.	.	.	.33000	AG142V

	SUGARG	COFERN	COFEHUB	COFEHUC	COFEHUD	COFEHUF	COFEHUG	
								10....1
VA	.32000	.27000	.12000	.12000	12000	.12000	.12000	VA
EMPDN	73.18000	48.19000	14.19000	14.19000	14.19000	14.19000	14.19000	EMPDN
EMPTO	93.84000	68.27000	15.52000	15.52000	15.52000	15.52000	15.52000	EMPTO
WK	.19000	.20000	.22000	.22000	.22000	.22000	.22000	WK
LABOR	.07000	.06000	.02000	.02000	.02000	.02000	.02000	LABOR
P	.20000	.20000	.10000	.10000	.10000	.10000	.10000	P
S	.27000	.05000	.04000	.04000	.04000	.04000	.04000	S
FC	1.49700	.12300	.04200	.04200	.04200	.04200	.04200	FC
HP	830.00000	500.00000	70.00000	70.00000	70.00000	70.00000	70.00000	HP
FX	.00000	.00420	•	•	•	•	•	FX
LB	•	•	15.52000	•	•	•	•	LB
LTB	•	•	14.19000	•	•	•	•	LTB
LC	•	•	•	15.52000	•	•	•	LC
LTC	•	•	•	14.19000	•	•	•	LTC
LD	•	•	•	•	15.52000	•	•	LD
LTD	•	•	•	•	14.19000	•	•	LTD
LN	93.84000	68.27000	15.52000	15.52000	15.52000	15.52000	15.52000	LN
LTN	73.18000	48.19000	14.19000	14.19000	14.19000	14.19000	14.19000	LTN
LF	•	•	•	•	•	15.52000	•	LF
LTF	•	•	•	•	•	14.19000	•	LTF
LG	93.84000	•	•	•	•	•	15.52000	LG
LTG	73.18000	•	•	•	•	•	14.19000	LTG
PC122V	•	•	1.00000	1.00000	1.00000	1.00000	1.00000	PC122V
PC133V	1.00000	•	•	•	•	•	•	PC133V
PC139V	•	1.00000	•	•	•	•	•	PC139V
M122V	•	•	1.00000	1.00000	1.00000	1.00000	1.00000	M122V
M133V	.67000	•	•	•	•	•	•	M133V
M139V	•	1.00000	•	•	•	•	•	M139V
AG122V	•	•	.84000	.84000	.84000	.84000	.84000	AG122V
AG133V	.39000	•	•	•	•	•	•	AG133V
AG139V	•	.67000	•	•	•	•	•	AG139V
AG142V	.33000	•	•	•	•	•	•	AG142V

	SPIRIT4	WIVEC	WINED	DECRN	SOFTDRN	TOBMFGA	TOBMFGB		11....1
VA	.63000	.51000	.51000	.66000	.51000	.75000	.75000	VA	
EMPDW	41.07000	192.98000	192.98000	53.90000	184.03000	54.50000	54.50000	EMPDW	
EMPTD	41.07000	192.98000	192.98000	62.55000	184.03000	59.95000	59.95000	EMPTD	
WK	.06000	.15000	.15000	.11000	.16000	.08000	.08000	WK	
LABOR	.04000	.11000	.11000	.09000	.16000	.05000	.05000	LABOR	
P	.74000	.39000	.39000	.53000	.20000	.69000	.69000	P	
S	.69000	.36000	.36000	.11000	.10000	.09000	.09000	S	
FC	.10500	.08800	.08800	.98300	.62400	.10200	.10200	FC	
HP	40.00000	90.00000	90.00000	40.00000	400.00000	80.00000	80.00000	HP	
FX	.03520	.04370	.04370	.05700	.06000	.02070	.02070	FX	
LA	.	.	.	.	.	59.95000	.	LA	
LTA	.	.	.	.	.	54.50000	.	LTA	
LB	.	.	.	.	.	.	59.95000	LB	
LTB	.	.	.	.	.	.	54.50000	LTB	
LC	.	192.98000	.	.	.	.	.	LC	
LTC	.	192.98000	.	.	.	.	.	LTC	
LD	.	.	192.98000	.	.	.	.	LD	
LTD	.	.	192.98000	.	.	.	.	LTD	
LN	41.07000	192.98000	192.98000	62.55000	184.03000	59.95000	59.95000	LN	
LTN	41.07000	192.98000	192.98000	53.90000	184.03000	54.50000	54.50000	LTN	
PC142V	1.00000	.	.	.	.	.	.	PC142V	
PC143V	.	1.00000	1.00000	.	.	.	.	PC143V	
PC144V	.	.	.	1.00000	.	.	.	PC144V	
PC145V	.	.	.	.	.	1.00000	1.00000	PC145V	
PC167V	.	.	.	.	1.00000	.	.	PC167V	
M142V	1.00000	.	.	.	.	.	.	M142V	
M143V	.	1.00000	1.00000	.	.	.	.	M143V	
M145V	.	.	.	.	.	1.00000	1.00000	M145V	
M167V	.	.	.	.	1.00000	.	.	M167V	
M144V	.	.	.	1.00000	.	.	.	M144V	
AG144V	.	.	.	.22000	.	.	.	AG144V	
AG145V	.	.	.	.	.	.16000	.16000	AG145V	
AG142V	.07000	.	.	.	.	.	.	AG142V	

	TOBMFGC	TOBMFGD	TOBMFGE	COYARNA	COYARNB	COYARND	ROPEMFA		12....1
VA	.75000	.75000	.75000	.26000	.26000	.26000	.49000	VA	
EMPDW	54.50000	54.50000	54.50000	96.39000	96.39000	96.39000	169.35000	EMPDW	
EMPTO	59.95000	59.95000	59.95000	96.39000	96.39000	96.39000	185.48000	EMPTO	
WK	.08000	.08000	.08000	.21000	.21000	.21000	.16000	WK	
LABOR	.05000	.05000	.05000	.08000	.08000	.08000	.14000	LABOR	
P	.69000	.69000	.69000	.16000	.16000	.16000	.32000	P	
S	.09000	.09000	.09000	.24000	.24000	.24000	.03000	S	
FC	.10200	.10200	.10200	.80600	.80600	.80600	.39600	FC	
HP	80.00000	80.00000	80.00000	340.00000	340.00000	340.00000	560.00000	HP	
FX	.02070	.02070	.02070	.09320	.09320	.09320	.	FX	
LA	.	.	.	96.39000	.	.	185.48000	LA	
LTA	.	.	.	96.39000	.	.	169.35000	LTA	
LB	.	.	.	.	96.39000	.	.	LB	
LTB	.	.	.	.	96.39000	.	.	LTB	
LC	59.95000	.	.	.	.	.	.	LC	
LTC	54.50000	.	.	.	.	.	.	LTC	
LD	.	59.95000	.	.	.	96.39000	.	LD	
LTD	.	54.50000	.	.	.	96.39000	.	LTD	
LN	59.95000	59.95000	59.95000	96.39000	96.39000	96.39000	185.48000	LN	
LTN	54.50000	54.50000	54.50000	96.39000	96.39000	96.39000	169.35000	LTN	
LE	.	.	59.95000	.	.	.	.	LE	
LTE	.	.	54.50000	.	.	.	.	LTE	
PC145V	1.00000	1.00000	1.00000	.	.	.	.	PC145V	
PC146V	.	.	.	1.00000	1.00000	1.00000	.	PC146V	
PC147V	.	.	.	.	.	.	1.00000	PC147V	
M145V	1.00000	1.00000	1.00000	.	.	.	.	M145V	
M146V	.	.	.	.36000	.36000	.36000	.	M146V	
M147V	.	.	.	.	.	.	1.00000	M147V	
AG145V	.16000	.16000	.16000	.	.	.	.	AG145V	
AG146V	.	.	.	.49000	.49000	.49000	.	AG146V	
AG147V	.	.	.	.	.	.	.46000	AG147V	

	ROPEMFB	ROPEMFC	ROPEMFE	ROPEMFF	LUMBERN	WOODPLA	WOODPLC	
VA	.49000	.49000	.49000	.49000	.52000	.33000	.33000	VA
EMPDW	169.35000	169.35000	169.35000	169.35000	406.20000	189.19000	189.19000	EMPDW
EMPTO	185.48000	185.48000	185.48000	185.48000	437.50000	216.00000	216.00000	EMPTO
WK	.16000	.16000	.16000	.16000	.20000	.20000	.20000	WK
LABOR	.14000	.14000	.14000	.14000	.25000	.13000	.13000	LABOR
P	.32000	.32000	.32000	.32000	.18000	.06000	.06000	P
S	.03000	.03000	.03000	.03000	.14000	.09000	.09000	S
FC	.39600	.39600	.39600	.49000	1.43800	3.80900	3.80900	FC
HP	560.00000	560.00000	560.00000	560.00000	2710.0000	1410.0000	1410.0000	HP
LA	.	.	.	.	.	216.00000	.	LA
LTA	.	.	.	.	.	189.19000	.	LTA
LB	185.48000	.	.	.	.	.	.	LB
LTB	169.35000	.	.	.	.	.	.	LTB
LC	.	.	.	.	.	.	216.00000	LC
LTC	.	.	.	.	.	.	189.19000	LTC
LD	.	185.48000	.	.	.	.	.	LD
LTD	.	169.35000	.	.	.	.	.	LTD
LN	185.48000	185.48000	185.48000	185.48000	437.50000	216.00000	216.00000	LN
LTN	169.35000	169.35000	169.35000	169.35000	406.20000	189.19000	189.19000	LTN
LE	.	.	185.48000	.	.	.	.	LE
LTE	.	.	169.35000	.	.	.	.	LTE
LF	.	.	.	185.48000	.	.	.	LF
LTF	.	.	.	169.35000	.	.	.	LTF
PC147V	1.00000	1.00000	1.00000	1.00000	.	.	.	PC147V
PC149V	.	.	.	.	1.00000	.	.	PC149V
PC150V	.	.	.	.	.	1.00000	1.00000	PC150V
M147V	1.00000	1.00000	1.00000	1.00000	.	.	.	M147V
M149V	.	.	.	.	1.00000	.	.	M149V
M150V	.	.	.	.	.	1.00000	1.00000	M150V
AG147V	.46000	.46000	.46000	.46000	.	.	.	AG147V

14....1

	MOJOPLJ	MOJOPLG	WBOXESB	WBOXESC	WBOXESD	PLYWODA	PLYWODC	
VA	.33000	.33000	.38000	.38000	.38000	.59000	.59000	VA
EMPDW	189.19000	189.19000	333.33000	333.33000	333.33000	185.70000	185.70000	EMPDW
EMPTO	216.00000	216.00000	388.88000	388.88000	388.88000	227.32000	227.32000	EMPTO
WK	.20000	.20000	.20000	.20000	.20000	.15000	.15000	WK
LABOR	.13000	.13000	.19000	.19000	.19000	.19000	.19000	LABOR
P	.06000	.06000	.15000	.15000	.15000	.39000	.39000	P
S	.09000	.09000	.25000	.25000	.25000	.29000	.29000	S
FC	3.80900	3.80900	.67300	.67300	.67300	.62100	.62100	FC
HP	1410.0000	1410.0000	2890.0000	2890.0000	2890.0000	1130.0000	1130.0000	HP
LA	.	.	.	.	.	227.32000	.	LA
LTA	.	.	.	.	.	185.70000	.	LTA
LB	.	.	388.80000	.	.	.	.	LB
LTB	.	.	333.33000	.	.	.	.	LTB
LC	.	.	.	388.88000	.	.	227.32000	LC
LTC	.	.	.	333.33000	.	.	185.70000	LTC
LD	216.00000	.	.	.	388.88000	.	.	LD
LTD	189.19000	.	.	.	333.33000	.	.	LTD
LN	216.00000	216.00000	388.88000	388.88000	388.88000	227.32000	227.32000	LN
LTN	189.19000	189.19000	333.33000	333.33000	333.33000	185.70000	185.70000	LTN
LG	.	216.00000	.	.	.	.	.	LG
LTG	.	189.19000	.	.	.	.	.	LTG
PC150V	1.00000	1.00000	.	.	.	.	.	PC150V
PC151V	.	.	1.00000	1.00000	1.00000	.	.	PC151V
PC152V	.	.	.	.	.	1.00000	1.00000	PC152V
M150V	1.00000	1.00000	.	.	.	.	.	M150V
M151V	.	.	1.00000	1.00000	1.00000	.	.	M151V
M152V	.	.	.	.	.	1.00000	1.00000	M152V

	PLYWOOD	PARQETD	WOODBGA	WOODBGB	WOODBGD	PULPMFC	TANNIGB		15....1
VA	.59000	.48000	.47000	.47000	.47000	.51000	.32000	VA	
EMPDW	185.70000	272.72000	416.66000	416.66000	416.66000	17.82000	118.81000	EMPDW	
EMPTO	227.32000	363.63000	416.66000	416.66000	416.66000	26.19000	118.81000	EMPTO	
MK	.15000	.19000	.17000	.17000	.17000	.13000	.19000	MK	
LABOR	.19000	.22000	.23000	.23000	.23000	.05000	.09000	LABOR	
P	.39000	.25000	.23000	.23000	.23000	.36000	.20000	P	
S	.29000	.05000	.11000	.11000	.11000	.22000	.19000	S	
FC	.62100	.12500	.17800	.17800	.17800	.46100	.41700	FC	
HP	1130.00000	820.00000	1080.0000	1080.0000	1080.0000	630.00000	640.00000	HP	
FX	.	.00430	.	.	.	.	.06200	FX	
LA	.	.	416.66000	.	.	.	.	LA	
LTA	.	.	416.66000	.	.	.	.	LTA	
LB	.	.	.	416.66000	.	.	118.81000	LB	
LTB	.	.	.	416.66000	.	.	118.81000	LTB	
LC	.	.	.	.	.	26.19000	.	LC	
LTC	.	.	.	.	.	17.82000	.	LTC	
LD	.	363.63000	.	.	416.66000	.	.	LD	
LTD	.	272.72000	.	.	416.66000	.	.	LTD	
LN	227.32000	363.63000	416.66000	416.66000	416.66000	26.19000	118.81000	LN	
LTN	185.70000	272.72000	416.66000	416.66000	416.66000	17.82000	118.81000	LTN	
LG	227.32000	.	.	.	.	.	.	LG	
LTG	185.70000	.	.	.	.	.	.	LTG	
PC152V	1.00000	.	.	.	.	.	.	PC152V	
PC153V	.	1.00000	.	.	.	.	.	PC153V	
PC155V	.	.	1.00000	1.00000	1.00000	.	.	PC155V	
PC156V	.	.	.	.	.	1.00000	.	PC156V	
PC162V	.	.	.	.	.	.	1.00000	PC162V	
M162V	.	.	.	.	.	.	1.00000	M162V	
M152V	1.00000	.	.	.	.	.	.	M152V	
M153V	.	1.00000	.	.	.	.	.	M153V	
M155V	.	.	1.00000	1.00000	1.00000	.	.	M155V	
M156V	.	.	.	.	.	1.00000	.	M156V	
AG162V	.	.	.	.	.	.	.47000	AG162V	

	TANNIGC	TANNIGD	TANNIGE	INDOILA	INDOILB	INDOILC	INDOILD	
								16....1
VA	.32000	.32000	.32000	.32000	.32000	.32000	.32000	VA
EMPDW	118.81000	118.81000	118.81000	94.94000	94.94000	94.94000	94.94000	EMPDW
EMPTO	118.81000	118.81000	118.81000	94.94000	94.94000	94.94000	94.94000	EMPTO
WK	.19000	.19000	.19000	.19000	.19000	.19000	.19000	WK
LABOR	.09000	.09000	.09000	.07000	.07000	.07000	.07000	LABOR
P	.20000	.20000	.20000	.20000	.20000	.20000	.20000	P
S	.19000	.19000	.19000	.27000	.27000	.27000	.27000	S
FC	.41700	.41700	.41700	.89900	.89900	.89900	.89900	FC
HP	640.00000	640.00000	640.00000	1200.0000	1200.0000	1200.0000	1200.0000	HP
FX	.06200	.06200	.06200	.18070	.18070	.18070	.18070	FX
LA	•	•	•	94.94000	•	•	•	LA
LTA	•	•	•	94.94000	•	•	•	LTA
LB	•	•	•	•	94.94000	•	•	LB
LTB	•	•	•	•	94.94000	•	•	LTB
LC	118.81000	•	•	•	•	94.94000	•	LC
LTC	118.81000	•	•	•	•	94.94000	•	LTC
LD	•	118.81000	•	•	•	•	94.94000	LD
LTD	•	118.81000	•	•	•	•	94.94000	LTD
LN	118.81000	18.81000	118.81000	94.94000	94.94000	94.94000	94.94000	LN
LTN	118.81000	18.81000	118.81000	94.94000	94.94000	94.94000	94.94000	LTN
LE	•	•	118.81000	•	•	•	•	LE
LTE	•	•	118.81000	•	•	•	•	LTE
PC162V	1.00000	1.00000	1.00000	•	•	•	•	PC162V
PC164V	•	•	•	1.00000	1.00000	1.00000	1.00000	PC164V
M162V	1.00000	1.00000	1.00000	•	•	•	•	M162V
M164V	•	•	•	1.00000	1.00000	1.00000	1.00000	M164V
AG162V	.47000	.47000	.47000	•	•	•	•	AG162V
AG164V	•	•	•	.35000	.35000	.35000	.35000	AG164V

	INDUSTLE	CUCHUD	CHOCOPB	CHOCOPC	CHOCOPD	CHOCOPE	CHOCOPF	17....1
VA	.52000	.13000	.26000	.26000	.26000	.26000	.26000	VA
EMPDW	94.94000	179.48000	86.09000	86.09000	86.09000	86.09000	86.09000	EMPDW
EMPTD	94.94000	192.31000	86.09000	86.09000	86.09000	86.09000	86.09000	EMPTD
WK	.19000	.24000	.20000	.20000	.20000	.20000	.20000	WK
LABOR	.07000	.07000	.05000	.05000	.05000	.05000	.05000	LABOR
P	.20000	.06000	.14000	.14000	.14000	.14000	.14000	P
S	.27000	.06000	.27000	.27000	.27000	.27000	.27000	S
FC	.99000	.81700	1.13100	1.13100	1.13100	1.13100	1.13100	FC
MP	1200.00000	460.00000	180.00000	180.00000	180.00000	180.00000	180.00000	MP
FX	.18070	.	.20300	.20300	.20300	.20300	.20300	FX
LB	.	.	86.09000	.	.	.	.	LB
LTB	.	.	86.09000	.	.	.	.	LTB
LC	.	.	.	86.09000	.	.	.	LC
LTC	.	.	.	86.09000	.	.	.	LTC
LD	.	192.31000	.	.	86.09000	.	.	LD
LTD	.	179.48000	.	.	86.09000	.	.	LTD
LN	94.94000	192.31000	86.09000	86.09000	86.09000	86.09000	86.09000	LN
LTN	94.94000	179.48000	86.09000	86.09000	86.09000	86.09000	86.09000	LTN
LE	94.94000	.	.	.	.	86.09000	.	LE
LTE	94.94000	.	.	.	.	86.09000	.	LTE
LF	.	.	.	.	.	.	86.09000	LF
LTF	.	.	.	.	.	.	86.09000	LTF
PC123V	.	1.00000	.	.	.	.	.	PC123V
PC135V	.	.	1.00000	1.00000	1.00000	1.00000	1.00000	PC135V
PC164V	1.00000	.	.	.	.	.	.	PC164V
M123V	.	1.00000	.	.	.	.	.	M123V
M135V	.	.	1.00000	1.00000	1.00000	1.00000	1.00000	M135V
M164V	1.00000	.	.	.	.	.	.	M164V
AG135V	.	.	.46000	.46000	.46000	.46000	.46000	AG135V
AG164V	.35000	.	.	.	.	.	.	AG164V

	STARCHA	STARCHB	STARCHC	STARCHD	STARCHE	OILCOTN	OILSBN	
VA	.40000	.40000	.40000	.40000	.40000	.27000	.27000	VA
EMPDW	69.89000	69.89000	69.89000	69.89000	69.89000	32.63000	32.63000	EMPDW
EMPTO	102.15000	102.15000	102.15000	102.15000	102.15000	43.51000	43.51000	EMPTO
WK	.13000	.17000	.17000	.17000	.17000	.19000	.19000	WK
LABOR	.11000	.11000	.11000	.11000	.11000	.05000	.05000	LABOR
P	.26000	.26000	.26000	.26000	.26000	.19000	.19000	P
S	.22000	.22000	.22000	.22000	.22000	.14000	.14000	S
FC	.81700	.81700	.81700	.81700	.81700	.41100	.41100	FC
HP	450.00000	450.00000	450.00000	450.00000	450.00000	330.00000	330.00000	HP
FX	.04740	.04740	.04740	.04740	.04740	.04390	.04390	FX
LA	102.15000	•	•	•	•	•	•	LA
LTA	69.89000	•	•	•	•	•	•	LTA
LB	•	102.15000	•	•	•	•	•	LB
LTB	•	69.89000	•	•	•	•	•	LTB
LC	•	•	102.15000	•	•	•	•	LC
LTC	•	•	69.89000	•	•	•	•	LTC
LD	•	•	•	102.15000	•	•	•	LD
LTD	•	•	•	69.89000	•	•	•	LTD
LN	102.15000	102.15000	102.15000	102.15000	102.15000	43.51000	43.51000	LN
LTN	69.89000	69.89000	69.89000	69.89000	69.89000	32.63000	32.63000	LTN
LE	•	•	•	•	102.15000	•	•	LE
LTE	•	•	•	•	69.89000	•	•	LTE
PC137V	•	•	•	•	•	1.00000	1.00000	PC13
PC138V	1.00000	1.00000	1.00000	1.00000	1.00000	•	•	PC13
M137V	•	•	•	•	•	.34000	.25000	M137
M138V	1.00000	1.00000	1.00000	1.00000	1.00000	•	•	M138
MEDFATV	•	•	•	•	•	1.00000	1.00000	MEDF
AG136V	•	•	•	•	•	.58000	.58000	AG136
AG141V	•	•	•	•	•	.66000-	.75000-	AG141V
AG136CO	•	•	•	•	•	.58000	•	AG136CO
AG136SB	•	•	•	•	•	•	.58000	AG136SB

	OILSESN	OILPALN	LARDCON	LARDSBN	LARDSEN	LARDPAN	RICENI	19....1
VA	.27000	.27000	.21000	.21000	.21000	.21000	.17000	VA
EMPDW	32.63000	32.63000	33.41000	33.41000	33.41000	33.41000	26.74000	EMPDW
EMPTO	43.51000	43.51000	51.84000	51.84000	51.84000	51.84000	37.43000	EMPTO
WK	.19000	.19000	.22000	.22000	.22000	.22000	.22000	WK
LABOR	.05000	.05000	.07000	.07000	.07000	.07000	.03000	LABOR
P	.19000	.19000	.12000	.12000	.12000	.12000	.13000	P
S	.14000	.14000	.13000	.13000	.13000	.13000	.04000	S
FC	.41100	.41100	.45900	.45900	.45900	.45900	.25600	FC
HP	330.00000	330.00000	310.00000	310.00000	310.00000	310.00000	400.00000	HP
FX	.04390	.04390	.12290	.12290	.12290	.12290	.	FX
LN	43.51000	43.51000	51.84000	51.84000	51.84000	51.84000	.	LN
LTN	32.63000	32.63000	33.41000	33.41000	33.41000	33.41000	.	LTN
PC136V	.	.	1.00000	1.00000	1.00000	1.00000	.	PC136V
PC137V	1.00000	1.00000	.	.	.	.	.	PC137V
NI121	.	.	.	.	.	.	1.00000	NI121
M121V	.	.	.	.	.	.	.87000	M121V
M136V	.	.	.34000	.34000	.34000	.34000	.	M136V
M137V	.66000	.33000	.	.	.	.	.	M137V
MEDFATV	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	.	MEDFATV
AG121V	.	.	.	.	.	.	.78000	AG121V
AG136V	.58000	.58000	.63000	.63000	.63000	.63000	.	AG136V
AG141V	.46000-	.67000-	.66000-	.66000-	.66000-	.66000-	.13000-	AG141V
AG136CO	.	.	.63000	.	.	.	.	AG136CO
AG136SB	.	.	.	.63000	.	.	.	AG136SB
AG136SE	.58000	.	.	.	.63000	.	.	AG136SE
[illegible]	.	.58000	.	.	.	.63000	.	AG136PA

	CAFENI	BREADNI	CRACKNI	COTTONI	TOBACNI	PANELNI	E122P1	20....1
VA	.12000	.33000	.34000	.26000	.75000	.32000	.	VA
EMPDW	14.13000	333.33000	162.26000	96.39000	19.90000	73.18000	.	EMPDW
EMPTO	15.52000	428.66000	217.69000	96.39000	119.90000	93.84000	.	EMPTO
WK	.22000	.19000	.22000	.21000	.08000	.19000	.	WK
LABOR	.02000	.11000	.21000	.08000	.65000	.07000	.	LABOR
P	.10000	.21000	.05000	.16000	.09000	.20000	.	P
S	.04000	.27000	.18000	.13000	.09000	.27000	.	S
FC	.04200	.	.	.80600	.	.11700	.	FC
HP	70.00000	.	.	340.00000	.	230.00000	.	HP
FX	.	.00680	.18840	.09320	.	.00300	1.00000-	FX
NI122	1.00000	.	.	.	.	.	.	NI122
NI129	.	1.00000	.	.	.	.	.	NI129
NI131	.	.	1.00000	.	.	.	.	NI131
NI146	.	.	.	1.00000	.	.	.	NI146
NI133	.	.	.	.	.	1.00000	.	NI133
NI145	.	.	.	.	1.00000	.	.	NI145
M122V	1.00000	.	.	.	.	.	.	M122V
M129V	.	1.00000	.	.	.	.	.	M129V
M131V	.	.	1.00000	.	.	.	.	M131V
M133V	.	.	.	.	.	1.00000	.	M133V
M145V	.	.	.	.	1.00000	.	.	M145V
M146V	.	.	.	.36000	.	.	.	M146V
EX122V	.	.	.	.	.	.	1.00000	EX122V
AG122V	.84000	.	.	.	.	.	.	AG122V
AG129V	.	.38000	.	.	.	.	.	AG129V
AG133V	.	.	.	.	.	.39000	.	AG133V
AG145V	.	.	.	.	.16000	.	.	AG145V
AG146V	.	.	.	.60000	.	.	.	AG146V

	E133P12	E146P1	E103RP	E141R	E149P1	E162P12	E138P1		21....1
FX	1.00000-	1.00000-	1.00000-	1.00000-	1.00000-	1.00000-	1.00000-	FX	
EX133V	1.00000	•	•	•	•	•	•	EX133V	
EX146V	•	1.00000	•	•	•	•	•	EX146V	
EX103V	•	•	1.00000	•	•	•	•	EX103V	
EX141V	•	•	•	1.00000	•	•	•	EX141V	
EX149V	•	•	•	•	1.00000	•	•	EX149V	
EX162V	•	•	•	•	•	1.00000	•	EX162V	
AG133V	•	•	•	•	•	•	•	AG103V	
AG141V	•	•	•	1.00000	•	•	•	AG141V	

	E118P1	E145R	I145P1	I135R	I124RP	I144R	I110P1		22....1
FX	1.00000-	1.00000-	1.00000	1.00000	1.00000	1.00000	1.00000	FX	
EX118V	1.00000	•	•	•	•	•	•	EX118V	
EX145RV	•	1.00000	•	•	•	•	•	EX145RV	
IM145V	•	•	1.00000	•	•	•	•	IM145V	
IM135RV	•	•	•	1.00000	•	•	•	IM135RV	
IM124RV	•	•	•	•	1.00000	•	•	IM124RV	
IM144RV	•	•	•	•	•	1.00000	•	IM144RV	
IM110V	•	•	•	•	•	•	1.00000	IM110V	

	I137P12	I141RP	I142RP	I143P1	I144P12	I147P1	I156P1		23....1
FX	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	FX	
IM137V	1.00000	.	.	.	.	.	.	IM137V	
IM141RV	.	1.00000	.	.	.	.	.	IM141RV	
IM142V	.	.	1.00000	.	.	.	.	IM142V	
IM143V	.	.	.	1.00000	.	.	.	IM143V	
IM144V	.	.	.	.	1.00000	.	.	IM144V	
IM147V	.	.	.	.	.	1.00000	.	IM147V	
IM156V	.	.	.	.	.	.	1.00000	IM156V	
AG141V	.	1.00000-	.	.	.	.	.	AG141V	

	I164AP	I125R	LVSLGT2	LVSLGT3	PASTER2	BUTTER2	BUTTER4		24....1
VA	.	.	.14000	.33000	.30000	.12000	.07000	VA	
EMPDW	.	.	8.49000	11.11000	8.01000	16.75000	8.71000	EMPDW	
EMPTD	.	.	10.91000	16.67000	20.46000	25.77000	17.18000	EMPTD	
WK	.	.	.24000	.18000	.21000	.23000	.25000	WK	
LABOR	.	.	.08000	.05000	.14000	.05000	.04000	LABOR	
P	.	.	.04000	.27000	.13000	.05000	.00500	P	
S	.	.	.12000	.00500	.17000	.34000	.02000	S	
FC	.	.	.35400	.07700	.26800	.21400	.21400	FC	
HP	.	.	120.00000	120.00000	160.00000	170.00000	170.00000	HP	
FX	1.00000	1.00000	.	.	.	.	.	FX	
LN	.	.	10.91000	16.67000	20.46000	25.77000	17.18000	LN	
LTN	.	.	8.49000	11.11000	8.01000	16.75000	8.71000	LTN	
PC103V	.	.	1.00000	1.00000	.	.	.	PC103V	
PC105V	.	.	.	.	1.00000	.	.	PC105V	
PC106V	.	.	.	.	.	1.00000	1.00000	PC106V	
M103V	.	.	.80000	.80000	.	.	.	M103V	
M105V	.	.	.	.	1.00000	.	.	M105V	
M106V	.	.	.	.	.	1.00000	1.00000	M106V	
IM164RV	1.00000	.	.	.	.	.	.	IM164RV	
IM125RV	.	1.00000	.	.	.	.	.	IM125RV	
AG103V	.	.	.69000	.66000	.	.	.	AG103V	
AG141V	.	.	.02500-	.02500-	.	.	.	AG141V	
AG162V	.	.	.09500-	.09500-	.	.	.	AG162V	
AG164V	.	.	.08000-	.08000-	.	.	.	AG164V	

	CHEESE2	MILK04	ICECR2	ICECR7	MILPR2	FVCAN2	FVCAN6	
VA	.13000	.16000	.38000	.36000	.29000	.41000	.36000	VA
EMPDN	9.61000	16.01000	12.84000	298.68000	8.06000	24.34000	101.59000	EMPDN
EMPTO	10.81000	32.12000	22.47000	390.79000	10.60000	27.16000	139.44000	EMPTO
WK	.23000	.24000	.19000	.20000	.20000	.18000	.22000	WK
LABOR	.06000	.12000	.15000	.18000	.07000	.14000	.24000	LABOR
P	.05000	.01000	.20000	.17000	.19000	.24000	.09000	P
S	.48000	.03500	.37000	.02000	.34000	.33000	.23000	S
FC	1.97500	.19200	1.94200	1.94200	.11700	.42300	.42300	FC
HP	250.00000	140.00000	1040.0000	1040.0000	380.00000	240.00000	240.00000	HP
FX	.01000	.	.02600	.02600	.09200	.03080	.03080	FX
LN	10.81000	32.12000	22.47000	390.79000	10.60000	27.16000	139.44000	LN
LTN	9.61000	16.01000	12.84000	298.68000	8.06000	24.34000	101.59000	LTN
PC107V	1.00000	.	.	.	.	.	.	PC107V
PC108V	.	1.00000	.	.	.	.	.	PC108V
PC109V	.	.	1.00000	1.00000	.	.	.	PC109V
PC110V	.	.	.	.	1.00000	.	.	PC110V
PC111V	.	.	.	.	.	1.00000	1.00000	PC111V
M107V	1.00000	.	.	.	.	.	.	M107V
M108V	.	1.00000	.	.	.	.	.	M108V
M109V	.	.	1.00000	1.00000	.	.	.	M109V
M110V	.	.	.	.	1.00000	.	.	M110V
M111V	.	.	.	.	.	1.00000	1.00000	M111V

	FVCA47	JUICE3	PICKLE2	FVDRY2	FVDRY3	FISHCA2	FISHCA3	
								26....1
VA	.23000	.14000	.36000	.39000	.23000	.35000	.37000	VA
EMPDW	120.85000	7.39000	19.33000	20.76000	22.79000	22.03000	21.19000	EMPDW
EMPTO	143.24000	10.20000	24.48000	25.00000	26.05000	25.09000	23.58000	EMPTO
WK	.22000	.22000	.19000	.19000	.21000	.20000	.18000	WK
LABOR	.12000	.03000	.12000	.14000	.08000	.13000	.07000	LABOR
P	.02000	.10000	.21000	.21000	.12000	.19000	.29000	P
S	.23000	.00500	.53000	.19000	.01000	.16000	.11000	S
FC	.42700	.07400	.29900	.31600	.31600	.10400	.10400	FC
HP	190.00000	80.00000	264.00000	90.00000	90.00000	40.00000	40.00000	HP
FX	.03000	.01460	.26400	.04830	.04830	.	.	FX
LN	143.24000	10.20000	24.48000	25.00000	26.05000	25.09000	23.58000	LN
LTN	120.85000	7.39000	19.33000	20.76000	22.79000	22.03000	21.19000	LTN
PC111V	1.00000	.	.	.	.	.	.	PC111V
PC112V	.	1.00000	.	.	.	.	.	PC112V
PC114V	.	.	1.00000	.	.	.	.	PC114V
PC115V	.	.	.	1.00000	1.00000	.	.	PC115V
PC117V	.	.	.	.	.	1.00000	1.00000	PC117V
M111V	1.00000	.	.	.	.	.	.	M111V
M112V	.	1.00000	.	.	.	.	.	M112V
M114V	.	.	1.00000	.	.	.	.	M114V
M115V	.	.	.	1.00000	1.00000	.	.	M115V
M117V	.	.	.	.	.	1.00000	1.00000	M117V

	FISHLAS	SEAPR2	SEAPR3	RICEM2	RICEM3	FLOUR2	FLOUR5		27....1
VA	.12000	.27000	.37000	.19000	.23000	.20000	.09000	VA	
EMPDW	120.99000	28.55000	19.58000	6.20000	6.20000	6.61000	23.83000	EMPDW	
EMPTO	130.04000	31.22000	26.57000	8.56000	8.15000	9.03000	27.65000	EMPTO	
WK	.24000	.21000	.18000	.21000	.20000	.22000	.24000	WK	
LABOR	.07000	.14000	.10000	.04000	.03000	.06000	.03000	LABOR	
P	.03000	.12000	.25000	.13000	.19000	.11000	.05000	P	
S	.27000	.18000	.01000	.06000	.01000	.15000	.00500	S	
FC	.11000	.15000	.15000	.15500	.15500	.27100	.09700	FC	
HP	20.00000	140.00000	140.00000	190.00000	190.00000	0.00000	350.00000	HP	
FX	.	.	.	.	.	.62430	.62430	FX	
LN	130.04000	31.22000	26.57000	8.56000	8.15000	9.03000	27.65000	LN	
LTN	120.99000	28.55000	19.58000	6.20000	6.11000	6.61000	23.83000	LTN	
PC117V	1.00000	.	.	.	.	.	.	PC117V	
PC118V	.	1.00000	1.00000	.	.	.	.	PC118V	
PC121V	.	.	.	1.00000	1.00000	.	.	PC121V	
PC124V	.	.	.	.	.	1.00000	1.00000	PC124V	
M117V	1.00000	.	.	.	.	.	.	M117V	
M118V	.	1.00000	1.00000	.	.	.	.	M118V	
M121V	.	.	.	.87000	.87000	.	.	M121V	
M124V	.	.	.	.	.	.82500	.82500	M124V	
AG121V	.	.	.	.73000	.75000	.	.	AG121V	
AG124V	.	.	.	.	.	.60000	.85000	AG124V	
AG141V	.	.	.	-.13000-	-.13000-	-.17500-	-.17500-	AG141V	

	FLOUR	GRAIN8	CEREAL2	FEEDOT2	FEEDOT3	FEEDOT9	BREADW2	
VA	.03000	.15000	.59000	.25000	.33000	.16000	.54000	VA
EMPDW	16.47000	98.94000	12.14000	7.85000	10.67000	28.89000	23.77000	EMPDW
EMPTO	21.83000	115.09000	14.58000	11.78000	28.44000	57.78000	41.20000	EMPTO
WK	.24000	.23000	.13000	.22000	.19000	.23000	.19000	WK
LABOR	.03000	.06000	.12000	.13000	.10000	.09000	.28000	LABOR
P	.03000	.07000	.39000	.10000	.22000	.05000	.24000	P
S	.02000	.03000	.28000	.38000	.00500	.04000	.23000	S
FC	.27100	.42800	.96900	.34000	.08600	.34000	.21500	FC
HP	210.00000	430.00000	110.00000	90.00000	30.00000	90.00000	80.00000	HP
FX	.02490	.10850	.	.02390	.02390	.02390	.00680	FX
LN	21.83000	115.09000	14.58000	11.78000	28.44000	57.78000	41.20000	LN
LTN	16.47000	98.94000	12.14000	7.85000	10.67000	28.89000	23.77000	LTN
PC124V	1.00000	.	.	.	.	.	.	PC124V
PC125V	.	1.00000	.	.	.	.	.	PC125V
PC132V	.	.	1.00000	.	.	.	.	PC132V
PC141V	.	.	.	1.00000	1.00000	1.00000	1.00000	PC141V
M124V	.82500	.	.	.	.	.	.	M124V
M129V	.	.	.	.	.	.	1.00000	M129V
M132V	.	.	1.00000	.	.	.	.	M132V
M141V	.	.	.	1.00000	1.00000	1.00000	.	M141V
M125V	.	.86000	.	.	.	.	.	M125V
AG124V	.84000	.	.	.	.	.	.	AG124V
AG129V	.	.	.	.	.	.	.13000	AG129V
AG141V	.17500	.14000	.	.30000	.66000	.76000	.	AG141V

	BREAD3	CRACAK2	CRACAK3	SUGAR2	SUGAR4	SUGAR5	COFER2	
								29....1
VA	.47300	.34000	.64000	.35000	.24000	.33000	.35000	VA
EMPDW	.77300	24.00000	23.08000	19.62000	8.96000	25.00000	4.48000	EMPDW
EMPTD	36.46300	30.38000	38.46000	26.16000	32.00000	31.70000	7.81000	EMPTO
MK	.17300	.16000	.14000	.20000	.21000	.18000	.18000	MK
LABOR	.15300	.18000	.18000	.13000	.10000	.06000	.06000	LABOR
P	.33300	.29000	.42600	.17000	.11600	.26000	.25000	P
S	.05300	.31000	.01000	.12000	.02000	.01000	.13000	S
FC	.21300	.41900	.41900	.11700	.05100	.11700	.12300	FC
MP	80.00300	290.00000	290.00000	230.00000	900.00000	230.00000	500.00000	MP
FX	.00360	.18840	.18840	.00300	.00300	.00300	.00420	FX
LN	38.46300	30.38000	38.46000	26.16000	32.00000	31.70000	7.81000	LN
LTN	30.77300	24.00000	23.08000	19.62000	8.96000	25.00000	4.48000	LTN
PC131V	•	1.00000	1.00000	•	•	•	•	PC131V
PC133V	•	•	•	1.00000	1.00000	1.00000	•	PC133V
PC139V	•	•	•	•	•	•	1.00000	PC139V
PC141V	1.00000	•	•	•	•	•	•	PC141V
M129V	1.00000	•	•	•	•	•	•	M129V
M131V	•	1.00000	1.00000	•	•	•	•	M131V
M133V	•	•	•	.67000	.67000	.67000	•	M133V
M139V	•	•	•	•	•	•	1.00000	M139V
AG129V	.48000	•	•	•	•	•	•	AG129V
AG133V	•	•	•	.50000	.65000	.64000	•	AG133V
AG139V	•	•	•	•	•	•	.48000	AG139V
AG142V	•	•	•	.33000-	.33000-	.33000-	•	AG142V

	SPIRIT2	WINE2	BEER2	SOFTDR2	SOFTDR3	SOFTDR8	TOBMFG2	
								30....1
VA	.53000	.42000	.53000	.53000	.64000	.55000	.54000	VA
EMPDW	11.33000	11.00000	12.63000	15.00000	20.00000	302.10000	9.95000	EMPDW
EMPTO	13.55000	18.00000	18.95000	37.51000	46.67000	351.14000	11.16000	EMPTO
MK	.14000	.17000	.16000	.18000	.14000	.15000	.13000	MK
LABOR	.10000	.11000	.18000	.23000	.19000	.14000	.07000	LABOR
P	.33000	.27000	.30000	.26000	.39000	.39000	.41000	P
S	.37000	.38000	.36000	.23000	.11000	.10000	.11000	S
FC	.10500	.08800	.98300	.37300	.37300	.25900	.10200	FC
HP	40.00000	90.00000	40.00000	70.00000	70.00000	120.00000	80.00000	HP
FX	.00520	.04370	.05700	.06000	.06000	.06000	.02070	FX
LN	13.55000	18.00000	18.95000	37.51000	46.67000	351.14000	11.16000	LN
LTN	11.33000	11.00000	12.63000	15.00000	20.00000	302.10000	9.95000	LTN
PC142V	1.00000	1.00000	.	.	.	.	.	PC142V
PC144V	.	.	1.00000	.	.	.	.	PC144V
PC145V	.	.	.	.	.	.	1.00000	PC145V
PC167V	.	.	.	1.00000	1.00000	1.00000	.	PC167V
M142V	1.00000	.	.	.	.	.	.	M142V
M143V	.	1.00000	.	.	.	.	.	M143V
M145V	.	.	.	.	.	.	1.00000	M145V
M167V	.	.	.	1.00000	1.00000	1.00000	.	M167V
M144V	.	.	1.00000	.	.	.	.	M144V
AG144V	.	.	.08000	.	.	.	.	AG144V
AG145V	.	.	.	.	.	.	.35000	AG145V
AG142V	.05000	.	.	.	.	.	.	AG142V

	COYARN2	COYARN4	COYARN7	ROPEMF2	ROPEMF6	ROPEMF9	LUMBER2		31....1
VA	.99000	.30000	.28000	.50000	.36000	.44000	.44000	VA	
EMPDM	48.21000	95.79000	57.74000	43.83000	219.48000	372.83000	43.99000	EMPDM	
EMPTO	51.37000	108.85000	126.42000	48.30000	233.42000	380.49000	49.85000	EMPTO	
MK	.21000	.23000	.26000	.19000	.17000	.24000	.21000	MK	
LABOR	.22000	.21000	.32000	.26000	.14000	.38000	.25000	LABOR	
P	.12000	.03000	.01000	.20000	.19000	.02000	.15000	P	
S	.03000	.04000	.06000	.27000	.14000	.09000	.12000	S	
FC	.03000	1.88900	.80600	.34100	.34100	.76500	1.43800	FC	
HP	930.00000	1.18000	930.00000	380.00000	380.00000	600.00000	256.00000	HP	
FX	.09320	.09320	.09320	.	.	.	.	FX	
LN	51.37000	108.85000	126.42000	48.30000	233.42000	380.49000	49.85000	LN	
LTN	48.21000	95.79000	57.74000	43.83000	219.48000	372.83000	43.99000	LTN	
PC146V	1.00000	1.00000	1.00000	.	.	.	.	PC146V	
PC147V	.	.	.	1.00000	1.00000	1.00000	.	PC147V	
PC149V	.	.	.	.	.	.	1.00000	PC149V	
M146V	1.00000	1.00000	1.00000	.	.	.	.	M146V	
M147V	.	.	.	1.00000	1.00000	1.00000	.	M147V	
M149V	.	.	.	.	.	.	1.00000	M149V	
AG146V	.50000	.64000	.64000	.	.	.	.	AG146V	
AG147V	.	.	.	.19000	.46000	.37000	.	AG147V	

	WOODPL3	WOODPL6	BOXES2	BOXES3	PLYWOD2	PLYWOD8	PLYWOD9		32....1
VA	.49000	.39000	.44000	.59000	.49000	.44000	.49000	VA	
EMPDW	35.00000	151.68000	50.00000	90.06000	39.54000	468.68000	86.74000	EMPDW	
EMPTD	40.00000	181.65000	60.87000	108.70000	41.52000	503.03000	116.85000	EMPTD	
WK	.19000	.19000	.20000	.20000	.21000	.20000	.20000	WK	
LABOR	.15000	.16000	.26000	.39000	.25000	.22000	.29000	LABOR	
P	.32000	.22000	.15000	.18000	.11000	.14000	.16000	P	
S	.01000	.03000	.20000	.01000	.11000	.06000	.06000	S	
FC	.12500	.33300	.26100	.26100	.59700	.53500	.59700	FC	
HP	240.00000	240.00000	530.00000	530.00000	640.00000	1200.0000	640.00000	HP	
LN	40.00000	181.65000	60.87000	108.70000	41.52000	503.03000	116.85000	LN	
LTN	35.00000	151.68000	50.00000	90.06000	39.54000	468.68000	86.74000	LTN	
PC149V	1.00000	•	•	•	•	•	•	PC149V	
PC150V	•	1.00000	•	•	•	•	•	PC150V	
PC151V	•	•	1.00000	1.00000	•	•	•	PC151V	
PC152V	•	•	•	•	1.00000	1.00000	1.00000	PC152V	
M150V	1.00000	1.00000	•	•	•	•	•	M150V	
M151V	•	•	1.00000	1.00000	•	•	•	M151V	
M152V	•	•	•	•	1.00000	1.00000	1.00000	M152V	

	PARQET3	WOODBG2	PULPMF2	PULPMF3	TANNIG2	TANNIG4	TANNIG9		33....1
VA	.61000	.47000	.45000	.63000	.37000	.28000	.28000	VA	
EMPDM	51.33000	67.61000	16.43000	50.00000	29.24000	68.97000	90.70000	EMPDM	
EMPTO	66.66000	74.73000	20.78000	70.40000	34.61000	89.89000	125.00000	EMPTO	
MK	.16000	.20000	.18000	.16000	.21000	.24000	.23000	MK	
LABOR	.25000	.28000	.17000	.27000	.21000	.24000	.20000	LABOR	
P	.33000	.17000	.22000	.32000	.13000	.00500	.07000	P	
S	.01000	.14000	.23000	.17000	.06000	.09000	.03000	S	
FC	.22500	.17800	.46100	.46100	1.08000	1.08000	.25200	FC	
HP	220.00000	1080.0000	460.00000	460.00000	1030.0000	1030.0000	710.00000	HP	
FX	.00000	•	•	•	.06200	.06200	.06200	FX	
LN	66.66000	74.73000	20.78000	70.40000	34.61000	89.89000	125.00000	LN	
LTN	51.85000	67.61000	16.43000	50.00000	29.24000	68.97000	90.70000	LTN	
PC153V	1.00000	•	•	•	•	•	•	PC153V	
PC155V	•	1.00000	1.00000	1.00000	•	•	•	PC155V	
PC162V	•	•	•	•	1.00000	1.00000	1.00000	PC162V	
M162V	•	•	•	•	1.00000	1.00000	1.00000	M162V	
M153V	1.00000	•	•	•	•	•	•	M153V	
M155V	•	1.00000	1.00000	1.00000	•	•	•	M155V	
AG162V	•	•	•	•	.47000	.43000	.61000	AG162V	

	LARDV2	LARD9	INDOIL2	INDOIL3	CHOCOP2	STARCH2	STARCH9		34....1
VA	.24000	.09000	.37000	.41000	.46000	.44000	.56000	VA	
EMPDM	6.47000	22.41000	19.00000	12.17000	28.46000	20.03000	146.34000	EMPDM	
EMPTO	8.73000	26.16000	27.46000	15.65000	33.52000	33.13000	333.33000	EMPTO	
WK	.21000	.23000	.20000	.17000	.18000	.16000	.21000	WK	
LABOR	.07000	.03000	.16000	.07000	.18000	.16000	.40000	LABOR	
P	.13000	.05000	.14000	.30000	.24000	.20000	.07000	P	
S	.15000	.10000	.11000	.02000	.26000	.22000	.04000	S	
FC	.13500	.13500	.48000	.48000	1.13100	.66700	.66700	FC	
HP	230.00000	230.00000	350.00000	350.00000	180.00000	260.00000	260.00000	HP	
FX	.12290	.12290	.18070	.18070	.20300	.04740	.04740	FX	
LN	8.73000	26.16000	27.46000	15.65000	33.52000	33.13000	333.33000	LN	
LTM	6.47000	22.41000	19.00000	12.17000	28.46000	20.03000	146.34000	LTM	
PC135V	.	.	.	.	1.00000	.	.	PC135V	
PC136V	1.00000	1.00000	.	.	.	.	.	PC136V	
PC138V	.	.	.	.	.	1.00000	1.00000	PC138V	
PC164V	.	.	1.00000	1.00000	.	.	.	PC164V	
M135V	.	.	.	.	1.00000	.	.	M135V	
M136V	1.00000	1.00000	.	.	.	.	.	M136V	
M138V	.	.	.	.	.	1.00000	1.00000	M138V	
M164V	.	.	1.00000	1.00000	.	.	.	M164V	
MEDFATV	1.00000	1.00000	.	.	.	.	.	MEDFATV	
AG135V	.	.	.	.	.24000	.	.	AG135V	
AG136V	.58000	.78000	.	.	.	.	.	AG136V	
AG164V	.	.	.59000	.55000	.	.	.	AG164V	

	INV103	INV104	INV105	INV106	INV107	INV108	INV109		35....1
FX	.15000	.99400	.26800	.13600	1.97500	.19200	1.60000	FX	
FIXCAP	.15000	.99400	.26800	.13600	1.97500	.19200	1.60000	FIXCAP	
PC103V	1.00000-	.	.	.	.	.	.	PC103V	
PC104V	.	1.00000-	.	.	.	.	.	PC104V	
PC105V	.	.	1.00000-	.	.	.	.	PC105V	
PC106V	.	.	.	1.00000-	.	.	.	PC106V	
PC107V	.	.	.	.	1.00000-	.	.	PC107V	
PC108V	.	.	.	.	.	1.00000-	.	PC108V	
PC109V	.	.	.	.	.	.	1.00000-	PC109V	

	INV110	INV111	INV112	INV113	INV114	INV115	INV117		36....1
FX	.11700	.56300	.56800	.40000	.29900	.20800	.21200	FX	
FIXCAP	.11700	.56300	.56800	.40000	.29900	.20800	.21200	FIXCAP	
PC110V	1.00000-	.	.	.	.	.	.	PC110V	
PC111V	.	1.00000-	.	.	.	.	.	PC111V	
PC112V	.	.	1.00000-	.	.	.	.	PC112V	
PC113V	.	.	.	1.00000-	.	.	.	PC113V	
PC114V	.	.	.	.	1.00000-	.	.	PC114V	
PC115V	.	.	.	.	.	1.00000-	.	PC115V	
PC117V	.	.	.	.	.	.	1.00000-	PC117V	

	INV118	INV121	INV122	INV123	INV124	INV125	INV129		37....1
FX	.71930	.25800	.04200	.81700	.28700	.74200	.19900	FX	
FIXCAP	.71930	.25800	.04200	.81700	.28700	.74200	.19900	FIXCAP	
PC118V	1.00000-	.	.	.	.	.	.	PC118V	
PC121V	.	1.00000-	.	.	.	.	.	PC121V	
PC122V	.	.	1.00000-	.	.	.	.	PC122V	
PC123V	.	.	.	1.00000-	.	.	.	PC123V	
PC124V	.	.	.	.	1.00000-	.	.	PC124V	
PC125V	.	.	.	.	.	1.00000-	.	PC125V	
PC129V	.	.	.	.	.	.	1.00000-	PC129V	

	INV130	INV131	INV132	INV133	INV135	INV136	INV137		38....1
FX	.49200	1.42100	.96900	1.45700	1.13100	.45600	.41100	FX	
FIXCAP	.49200	1.42100	.96900	1.45700	1.13100	.45900	.41100	FIXCAP	
PC130V	1.00000-	.	.	.	.	.	.	PC130V	
PC131V	.	1.00000-	.	.	.	.	.	PC131V	
PC132V	.	.	1.00000-	.	.	.	.	PC132V	
PC133V	.	.	.	1.00000-	.	.	.	PC133V	
PC135V	.	.	.	.	1.00000-	.	.	PC135V	
PC136V	.	.	.	.	.	1.00000-	.	PC136V	
PC137V	.	.	.	.	.	.	1.00000-	PC137V	

	INV138	INV139	INV141	INV142	INV143	INV144	INV145		39....1
FX	.81730	.12300	.14900	.10500	.08800	.98300	.10200	FX	
FIXCAP	.81730	.12300	.14900	.10500	.08800	.98300	.10200	FIXCAP	
PC138V	1.00000-	.	.	.	.	.	.	PC138V	
PC139V	.	1.00000-	.	.	.	.	.	PC139V	
PC141V	.	.	1.00000-	.	.	.	.	PC141V	
PC142V	.	.	.	1.00000-	.	.	.	PC142V	
PC143V	.	.	.	.	1.00000-	.	.	PC143V	
PC144V	.	.	.	.	.	1.00000-	.	PC144V	
PC145V	.	.	.	.	.	.	1.00000-	PC145V	

	INV146	INV147	INV149	INV150	INV151	INV152	INV153	
FX	.60000	.39600	1.43800	3.80900	.67300	.62100	.12500	FX
FIXCAP	.83600	.39600	1.43800	3.80900	.67300	.62100	.12500	FIXCAP
PC146V	1.00000-	.	.	.	.	.	.	PC146V
PC147V	.	1.00000-	.	.	.	.	.	PC147V
PC149V	.	.	1.00000-	.	.	.	.	PC149V
PC150V	.	.	.	1.00000-	.	.	.	PC150V
PC151V	.	.	.	.	1.00000-	.	.	PC151V
PC152V	.	.	.	.	.	1.00000-	.	PC152V
PC153V	.	.	.	.	.	.	1.00000-	PC153V

40....1

	INV155	INV156	INV162	INV164	INV166	INV167	RHS68		41....1
FX	.17800	.46100	.41700	.89900	.20000	.62400	.	FX	
FIXCAP	.17800	.46100	.41700	.89900	.20000	.62400	.	FIXCAP	
LA	.	.	.	.	.	.	604500.00	LA	
LTA	.	.	.	.	.	.	22487.000	LTA	
LB	.	.	.	.	.	.	525100.00	LB	
LTB	.	.	.	.	.	.	19354.000	LTB	
LC	.	.	.	.	.	.	337500.00	LC	
LTC	.	.	.	.	.	.	12555.000	LTC	
LD	.	.	.	.	.	.	568300.00	LD	
LTD	.	.	.	.	.	.	21141.000	LTD	
LN	.	.	.	.	.	.	3395900.0	LN	
LTN	.	.	.	.	.	.	126328.00	LTN	
LE	.	.	.	.	.	.	493800.00	LE	
LTE	.	.	.	.	.	.	18369.000	LTE	
LF	.	.	.	.	.	.	432200.00	LF	
LTF	.	.	.	.	.	.	16078.000	LTF	
LG	.	.	.	.	.	.	326200.00	LG	
LTG	.	.	.	.	.	.	12135.000	LTG	
PC103V	.	.	.	.	.	.	343.91100	PC103V	
PC104V	.	.	.	.	.	.	9.90500	PC104V	
PC105V	.	.	.	.	.	.	62.19500	PC105V	
PC106V	.	.	.	.	.	.	11.94100	PC106V	
PC107V	.	.	.	.	.	.	6.11200	PC107V	
PC108V	.	.	.	.	.	.	.20000	PC108V	
PC109V	.	.	.	.	.	.	2.68000	PC109V	
PC110V	.	.	.	.	.	.	17.49100	PC110V	
PC111V	.	.	.	.	.	.	1.36700	PC111V	
PC112V	.	.	.	.	.	.	2.19100	PC112V	
PC113V	.	.	.	.	.	.	.93300	PC113V	
PC114V	.	.	.	.	.	.	5.12600	PC114V	
PC115V	.	.	.	.	.	.	.50600	PC115V	
PC117V	.	.	.	.	.	.	2.01100	PC117V	
PC118V	.	.	.	.	.	.	2.23900	PC118V	
PC121V	.	.	.	.	.	.	77.88400	PC121V	
PC122V	.	.	.	.	.	.	272.64100	PC122V	
PC123V	.	.	.	.	.	.	1.13000	PC123V	
PC124V	.	.	.	.	.	.	57.58900	PC124V	
PC125V	.	.	.	.	.	.	24.63300	PC125V	
PC129V	.	.	.	.	.	.	49.87300	PC129V	
PC130V	.	.	.	.	.	.	1.61100	PC130V	
PC131V	.	.	.	.	.	.	22.83800	PC131V	
PC132V	.	.	.	.	.	.	2.52300	PC132V	
PC133V	.	.	.	.	.	.	87.34700	PC133V	
PC135V	.	.	.	.	.	.	50.91200	PC135V	
PC136V	.	.	.	.	.	.	50.13500	PC136V	
PC137V	.	.	.	.	.	.	51.70200	PC137V	
PC138V	.	.	.	.	.	.	30.50400	PC138V	
PC139V	.	.	.	.	.	.	49.34400	PC139V	
PC141V	.	.	.	.	.	.	40.02400	PC141V	
PC142V	.	.	.	.	.	.	77.04500	PC142V	
PC143V	.	.	.	.	.	.	3.69900	PC143V	
PC144V	.	.	.	.	.	.	168.81700	PC144V	

	INV155	INV156	INV162	INV164	INV166	INV167	RHS68	
PC145V							110.88600	PC145V
PC146V							55.86900	PC146V
PC147V							11.86800	PC147V
PC149V							6.74800	PC149V
PC150V							8.35400	PC150V
PC151V							1.38300	PC151V
PC152V							13.81100	PC152V
PC153V							.34700	PC153V
PC155V	1.00000-						4.44600	PC155V
PC156V		1.00000-					6.46900	PC156V
PC162V			1.00000-				80.82200	PC162V
PC164V				1.00000-			5.42600	PC164V
PC166V					1.00000-		119.84900	PC166V
PC167V						1.00000-	52.10000	PC167V
NI121							32.44000	NI121
NI122							53.13600	NI122
NI129							77.86900	NI129
NI131							14.63000	NI131
NI146							66.89600	NI146
NI133							66.00000	NI133
NI145							9.70600	NI145
M103V							370.61200	M103V
M104V							7.33000	M104V
M105V							45.22700	M105V
M106V							1.50800	M106V
M107V							4.45600	M107V
M108V							.20000	M108V
M109V							1.94600	M109V
M110V							13.53000	M110V
M111V							1.00500	M111V
M112V							1.71600	M112V
M113V							.67800	M113V
M114V							3.73200	M114V
M115V							.77000	M115V
M117V							1.75700	M117V
M118V							1.63900	M118V
M121V							89.05200	M121V
M122V							251.34600	M122V
M123V							.32200	M123V
M124V							42.12900	M124V
M129V							113.90900	M129V
M130V							1.17000	M130V
M131V							31.23400	M131V
M132V							1.83400	M132V
M133V							129.50100	M133V
M135V							40.73900	M135V
M136V							36.48300	M136V
M137V							38.17800	M137V
M138V							22.55800	M138V
M139V							35.87300	M139V
M141V							30.94200	M141V
M142V							57.93300	M142V

	INV155	INV156	INV162	INV164	INV166	INV167	RHS68		41....3
M143V	•	•	•	•	•	•	3.39700	M143V	
M145V	•	•	•	•	•	•	79.69900	M145V	
M146V	•	•	•	•	•	•	119.91600	M146V	
M162V	•	•	•	•	•	•	27.26200	M162V	
M164V	•	•	•	•	•	•	13.47100	M164V	
M166V	•	•	•	•	•	•	72.85600	M166V	
M167V	•	•	•	•	•	•	37.87500	M167V	
M125V	•	•	•	•	•	•	17.92000	M125V	
M144V	•	•	•	•	•	•	123.55200	M144V	
M147V	•	•	•	•	•	•	12.35900	M147V	
M149V	•	•	•	•	•	•	7.18200	M149V	
M150V	•	•	•	•	•	•	7.62000	M150V	
M151V	•	•	•	•	•	•	2.05200	M151V	
M152V	•	•	•	•	•	•	14.59800	M152V	
M153V	•	•	•	•	•	•	.38000	M153V	
M155V	•	•	•	•	•	•	4.44600	M155V	
M156V	•	•	•	•	•	•	10.99800	M156V	
MEDFATV	•	•	•	•	•	•	74.66100	MEDFATV	
EX122V	•	•	•	•	•	•	351.47400	EX122V	
EX133V	•	•	•	•	•	•	14.90600	EX133V	
EX146V	•	•	•	•	•	•	28.05100	EX146V	
EX103V	•	•	•	•	•	•	3.06500	EX103V	
EX141V	•	•	•	•	•	•	3.85400	EX141V	
EX149V	•	•	•	•	•	•	3.71800	EX149V	
EX162V	•	•	•	•	•	•	6.28900	EX162V	
EX118V	•	•	•	•	•	•	2.99400	EX118V	
EX145RV	•	•	•	•	•	•	5.05400	EX145RV	
IM145V	•	•	•	•	•	•	3.19200	IM145V	
IM135RV	•	•	•	•	•	•	5.51500	IM135RV	
IM124RV	•	•	•	•	•	•	16.40200	IM124RV	
IM144RV	•	•	•	•	•	•	.84500	IM144RV	
IM110V	•	•	•	•	•	•	.85200	IM110V	
IM137V	•	•	•	•	•	•	.67300	IM137V	
IM141RV	•	•	•	•	•	•	1.94700	IM141RV	
IM142V	•	•	•	•	•	•	2.04900	IM142V	
IM143V	•	•	•	•	•	•	.76100	IM143V	
IM144V	•	•	•	•	•	•	.84500	IM144V	
IM147V	•	•	•	•	•	•	1.19200	IM147V	
IM156V	•	•	•	•	•	•	9.03200	IM156V	
IM164RV	•	•	•	•	•	•	10.09100	IM164RV	
IM125RV	•	•	•	•	•	•	.59800	IM125RV	
AG103V	•	•	•	•	•	•	370.61300	AG103V	
AG121V	•	•	•	•	•	•	82.86400	AG121V	
AG122V	•	•	•	•	•	•	246.88400	AG122V	
AG124V	•	•	•	•	•	•	42.79100	AG124V	
AG129V	•	•	•	•	•	•	32.57000	AG129V	
AG133V	•	•	•	•	•	•	69.44700	AG133V	
AG135V	•	•	•	•	•	•	17.34900	AG135V	
AG136V	•	•	•	•	•	•	37.44000	AG136V	
AG139V	•	•	•	•	•	•	249.72700	AG139V	
AG144V	•	•	•	•	•	•	26.67100	AG144V	
AG145V	•	•	•	•	•	•	14.17300	AG145V	

	INV155	INV156	INV162	INV164	INV166	INV167	RHS68		41....4
AG146V	•	•	•	•	•	•	48.02300	AG146V	
AG147V	•	•	•	•	•	•	6.55100	AG147V	
AG162V	•	•	•	•	•	•	26.70200	AG162V	
AG164V	•	•	•	•	•	•	13.02800	AG164V	
AG166V	•	•	•	•	•	•	68.09600	AG166V	
AG136CO	•	•	•	•	•	•	15.67400	AG136CO	
AG136SB	•	•	•	•	•	•	12.87500	AG136SB	
AG136SE	•	•	•	•	•	•	3.81800	AG136SE	
AG136PA	•	•	•	•	•	•	5.07300	AG136PA	

RHS75

42....1

MK	457.36000	MK
LA	327000.00	LA
LTA	30764.000	LTA
LB	729600.00	LB
LTB	27141.000	LTB
LC	461000.00	LC
LTC	17172.000	LTC
LD	414000.00	LD
LTD	30251.000	LTD
LN	464000.0	LN
LTN	172917.00	LTN
LE	560300.00	LE
LTE	24553.000	LTE
LF	572100.00	LF
LTF	21202.000	LTF
LG	435400.00	LG
LTG	16197.000	LTG
PC103V	429.86000	PC103V
PC104V	9.90000	PC104V
PC105V	62.19000	PC105V
PC106V	11.94100	PC106V
PC107V	6.11200	PC107V
PC108V	.20000	PC108V
PC109V	2.06000	PC109V
PC110V	17.49100	PC110V
PC111V	1.36700	PC111V
PC112V	2.17100	PC112V
PC113V	.97000	PC113V
PC114V	5.12600	PC114V
PC115V	.53000	PC115V
PC117V	2.31100	PC117V
PC118V	2.43700	PC118V
PC121V	77.08000	PC121V
PC122V	272.64100	PC122V
PC123V	1.13000	PC123V
PC124V	57.56700	PC124V
PC125V	24.63300	PC125V
PC129V	49.37600	PC129V
PC130V	1.51100	PC130V
PC131V	22.63300	PC131V
PC132V	2.56300	PC132V
PC133V	87.34700	PC133V
PC135V	50.91400	PC135V
PC136V	56.13900	PC136V
PC137V	51.70200	PC137V
PC138V	33.93400	PC138V
PC139V	49.[illegible]	PC139V
PC141V	43.[illegible]	PC141V
PC142V	77.[illegible]	PC142V
PC143V	3.6[illegible]	PC143V
PC144V	166.[illegible]	PC144V
PC145V	113.[illegible]	PC145V

RHS75

42....2

PC146V	55.d6J0J	PC146V
PC147V	11.86JJ0	PC147V
PC148V	6.74J0J	PC148V
PC150V	8.33+0J	PC150V
PC151V	1.d8JJJ	PC151V
PC152V	13.d11JJ	PC152V
PC153V	.34700	PC153V
PC155V	4.44+J0	PC155V
PC156V	6.4J+J0	PC156V
PC162V	80.42200	PC162V
PC164V	5.42J0J	PC164V
PC166V	119.64700	PC166V
PC167V	52.10JJJ	PC167V
NI121	40.5J300	NI121
NI122	66.49+J0	NI122
NI129	97.17JJJ	NI129
NI131	18.3J300	NI131
NI146	33.71400	NI146
NI133	82.J9200	NI133
NI145	12.14000	NI145
M103V	560.23300	M103V
M104V	10.49100	M104V
M105V	04.73300	M105V
M106V	2.15700	M106V
M107V	0.37JJJ	M107V
M108V	.2d700	M108V
M109V	2.7d800	M109V
M110V	19.3660J	M110V
M111V	1.3+60J	M111V
M112V	2.29700	M112V
M113V	.31+00	M113V
M114V	5.0J1+J	M114V
M115V	1.J31JJ	M115V
M117V	2.51+00	M117V
M118V	2.34700	M118V
M121V	111.44JJJ	M121V
M122V	445.J5JJ0	M122V
M123V	.43130	M123V
M124V	52.72100	M124V
M129V	142.5+JJ0	M129V
M130V	1.40400	M130V
M131V	41.61900	M131V
M132V	2.4J0J0	M132V
M133V	189.49100	M133V
M135V	24.54000	M135V
M136V	43.43300	M136V
M137V	31.11700	M137V
M138V	28.22400	M138V
M139V	44.89200	M139V
M141V	51.72800	M141V
M142V	77.56000	M142V
M143V	4.54d10	M143V

RHS75

42....3

M145V	106.71000	M145V
M146V	152.83600	M146V
M162V	35.81700	M162V
M164V	18.03700	M164V
M166V	91.17100	M166V
M167V	50.71000	M167V
M125V	22.42500	M125V
M144V	163.42300	M144V
M147V	16.54000	M147V
M149V	10.26000	M149V
M150V	10.90700	M150V
M151V	2.95700	M151V
M152V	21.46700	M152V
M153V	.54400	M153V
M155V	6.30400	M155V
M156V	15.74100	M156V
MEDF1TV	99.96400	MEDF1TV
EX122V	378.10700	EX122V
EX133V	40.41000	EX133V
EX146V	56.30000	EX146V
EX103V	34.17000	EX103V
EX141V	14.99700	EX141V
EX149V	3.86300	EX149V
EX162V	8.94000	EX162V
EX118V	18.21100	EX118V
EX145RV	12.45500	EX145RV

APPENDIX C

This appendix is comprised of ten tables showing the Activity Levels and Shadow Prices corresponding to Optimum Solutions of Different Variants and Programs of the Colombian Processing Sector Model

Appendix C

Table 1 Activity Levels for COLPR 1 [1] 1968 with Restricted Raw Material

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) [2]			Activity Levels (in Millions US$) Unlimited Working Capital				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
LIVE STOCK SLAUGHTER	LVSLGTN				343.91	343.91	343.91	343.91	343.91
MEAT PKG. & PROD.	MEATPRA								5.974
MEAT PKG. & PROD.	MEATPKB								
MEAT PKG. & PROD.	MEATPRC								
MEAT PKG. & PROD.	MEATPRD				5.974	5.974	5.974	5.974	
MFG. PAST. MILK PROD.	PASTERA								
MFG. PAST. MILK PROD.	PASTERB								
MFG. PAST. MILK PROD.	PASTERC				45.227	45.227	45.227	45.227	45.227
MFG. PAST. MILK PROD.	PASTERD								
MFG. PAST. MILK PROD.	PASTERE								
MFG. BUTTER & CREAM	BUTTERA				1.508		1.508		
MFG. BUTTER & CREAM	BUTTERC								
MFG. BUTTER & CREAM	BUTTERD								
MFG. BUTTER & CREAM	BUTTERE							1.508	
MFG. BUTTER & CREAM	BUTTERG					1.508			1.508
MFG. CHEESE	CHEESED				4.415		4.415	4.415	
MFG. CHEESE	CHEESEE								
MFG. CHEESE	CHEESEG					4.415			4.415
MFG. CONDN. & OTHER MILK PROD.	MILKOD				.200	.200	.200	.200	.200
MFG. ICE CREAM & MILK SHERBET	ICECRN				1.948	1.948	1.948	1.948	1.948
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRA					13.247			
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRC				13.247		13.247	13.247	13.247
PKG. PRESERV. FRUIT & VEG. CANNING	FVCANB				1.005				
PKG. PRESERV. FRUIT & VEG. CANNING	FVCAND					1.005	1.005	1.005	1.005
PRSV. CANNING FRUITS & VEG. JUICES	JUICEA				1.716	1.716	1.716	1.716	1.716
PREP. & PKG. JAMS, MARMALADES	MEJAMSB							.638	.638
PREP. & PKG. JAMS, MARMALADES	MEJAMSD				.638				
PREP. & PKG. JAMS, MARMALADES	MEJAMSE					.638	.638		
PREP. & PKG. SAUCES, ESCABECHE	PICKLEB						3.732		3.732
PREP. & PKG. SAUCES, ESCABECHE	PICKLEC				3.732	3.732		3.732	
PRSVD. & MARTINADO FRUITS & VEG.	FVDRYA					.506		.506	.506
PRSVD. & FREEZING FRUITS & VEG.	FVDRYB				.506		.506		
PREP. & CANNING FISH, SARDINES	FISHCAA				1.757		1.757	1.757	
PREP. & CANNING FISH, SARDINES	FISHCAC					1.757			1.757
PREP. & PKG. SHELLFISH	SEAPRC				1.639		1.639		1.639
PREP. & PKG. SHELLFISH	SEAPRG					1.639		1.639	

[1] Comprised only processing activities representing the existing 1968 Colombian technology.

[2] NA Not applicable

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Appendix C

Table 1, Activity Levels for COLPR1 1/ 1968 with Restricted Raw Materials

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK) 2			Activity Levels (in Millions US$) Unlimited Working Capital				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Later"	Max "P"
[illegible]	RICEHN				69.918	69.918	69.918	69.918	69.918
[illegible]	FLOURA								51.065
[illegible]	FLOURC						51.065		
[illegible]	FLOURD				51.065	51.065		51.065	
[illegible]	FLOURE								
[illegible]	GRAINNC								
[illegible]	GRAINND								
[illegible]	GRAINNE				20.837	20.837	20.837	20.837	20.837
[illegible]	CEREALD							1.834	
[illegible]	CEREALC				1.834				
[illegible]	CEREALD					1.834	1.834		1.834
[illegible]	FEEDDTA								
[illegible]	FEEDDTB				27.434		27.434		
[illegible]	FEEDDTC					27.434			
[illegible]	FEEDDTD								
[illegible]	CORNUN				0	80.113	0	80.113	0
[illegible] WHEAT BREAD (WHEAT)	BREADN				8.042	8.042	8.042	8.042	8.042
[illegible] CORN BREAD & OTHERS	BREADOB				1.170	1.170			1.170
[illegible] CORN BREAD & OTHERS	BREADOC								
[illegible] CORN BREAD & OTHERS	BREADOD								
[illegible] CORN BREAD & OTHERS	BREADOE						1.170	1.170	
[illegible] CRACKERS & COOKIES	CRACAKB					16.604	16.604		
[illegible] CRACKERS & COOKIES	CRACAKC				16.604				
[illegible] CRACKERS & COOKIES	CRACAKD								
[illegible] CRACKERS & COOKIES	CRACAKE								
[illegible] CRACKERS & COOKIES	CRACAKF							16.604	16.604
[illegible] "PANELA" (BROWN SUGAR)	SUGARC								
[illegible] "PANELA" (BROWN SUGAR)	SUGARG				74.118	74.118	74.118	74.118	74.118
[illegible]	COFERN				35.873	35.873	35.873	35.873	35.873
[illegible]	COFEHUB				198.210				198.210
[illegible]	COFEHUC								
[illegible]	COFEHUD								
[illegible]	COFEHUF								
[illegible]	COFEHUG					198.210	198.210	198.210	
[illegible] ALCOHOL	SPIRITN				57.933	57.933	57.933	57.933	
[illegible] INDUSTRIES	MINEC				3.397	3.397			3.397

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ NA Not applicable

Appendix C

Table 1 Activity Levels for COLPR 1 1/ 1968 with Restricted Raw Materials

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK)2 WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Unlimited Working Capital Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Later"	Max "P"
WIRE INDUSTRIES	WIRED						3.397	3.397	
MFG. OF BEER & MALTS	BEERN				121.232	121.232	121.232	121.232	121.232
MFG. OF SOFT DRINKS	SOFTDRN				37.875	37.875	37.875	37.875	37.875
MFG. OF CIGARS & CIGARETTES	TOB4FGA					66.243			
MFG. OF CIGARS & CIGARETTES	TOB4FGB						66.243		
MFG. OF CIGARS & CIGARETTES	TOB4FGC								
MFG. OF CIGARS & CIGARETTES	TOB4FGD				66.243			66.243	66.243
MFG. OF CIGARS & CIGARETTES	TOB4FGE								
COTTON SPINNING & YARN	COYARNA								
COTTON SPINNING & YARN	COYARNB								
COTTON SPINNING & YARN	COYARNC				16.093	16.093	16.093	16.093	16.093
MFG. OF ROPE & CORDAGE	ROPEMFA					11.868	11.868		
MFG. OF ROPE & CORDAGE	ROPEMFB				11.868				
MFG. OF ROPE & CORDAGE	ROPEMFD							11.863	11.863
MFG. OF ROPE & CORDAGE	ROPEMFE								
MFG. OF ROPE & CORDAGE	ROPEMFF								
LUMBER MILL	LUMBERN				6.748	6.748	6.748	6.748	6.748
WOOD FRAMING WOOD FRAMES	WOODPLA				8.354				8.354
WOOD FRAMING WOOD FRAMES	WOODPLB								
WOOD FRAMING WOOD FRAMES	WOODPLD					8.354	8.354	8.354	
WOOD FRAMING WOOD FRAMES	WOODPLG								
MFG. WOODEN BOXES FOR PACKING	WBOXESA				1.883	1.883			
MFG. WOODEN BOXES FOR PACKING	WBOXESB						1.883	1.883	1.883
MFG. WOODEN BOXES FOR PACKING	WBOXESD								
MFG. OF CHIPBOARD & PLYWOOD	PLYWODA				13.811	13.811			13.811
MFG. OF CHIPBOARD & PLYWOOD	PLYWODC						13.811	13.811	
MFG. OF CHIPBOARD & PLYWOOD	PLYWODD								
MFG. OF PARQUETS	PARQETD				.347	.347	.347	.347	.347
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODSGA				4.446				4.446
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODSGB						4.446	4.446	
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODSGD					4.446			
MFG. OF PULPWOOD & (OTHER FIBERS	PULPMFC				6.469	6.469	6.469	6.469	6.469
TANNING & LEATHER PROCESSING	TANNIGB								
TANNING & LEATHER PROCESSING	TANNIGC								21.538
TANNING & LEATHER PROCESSING	TANNIGD								
TANNING & LEATHER PROCESSING	TANNIGE				21.538	21.538	21.538	21.538	

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/NA Not applicable

Appendix C

Table 1 Activity Levels for COLPR 1 1/ 1968 with Restricted Raw Materials

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK 2/			Activity Levels (in Millions US$) Unlimited Working Capital				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPDI"	Max "Labor"	Max "P"
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDILA								
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDILB								
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDILC								
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDILD								
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDILE				5.426	5.426	5.426	5.426	5.426
MFG. OF "CONFITES"	CUCAJU				.322	.322	.322	.322	.322
MFG. OF CHOCOLATE & CANDIES	CHOCUPB								
MFG. OF CHOCOLATE & CANDIES	CHOCUPC								
MFG. OF CHOCOLATE & CANDIES	CHOCUPD				36.698				
MFG. OF CHOCOLATE & CANDIES	CHOCUPE								
MFG. OF CHOCOLATE & CANDIES	CHOCUPF					36.698	36.698	36.698	36.698
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHA							22.034	
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHB								22.034
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHC								
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHD				22.034				
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHE					22.034	22.034		
MFG. OF COTTON OIL	OILCOTN				27.024	27.024	27.024	27.024	27.024
MFG. OF SOYBEAN OIL	OILSBN				22.198	1.348	9.349	0	22.198
MFG. OF SESAME SEED OIL	OILSESN				0		6.583	0	0
MFG. OF AFRICAN PALM OIL	OILPALN				2.479	8.746	8.746	3.512	2.479
MFG. OF VEG. LARD (COTTON)	LARDCON				0	24.879	0	24.879	0
MFG. OF VEG. LARD (SOYBEAN)	LARDSBN				0	19.194	0	20.437	0
MFG. OF VEG. LARD (SESAME)	LARDSEN				6.060	6.060	11.829	0	6.060
MFG. OF VEG. LARD (AFRICAN PALM)	LARDPAN				5.769	0	0	4.819	5.769
NON-INDUSTRIAL RICE PRODUCTION	RICENI				32.440	32.440	32.440	32.440	32.440
NON-INDUSTRIAL GREEN COFFEE PRODUCT.	CAFENI				53.136	53.136	53.136	53.136	53.136
NON-INDUSTRIAL WHEAT BREAD PRODUCT.	BREADNI				77.669	77.669	77.669	77.669	77.669
NON-INDUSTRIAL CRACKERS & PAST PROD.	CRACKNI				14.630	14.630	14.630	14.630	14.630
NON-INDUSTRIAL COTTON GINNING	COTTONI				66.896	66.896	66.896	66.896	66.896
NON-INDUSTRIAL CIGAR PRODUCT.	TOBACNI								
NON-INDUSTRIAL "PANELA" PRODUCT.	PANELNI				66.000	66.000	66.000	66.000	66.000
[illegible] GREEN COFFEE	E122P1				351.474	351.474	351.474	351.474	351.474
[illegible] SUGAR	E133P12				14.906	14.906	14.906	14.906	14.906
[illegible] RAW COTTON	E145P1				28.051	28.051	28.051	28.051	28.051
[illegible] BEEF	E103RP				3.085	3.085	3.085	3.085	3.085
[illegible] PORK/OTHER	E141R				3.854	3.854	3.854	3.854	3.854

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ NA Not applicable

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Appendix C

Table 1 Activity Levels for COLPR 1 [1] 1968 with Restricted Raw Materials

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK)[2] WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Unlimited Working Capital Max "VA"	Max "EMPLO"	Max "EXPO"	Max "Labor"	Max "P"
PURCH OF LUMBER	I147P1								
PURCH OF CURED HIDES	I152P12				6.289	6.289	6.289	6.289	6.289
PURCH OF SHRIMPS, ETC.	I133P1								
PURCH OF SHELLFISH	I111P1				2.994	2.994	2.994	2.994	2.994
PURCH OF WASTE/CURED TOBACCO	I145R				5.054	5.054	5.054	5.054	5.054
PURCH OF CREAM HIDES	I145P1								
PURCH OF CACAO BEANS	I135R								
PURCH OF WHEAT AND FLOUR	I124RP								
PURCH OF PASTA	I144R								
PURCH OF RAW MILK	I110P1								
PURCH OF OILS & FATS	I137P12								
PURCH OF FISHSTUFF (FISHMEAL)	I141RP								
PURCH OF SHIRTS	I142RP								
PURCH OF HIDES	I143P1								
PURCH OF PULP & WOOD	I144P12								
PURCH OF CORDAGE	I147P								
PURCH OF PULP (Wood)	I156P1								
PURCH OF HUMAN HAIR, ETC.	I164RP								
PURCH OF PROCESSED GRAIN PRODUCTS	I125R								
PURCH OF SHOES	LVSLST2								
PURCH OF SHOES	LVSLST3								
MFG. PAST. MEAT PROD.	PASTER2								
MFG. BUTTER & CREAM	BUTTER2								
MFG. BUTTER & CREAM	BUTTER3								
MFG. CHEESE	CHEESE2								
MFG. OTHER DAIRY PRODUCTS	MILKD3								
MFG. ICE CREAM & MILK SHERBET	ICECR2								
MFG. ICE CREAM & MILK SHERBET	ICECR3								
MFG. EVAP. COND. PWD. DRY MILK	MILPR2								
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN2								
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN6								
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN7								
MFG. PRESERV. FRUITS & VEG. JUICES	JUICE3								
PREP. & PRT. SAUCES & PICKLES VEG.	PICKLE2								
PREP. & PRESERV. FRUITS & VEG.	FVDRY2								
PREP. & PRESERV. FRUITS & VEG.	FVDRY3								

[1] Comprised only processing activities representing the existing 1968 Colombian technology.

[2] NA Not applicable

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Appendix C

Table 1 Activity Levels for COLPR : 1/ 1968 with Restricted Raw Materials

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) 2/ WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Unlimited Working Capital Max "VA"	Max "EXPTO"	Max "TOTO"	Max "Later"	Max "P"
PREP. & CANNING FISH & SARDINES	FISHLA2								
PREP. & CANNING FISH & SARDINES	FISHLA3								
PREP. & CANNING FISH & SARDINES	FISHLA5								
PREP. & PACKAGING OF SHELLFISH	SEAFR2								
PREP. & PACKAGING OF SHELLFISH	SEAFR3								
RICE MILLING	RICEM2								
RICE MILLING	RICEM3								
WHEAT MILLING (FLOUR)	FLOUR2								
WHEAT MILLING (FLOUR)	FLOUR5								
WHEAT MILLING (FLOUR)	FLOUR9								
GRAIN MILLING	GRAIN3								
MFG. OF BREAKFAST CEREAL	CEREAL2								
MFG. OF FEED	FEEDJT2								
MFG. OF FEED	FEEDJT3								
MFG. OF FEED	FEEDJT9								
BAKING OF WHITE BREAD (WHEAT)	BREADW2								
BAKING OF WHITE BREAD (WHEAT)	BREADW3								
MFG. OF CRACKERS & COOKIES	CRACAK2								
MFG. OF CRACKERS & COOKIES	CRACAK3								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR2								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR4								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR5								
COFFEE ROASTING	COFFER2								
MFG. OF SPIRITS & ALCOHOL	SPIRIT2								
WINE MANUFACTURE	WINE2								
MFG. OF BEER & MALTS	BEER2								
MFG. OF SOFT DRINKS	SOFTDR2								
MFG. OF SOFT DRINKS	SOFTDR3								
MFG. OF SOFT DRINKS	SOFTDR8								
MFG. OF CIGARETTES	TOBACC2								
PREPARATION & WASH	COTARN2								
SPIN. & WEAVING & WASH	COTARN4								
SPIN. & WEAVING & WASH	COTARN7								
MFG. OF ROPE & TWINE	ROPEMF2								
MFG. OF ROPE & TWINE	ROPEMF3								
MFG. OF ROPE & TWINE	ROPEMF9								

1/ Comprised only processing activities representing the existing 1968 Colombian technology

2/ NA Not applicable

Appendix C
Table 1 Activity Levels for COLPR1 1/ 1968 with Restricted Raw Materials

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) 2/ WK = 365	WK = 457	WK = 469	Activity Levels (in Millions US$) Unlimited Working Capital Max "VA"	Max "EMPTO"	Max "EMPDS"	Max "Labor"	Max "P"
[illegible]	LUMBER2								
[illegible]	WOODPL3								
[illegible]	WOODPL5								
[illegible]	BOXES2								
[illegible]	BOXES3								
[illegible]	PLYWOD2								
[illegible]	PLYWOD8								
[illegible]	PLYWOD9								
[illegible]	PARQET3								
[illegible]	WOODSG2								
[illegible]	PULPAP2								
[illegible]	PULPAP3								
[illegible]	TANNIG2								
[illegible]	TANNIG4								
[illegible]	TANNIG9								
[illegible]	LARD2								
[illegible]	LARD9								
[illegible]	INDOIL2								
[illegible]	INDOIL3								
[illegible]	CHOCOP2								
[illegible]	STARCH2								
[illegible]	STARCH9								
[illegible]	INV103								
"	INV104								
"	INV105								
"	INV106								
"	INV107								
"	INV108								
"	INV109								
"	INV110								
"	INV111								
"	INV112								
"	INV113								
"	INV114								
"	INV115								
"	INV117								

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ NA Not applicable

Appendix C

Table 1 Activity Levels for COLPR1 1/ 1968 with Restricted Raw Materials

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK 2/)			Activity Levels (in Millions US$) Unlimited Working Capital				
		WK = 365	WK = 457	WK = 469	Max "VA"	Max "EXPO"	Max "IMPO"	Max "Labor"	Max "F"
INVEST. IN IND. I/O 118	INV118								
" 121	INV121								
" 122	INV122								
" 123	INV123								
" 124	INV124								
" 125	INV125								
" 129	INV129								
" 130	INV130								
" 131	INV131								
"	INV132								
" 133	INV133								
" 135	INV135								
" 136	INV136								
" 137	INV137								
" 138	INV138								
" 139	INV139								
" 141	INV141								
" 142	INV142								
" 143	INV143								
" 144	INV144								
" 145	INV145								
" 146	INV146								
" 147	INV147								
" 149	INV149								
" 150	INV150								
" 151	INV151								
" 152	INV152								
" 153	INV153								
" 155	INV155								
"	INV156								
" 162	INV162								
" 164	INV164								
"	INV166								
" 167	INV167								
"									

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ NA Not applicable

Appendix C, Table 2., Shadow Prices, COLPRI 1968 1/, RESTRICTED RAW MATERIAL

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK) 2/			UNLIMITED WORKING CAPITAL (WK)				
		WK	WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
WK	Working Capital									
LA	Urban Lab.2/Reg. "A"									
LTA	Skl. Labr.3/Reg. "A"									
LB	Urban Lab.2/Reg. "B"									
LTB	Skl. Labr.3/Reg. "B"									
LC	Urban Lab.2/Reg. "C"									
LTC	Skl. Labr.3/Reg. "C"									
LD	Urban Lab.2/Reg. "D"									
LTD	Skl. Labr.3/Reg. "D"									
LE	Urban Lab.2/Reg. "E"									
LTE	Skl. Labr.3/Reg. "E"									
LF	Urban Lab.2/Reg. "F"									
LTF	Skl. Labr.3/Reg. "F"									
LG	Urban Lab.2/Reg. "G"									
LTG	Skl. Labr.3/Reg. "G"									
LN	Econ. Act. Popn. Natl.									
LTN	Skl. Labr. Natl.									
PC103V	Processing Capacity					.24000-	9.80000-	13.79000-	.07000-	.15000-
PC104V	" "									
PC105V	" "									
PC106V	" "									
PC107V	" "									
PC108V	" "					.33000-	480.00000-	480.00000-	.23000-	.10000-
PC109V	" "									
PC110V	" "									
PC111V	" "									
PC112V	" "									
PC113V	" "									
PC114V	" "									
PC115V	" "					.21000-	121.69000-	158.73000-	.11000-	.08000-
PC117V	" "									
PC118V	" "									
PC121V	" "									
PC122V	" "									
PC123V	" "									
PC124V	" "									
PC125V	" "									
PC129V	" "									
PC130V	" "									
PC131V	" "									
PC132V	" "									

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ N. A.

Appendix C, Table 2. Shadow Prices, COLPRI 1968 1/, RESTRICTED RAW MATERIAL

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK) 2/ WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	UNLIMITED WORKING CAPITAL (WK) MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
P0135.	Processing Capacity								
P0135V	" "								
P0136V	" "						4.57914-	.01569-	
P0137V	" "				.07667-	1.87159-			.07952-
P0138V	" "								
P0139V	" "								
P0141V	" "								
P0142V	" "								
P0143V	" "								
P0144V	" "								
P0145V	" "								
P0146V	" "								
P0147V	" "				.49000-	169.35000-	185.48000-	.14000-	.32000-
P0149V	" "				.52000-	406.20000-	437.50000-	.25000-	.18000-
P0150V	" "				.33000-	189.19000-	216.00000-	.13000-	.06000-
P0151V	" "				.38000-	333.33000-	388.88000-	.19000-	.15000-
P0152V	" "				.59000-	185.70000-	227.32000-	.19000-	.39000-
P0154V	" "				.48000-	272.72000-	363.63000-	.22000-	.25000-
P0155V	" "				.47000-	416.66000-	416.66000-	.23000-	.23000-
P0156V	" "				.51000-	17.82000-	26.19000-	.05000-	.36000-
P0162V	" "								
P0164V	" "				.32000-	94.94000-	94.94000-	.07000-	.20000-
P0165V	" "								
P0167V	" "								
M0121	Non-Industrial Products								
M0122	" "								
M0129	" "					.30000-	.06000-		
M0131	" "								
M0136	" "				.05837-	21.63857-	21.63857-	.01796-	.03592-
M0143	" "				.15761-	36.04388-	46.21970-	.03448-	.09851-
M0145	" "								
M0203V	Total Market								
M0204V	" " "				.29000-	33.55000-	[illegible]000-	.07000-	.20000-
M0205V	" "				.16000-	4.43000-	6.[illegible]000-	.05000-	.09000-
M0206V	" "				.21000-	187.50000-	250.00000-	.06000-	.14000-
M0207V	" "				.28000-	125.00000-	142.85000-	.07000-	.09000-
M0208V	" "								
M0209V	" "				.42000-	333.33000-	375.00000-	.16000-	.16000-
M0210V	" "				.40000-	36.18000-	49.94000-	.08000-	.31000-
M0211V	" "				.37000-	160.12000-	223.56000-	.23000-	.11000-
M0212V	" "				.52000-	84.09000-	109.96000-	.10000-	.38000-
M0213V	" "				.41000-	84.09000-	190.26000-	.16000-	.22000-

1/ Comprised only processing activities representing the existing 1968 Colombian technology.
2/ N. A.

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Appendix C, Table 2. Shadow Prices, COLPR1 1968 1/, RESTRICTED RAW MATERIAL

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK) 2/			UNLIMITED WORKING CAPITAL (WK)				
		WK=365 MILL.US$	WK=457 MILL.US$	WK=489 MILL.US$	MAX "VA"	MAX "EMPTW"	MAX "EMPTO"	MAX "LABOR"	MAX "F"
M114V	Total Market				.51000-	45.06000-	64.38000-	.08000-	.21000-
M115V	"								
M117V	"				.22000-	251.36000-	300.55000-	.13000-	.07000-
M118V	"				.41000-	85.97000-	108.60000-	.11000-	.27000-
M121V	"				.19540-	30.73563-	43.02299-	.03448-	.14943-
M122V	"				.12000-	14.19000-	15.52000-	.02000-	.10000-
M123V	"				.13000-	179.48000-	192.31000-	.07000-	.06000-
M124V	"				.14545-	32.41212-	43.43030-	.04848-	.01273-
M125V	"								
M140V	"				.33000-	266.67000-	400.00000-	.07000-	.23000-
M141V	"				.34000-	162.26000-	217.69000-	.21000-	.05000-
M142V	"				.40000-	90.00000-	115.00000-	.08000-	.26000-
M143V	"				.47761-	109.22388-	140.05970-	.10448-	.29851-
M144V	"				.26000-	86.04000-	86.04000-	.05000-	.14000-
M145V	"								
M147V	"								
M148V	"				.40000-	69.89000-	102.15000-	.11000-	.26000-
M149V	"				.27000-	48.19000-	48.19000-	.06000-	.20000-
M150V	"				.24000-	29.82000-	29.82000-	.07000-	.16000-
M151V	"				.83000-	41.07000-	41.07000-	.04000-	.74000-
M152V	"				.51000-	192.98000-	192.98000-	.11000-	.39000-
M153V	"				.75000-	54.50000-	59.95000-	.05000-	.69000-
M154V	"								
M155V	"				.32000-	118.81000-	118.81000-	.09000-	.20000-
M156V	"								
M157V	"								
M158V	"				.51000-	184.03000-	184.03000-	.16000-	.20000-
M159V	"				.23256-	23.34844-	28.02326-	.08140-	.12791-
M160V	"								
M161V	"								
M162V	"								
M163V	"								
M164V	"								
M165V	"								
M166V	"								
M167V	"								
M168V	"								
M169V	"								
M170V	"								
M171V	Market for Edible Oils								
M172V	External Markets								
M173V	"								
M174V	"								

1/ Comprised only processing activities representing the existing 1968 Colombian technology.
2/ N. A.

Appendix C, Table 2. Shadow Prices, COLPRI 1968 1/, RESTRICTED RAW MATERIAL

RESTR-ICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK) 2/			UNLIMITED WORKING CAPITAL (WK)				
		WK	WK=365 MILL. U.S.$	WK=457 MILL. U.S.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
EX103V	External Markets									
EX141V	"									
EX149V	"									
EX162V	"									
EX118V	"									
EX145RV	"									
IM145V	Inputs									
IM135RV	"									
IM124RV	"									
IM144RV	"									
IM110V	"									
IM137V	"									
IM141RV	"									
IM142V	"									
IM143V	"									
IM144V	"									
IM147V	"									
IM156V	"									
IM164RV	"									
IM125RV	"									
AG103V	Agr.Raw Material Avail.									
AG121V	"									
AG122V	"									
AG124V	"									
AG139V	"									
AG135V	"					.86842-	877.10576-	1127.80474-	.28947-	.55263-
AG115V	"									
AG156V	"									
AG129V	"					.33333-	53.03175-	75.01724-	.08621-	.19048-
AG141V	"									
AG144V	"									
AG145V	"					3.00000-	245.00000-	284.31818-	.40909-	2.40909-
AG146V	"									
AG147V	"					.53061-	196.71429-	196.71429-	.16327-	.32653-
AG162V	"									
AG164V	"									
AG166V	"							235.29412-		
AG12ECD	"					.12941-	196.08235-		.03529-	.09412-
AG126SB	"									
AG136SB	"									
AG146PA	"									
AG 142V	"									

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

2/ N. A.

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Appendix C

Table 3 Activity Levels for COLPR1 1/ 1968 with Unrestricted Raw Material

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Unlimited Working Capital				
		Max "VA"	Max "EMPTO"	Max "EMPDH"	Max "Labor"	Max "P"
LIVESTOCK SLAUGHTER	LVSLGTN	343.911	343.911	343.911	343.911	343.911
MEAT PKG. & PROD.	MEATPKA	5.974			5.974	5.974
MEAT PKG. & PROD.	MEATPKB					
MEAT PKG. & PROD.	MEATPKC					
MEAT PKG. & PROD.	MEATPKD		5.974	5.974		
MFG. PAST. MILK PROD.	PASTERA					
MFG. PAST. MILK PROD.	PASTERB					
MFG. PAST. MILK PROD.	PASTERC	45.227	45.227	45.227	45.227	45.227
MFG. PAST. MILK PROD.	PASTERD					
MFG. PAST. MILK PROD.	PASTERF					
MFG. BUTTER & CREAM	BUTTERA	1.508			1.508	1.508
MFG. BUTTER & CREAM	BUTTERC					
MFG. BUTTER & CREAM	BUTTERD					
MFG. BUTTER & CREAM	BUTTERE		1.508	1.508		
MFG. BUTTER & CREAM	BUTTERG					
MFG. CHEESE	CHEESED	4.415			4.415	4.415
MFG. CHEESE	CHEESEE					
MFG. CHEESE	CHEESEG		4.415	4.415		
MFG. CASEIN & OTHER MILK PROD.	MILKOD	.200	.200	.200	.200	.200
MFG. ICE CREAM & MILK SHERBET	ICECRM	1.948	1.948	1.948	1.948	1.948
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRA	13.217				13.217
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRC		13.217	13.217	13.217	
PKG. PRESERV. FRUIT & VEG. CANNING	EVCANB	1.005		1.005	1.005	1.005
PKG. PRESERV. FRUIT & VEG. CANNING	EVCANC		1.005			
PREP. CANNING FRUITS & VEG. JUICES	JUICEA	1.716	1.716	1.716	1.716	1.716
PREP. & PKG. JAMS, MARMALADES	MEJAMSB				.638	
PREP. & PKG. JAMS, MARMALADES	MEJAMSD		.638	.638		
PREP. & PKG. JAMS, MARMALADES	MEJAMSE	.638				.638
PREP. & PKG. SAUCES, ESCABECHE	PICKLED	3.732				3.732
PREP. & PKG. SAUCES, ESCABECHE	PICKLEC		3.732	3.732	3.732	
PREPD. & PREPARING FRUITS & VEG.	FVDRYA		.506			
PREPD. & PREPARING FRUITS & VEG.	FVDRYB	.506		.506	.506	.506
PREP. & CANNING FISH, SARDINES	FISHCAA			1.757		1.757
PREP. & CANNING FISH, SARDINES	FISHCAC	1.757	1.757		1.757	
PREP. & PKG. SHELLFISH	SEAPRC	1.639		1.639		
PREP. & PKG. SHELLFISH	SEAPRG		1.639		1.639	1.639

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Appendix C
Table 3 Activity Levels for COLPR1 1/ 1968 with Unrestricted Raw Material

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Unlimited Working Capital				
		Max "VA"	Max "EXPTO"	Max "EXTDM"	Max "Labor"	Max "PR"
[illegible]	RICEMIN	60.918	60.918	60.918	60.918	60.918
[illegible]	FLOURA				51.065	
[illegible]	FLOURC					
[illegible]	FLOURD		51.065			51.065
[illegible]	FLOURE	51.065		51.065		
[illegible]	GRAINC		20.837		20.837	
[illegible]	GRAINMD	20.837				
[illegible]	GRAINE			20.837		20.837
[illegible]	CEREALB				1.834	
[illegible]	CEREALC	1.834				
[illegible]	CEREALD		1.834	1.834		1.834
[illegible]	FEEDJTA		27.434			
[illegible]	FEEDJTB				27.434	27.434
[illegible]	FEEDJTC	27.434				
[illegible]	FEEDJTD			27.434		
[illegible]	CORNMN	87.104	0	0	87.104	87.104
[illegible] BREAD (WHEAT)	BREADM	36.240	36.240	36.240	36.204	36.204
[illegible] BREAD & CAKES	BREADJ				1.170	
[illegible] BREAD & CAKES	BREADC					
[illegible] BREAD & CAKES	BREADD		1.170	1.170		
[illegible] (CAKES	BREADE	1.170				1.170
[illegible] & COOKIES	CRACKB			16.604		
[illegible] & COOKIES	CRACKC					
[illegible] & COOKIES	CRACKD					
[illegible] COOKIES	CRACKE	16.604	16.604		16.604	16.604
[illegible]	CRACKF					
[illegible] (CANE SUGAR)	SUGARC	71.370		71.118		
[illegible] (BEET SUGAR)	SUGARB	2.748	71.118		71.118	71.118
[illegible]	COFFEE	35.873	35.873	35.873	35.873	35.873
[illegible]	COFFEHUS					
[illegible]	COFFEHUC	198.210				
[illegible]	COFFEHJJ			198.210		
[illegible]	COFFEHUF					
[illegible]	COFFEHUS		198.210		198.210	198.210
[illegible] REDUCED	SPIRITS	57.933	57.933	57.933	57.933	57.933
[illegible]	WINE					

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Table 3 Activity Levels for COPPER 1/ 19[illegible] with Unrestricted Raw Material

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Unlimited Working Capital				
		Max "VA"	Max "EPTO"	Max "EPE"	Max "Later"	Max "P"
[illegible]	WIND	3.397	3.397	3.397	3.397	3.397
MFG. OF BEER & MALTS	BEER	123.552	123.552	123.552	123.552	123.552
MFG. OF SOFT DRINKS	SOFTDR	37.875	37.875	37.875	37.875	37.875
MFG. OF [illegible] CIGARETTES	TOBIFGA		66.243		66.243	
MFG. OF CIGARS & CIGARETTES	TOBIFGB			66.243		
MFG. OF CIGARS & CIGARETTES	TOBIFGC					
MFG. OF CIGARS & CIGARETTES	TOBIFGD	66.243				66.243
MFG. OF CIGARS & CIGARETTES	TOBIFGE	55.869	55.869	55.869	55.869	55.869
[illegible] SPINNING & YARN	COTYARNA					
[illegible] SPINNING & YARN	COTYARNB					
[illegible] SPINNING & YARN	COTYARNC					
MFG. OF ROPE & CORDAGE	ROPEMFA				11.868	
MFG. OF ROPE & CORDAGE	ROPEMFB		11.868			11.868
MFG. OF ROPE & CORDAGE	ROPEMFC	11.868		11.868		
MFG. OF ROPE & CORDAGE	ROPEMFE	6.718	6.718	6.718	6.718	6.718
[illegible] MILL	LUMBERA	8.354		8.354		8.354
WOOD FRAMED WOOD FRAMES	WOODPLA	8.354	8.354		8.354	
WOOD FRAMED WOOD FRAMES	WOODPLB	1.883		1.883		1.883
WOOD FRAMED WOOD FRAMES	WOODPLC		1.883		1.883	
[illegible] WOODEN BOXES FOR PACKING	WBOXESA	13.811	13.811		13.811	
[illegible] WOODEN BOXES FOR PACKING	WBOXESB			13.811		13.811
[illegible] WOODEN BOXES FOR PACKING	WBOXESC	.317	.317	.317	.317	.317
MFG. OF CONTAINER & PLYWOOD	PLYWOOA			4.446	4.446	
MFG. OF CONTAINER & PLYWOOD	PLYWOOB	4.446	4.446			4.446
MFG. OF CONTAINER & PLYWOOD	PLYWOOC	6.169	6.169	6.169	6.169	6.169
MFG. OF PARQUET	PARQETD	21.538		21.538		
[illegible] OF WOOD CONTAINER, MATERIAL	WOODSGA				21.538	
[illegible] OF WOOD CONTAINER, MATERIAL	WOODSGB		21.538			21.538
[illegible] OF WOOD CONTAINER, MATERIAL	WOODSGC					
[illegible] OF WOOD PULP FROM [illegible]	PULPMFC					
[illegible] & LEATHER PROCESSING	TANNIGA					
[illegible] & LEATHER PROCESSING	TANNIGB					
[illegible] & LEATHER PROCESSING	TANNIGC					
[illegible] & LEATHER PROCESSING	TANNIGD					

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Table 3 Activity Levels for COLPR 1 1/ 1968 with Unrestricted Raw Material

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Unlimited Working Capital				
		Max "VA"	Max "EXPTO"	Max "EXPTA"	Max "Labor"	Max "P"
VEG. EDIBLE FATS & OILS (All & VEG)	INDILA			5.425		
VEG. EDIBLE FATS & OILS (All & VEG)	INDILB				5.126	
VEG. EDIBLE FATS & OILS (All & VEG)	INDILC	5.126				
VEG. EDIBLE FATS & OILS (All & VEG)	INDILD					
VEG. EDIBLE FATS & OILS (All & VEG)	INDILE		5.126			5.126
[illegible] "SHORTENING"	CUCAID	.322	.322	.322	.322	.322
MFG. OF CHOCOLATE & CANDIES	CHOCOPA					
MFG. OF CHOCOLATE & CANDIES	CHOCOPC				36.698	36.698
MFG. OF CHOCOLATE & CANDIES	CHOCOPD		36.698			
MFG. OF CHOCOLATE & CANDIES	CHOCOPE	36.698		36.698		
MFG. OF CHOCOLATE & CANDIES	CHOCOPF	22.034	22.034			
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHA					
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHB					
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHC					
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHD			22.034	22.034	22.034
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHE	0	0	0	0	51.702
MFG. OF COTTON OIL	OILCOTN	0	0	0	0	0
MFG. OF SOYBEAN OIL	OILSBN	0	0	24.526	0	0
MFG. OF SESAME SEED OIL	OILSESN	51.702	24.526	0	24.526	0
MFG. OF AFRICAN PALM OIL	OILPALN	0	0	50.135	0	0
MFG. OF VEG. LARD (COTTON)	LARDCON	0	50.135	0	0	0
MFG. OF VEG. LARD (SOYBEAN)	LARDSBN	0	0	0	0	0
MFG. OF VEG. LARD (SESAME)	LARDSEN	22.959	0	0	50.135	22.959
MFG. OF VEG. LARD (AFRICAN PALM)	LARDPAN	32.770	32.770	32.770	32.770	32.770
NON-INDUSTRIAL RICE PRODUCT.	RICENI	53.136	53.136	53.136	53.136	53.136
NON-INDUSTRIAL GREEN COFFEE PRODUCT.	CAFENI	77.669	77.669	77.669	77.669	77.669
NON-INDUSTRIAL WHEAT BREAD PRODUCT.	BREADNI	14.630	14.630	14.630	14.630	14.630
NON-INDUSTRIAL CRACKERS & CAKE PROD.	CRACKNI	66.806	66.806	66.806	66.806	66.806
NON-INDUSTRIAL COTTON GINNING	COTTONI					
NON-INDUSTRIAL CIGAR PRODUCT.	TOBACNI	66.000	66.000	66.000	66.000	66.000
NON-INDUSTRIAL "PANELA" PRODUCT.	PANELNI	351.474	351.474	351.474	351.474	351.474
[illegible] COFFEE	E122P1	14.906	14.906	14.906	14.906	14.906
[illegible]	E133P12	28.051	28.051	28.051	28.051	28.051
[illegible]- RAW COTTON	E145P1	3.085	3.085	3.085	3.085	3.085
[illegible]- BEER	E103RP	3.854	3.854	3.854	3.854	3.854
[illegible]- FEEDSTUFF	E141R					

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Table 3 Activity Levels for COLPR1 1/ 1968 with Unrestricted Raw Material

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Unlimited Working Capital				
		Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
EXPORT OF LUMBER	E149P1	3.718	3.718	3.718	3.718	3.718
EXPORT OF CURED HIDES	E162P12	6.289	6.289	6.289	6.289	6.289
EXPORT OF SYRUPS, ETC.	E133P1	.576	.576	.576	.576	.576
EXPORT OF SHELLFISH	E111P1	2.994	2.994	2.994	2.994	2.994
EXPORT OF UNMANUFACTURED TOBACCO	E145R	5.054	5.054	5.054	5.054	5.054
EXPORT OF CIGARETTES	E143P1	3.192	3.192	3.192	3.192	3.192
EXPORT OF CACAO BEANS	E135R	5.515	5.515	5.515	5.515	5.515
EXPORT OF WHEAT AND FLOUR	E124RP	16.402	16.402	16.402	16.402	16.402
EXPORT OF BARLEY	E144R	.875	.875	.875	.875	.875
EXPORT OF DRY MILK	E110P1	.852	.852	.852	.852	.852
EXPORT OF OILS & FATS	E137P12	.673	.673	.673	.673	.673
EXPORT OF FEEDSTUFF (FISHMEAL)	E141RP	1.947	1.947	1.947	1.947	1.947
EXPORT OF SPIRITS	E142RP	2.049	2.049	2.049	2.049	2.049
EXPORT OF WINES	E143P1	.761	.761	.761	.761	.761
EXPORT OF BEER & MALT	E144P12	.845	.845	.845	.845	.845
EXPORT OF CORDAGE	E147P1	1.192	1.192	1.192	1.192	1.192
EXPORT OF PULP (Wood)	E155P1	9.032	9.032	9.032	9.032	9.032
EXPORT OF LEATHER TALLOW, ETC.	E166RP	10.091	10.091	10.091	10.091	10.091
EXPORT OF PROCESSED GRAIN PRODUCTS	E125R	.598	.598	.598	.598	.598
[illegible] SLAUGHTER	LVSLGT2					
[illegible] SLAUGHTER	LVSLGT3					
MFR. PAST. MILK PROD.	PASTER2					
MFR. BUTTER & CREAM	BUTTER2					
MFR. BUTTER & CREAM	BUTTER3					
MFR. CHEESE	CHEESE2					
MFR. OTHER MILK PRODUCTS	MILK04					
MFR. ICE CREAM & MILK SHERBIT	ICECR2					
MFR. ICE CREAM & MILK SHERBET	ICECR7					
MFR. & PRO. COND. EVAP. DRY MILK	MILPR2					
PRO. PRESERV. FRUIT & VEG. CANNING	FVCAN2					
PRO. PRESERV. FRUIT & VEG. CANNING	FVCAN6					
PRO. PRESERV. FRUIT & VEG. CANNING	FVCAN7					
PREP. CANNED FRUITS & VEG. JUICES	JUICE3					
PREP. & PRO. SAUCES & PICKLES VEG.	PICKLE2					
PREP. & FREEZING FRUITS & VEG.	FVDRY2					
PREP. & FREEZING FRUITS & VEG.	FVDRY3					

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Table 3 Activity Levels for COLPR1 1/ 1968 with Unrestricted Raw Material

Industry Description	Activity Symbol				Activity Levels (in Millions US$) Unlimited Working Capital				
					Max "VA"	Max "EMPTO"	Max "EMPD"	Max "Labor"	Max "P"
PREP. & CANNING FISH & SARDINES	FISHLA2								
PREP. & CANNING FISH & SARDINES	FISHLA3								
PREP. & CANNING FISH & SARDINES	FISHLA5								
PREP. & PACKAGING OF SHELLFISH	SEAPR2								
PREP. & PACKAGING OF SHELLFISH	SEAPR3								
RICE MILLING	RICEM2								
RICE MILLING	RICEM3								
WHEAT MILLING (FLOUR)	FLOUR2								
WHEAT MILLING (FLOUR)	FLOUR5								
WHEAT MILLING (FLOUR)	FLOUR9								
GRAIN MILLING	GRAIN3								
CEREAL PREPARATION	CEREAL2								
MFG. OF FEED	FEEDOT2								
MFG. OF FEED	FEEDOT3								
MFG. OF FEED	FEEDOT9								
BAKING OF WHITE BREAD (WHEAT)	BREADW2								
BAKING OF WHITE BREAD (WHEAT)	BREADW3								
MFG. OF CRACKERS & COOKIES	CRACAR2								
MFG. OF CRACKERS & COOKIES	CRACAR3								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR2								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR4								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR5								
COFFEE ROASTING	COFER2								
MFG. OF SPIRITS & ALCOHOL	SPIRIT2								
WINE [illegible]	WINE2								
MFG. OF BEER & MALTS	BEER2								
MFG. OF SOFT DRINKS	SOFTDR2								
MFG. OF SOFT DRINKS	SOFTDR3								
MFG. OF SOFT DRINKS	SOFTDR8								
MFG. OF CIGARS & CIGARETTES	TOBACC2								
[illegible] SPINNING & YARN	COYARN2								
[illegible] SPINNING & YARN	COYARN4								
[illegible] SPINNING & YARN	COYARN7								
MFG. OF ROPE AND CORDAGE	ROPEMF2								
MFG. OF ROPE AND CORDAGE	ROPEMF6								
MFG. OF ROPE AND CORDAGE	ROPEMF8								

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Table 3 Activity Levels for COLPR1 1/ 1968 with Unrestricted Raw Material

Industry Description	Activity Symbol				Activity Levels (in Millions US$) Unlimited Working Capital				
					Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
LUMBER MILLS	LUMBER2								
WOOD PLANING & WOOD FRAMES	WOODPL3								
WOOD PLANING & WOOD FRAMES	WOODPL9								
MFG. OF WOODEN BOXES FOR PACKING	BOXES2								
MFG. OF WOODEN BOXES FOR PACKING	BOXES3								
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD2								
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD8								
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD9								
MFG. OF PARQUETS	PARQETS								
MFG. OF WOOD CONSTRUCT. MATERIALS	WOODCG2								
MFG. OF PULP	PULPAP2								
MFG. OF PULP	PULPAP3								
TANNING & LEATHER PROCESSING	TANNIG2								
TANNING & LEATHER PROCESSING	TANNIG4								
TANNING & LEATHER PROCESSING	TANNIG9								
MFG. OF LARD, VEG.	LARDV2								
MFG. OF LARD, VEG.	LARDV								
MFG. OF EDIBLE FATS & OILS (ANIMAL/VEG	INDOIL2								
MFG. OF EDIBLE FATS & OILS (ANIMAL/VEG	INDOIL3								
MFG. OF CHOCOLATE & CANDIES	CHOCOP2								
MFG. OF STARCHES & PASTES	STARCH2								
MFG. OF STARCHES & PASTES	STARCH9								
NUMBER, NOT IND. I/O 103	INV103								
" 104	INV104								
" 105	INV105								
" 106	INV106								
" 107	INV107								
" 108	INV108								
" 109	INV109								
" 110	INV110								
" 111	INV111								
" 112	INV112								
" 113	INV113								
" 114	INV114								
" 115	INV115								
" 117	INV117								

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Table 3 Activity Levels for COLPR1 1/ 1968 with Unrestricted Raw Material

Industry Description	Activity Symbol				Activity Levels (in Millions US$) Unlimited Working Capital				
					Max "VA"	Max "EMPTO"	Max "EMPW"	Max "Labor"	Max "P"
INVEST. IN IND. I/O 118	INV118								
" 121	INV121								
" 122	INV122								
" 123	INV123								
" 124	INV124								
" 125	INV125								
" 129	INV129								
" 130	INV130								
" 131	INV131								
" 132	INV132								
" 133	INV133								
" 135	INV135								
" 136	INV136								
" 137	INV137								
" 138	INV138								
" 139	INV139								
" 141	INV141								
" 142	INV142								
" 143	INV143								
" 144	INV144								
" 145	INV145								
" 146	INV146								
" 147	INV147								
" 149	INV149								
" 150	INV150								
" 151	INV151								
" 152	INV152								
" 153	INV153								
" 155	INV155								
" 156	INV156								
" 162	INV162								
" 164	INV164								
" 166	INV166								
" 167	INV167								
"									

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

Appendix C, Table 4.. Shadow Prices, COLPRI 1/, 1968, with Unrestricted Raw Material

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE 2/ WORKING CAPITAL (WK)			UNLIMITED WORKING CAPITAL (WK)				
		WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
WK	Working Capital								
LA	Urban Lab.2/Reg. "A"								
LTA	Skl. Labr.3/Reg. "A"								
LB	Urban Lab.2/Reg. "B"								
LTB	Skl. Labr.3/Reg. "B"								
LC	Urban Lab.2/Reg. "C"								
LTC	Skl. Labr.3/Reg. "C"								
LD	Urban Lab.2/Reg. "D"								
LTD	Skl. Labr.3/Reg. "D"								
LE	Urban Lab.2/Reg. "E"								
LTE	Skl. Labr.3/Reg. "E"								
LF	Urban Lab.2/Reg. "F"								
LTF	Skl. Labr.3/Reg. "F"								
LG	Urban Lab.2/Reg. "G"								
LTG	Skl. Labr.3/Reg. "G"								
LN	Econ. Act. Popn. Natl.								
LTN	Skl. Labr. Natl.								
PC103V	Processing Capacity				.24000-	9.80000-	13.79000-	.07000-	.15000-
PC104V	" "								
PC105V	" "								
PC106V	" "								
PC107V	" "								
PC108V	" "				.33000-	480.00000-	480.00000-	.23000-	.10000-
PC109V	" "								
PC110V	" "								
PC111V	" "								
PC112V	" "								
PC113V	" "								
PC114V	" "								
PC115V	" "				.21000-	121.69000-	158.73000-	.11000-	.08000-
PC117V	" "								
PC118V	" "								
PC121V	" "								
PC122V	" "								
PC123V	" "								
PC124V	" "								
PC125V	" "								
PC126V	" "								
PC130V	" "								
PC131V	" "								
PC132V	" "								

Appendix C, Table 4. Shadow Prices, COLPR 1/, 1968 , with Unrestricted Raw Material

RESTR-ICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK) 2/			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
PC133V	Processing Capacity								
PC135V	" " "								
PC136V	" "								
PC137V	" "					.78000-	8.33000	.02000-	
PC138V	" "				.06000-				.07000-
PC139V	" "								
PC141V	" "								
PC142V	" "								
PC143V	" "								
PC144V	" "								
PC145V	" "								
PC146V	" "								
PC147V	" "				.26000-	96.39000-	96.39000-	.08000-	.16000-
PC148V	" "				.49000-	169.35000-	185.48000-	.14000-	.32000-
PC149V	" "				.52000-	406.20000-	437.50000-	.25000-	.18000-
PC150V	" "				.33000-	189.19000-	216.00000-	.13000-	.06000-
PC151V	" "				.38000-	333.33000-	388.88000-	.19000-	.15000-
PC152V	" "				.59000-	185.70000-	227.32000-	.19000-	.39000-
PC153V	" "				.48000-	272.72000-	363.63000-	.22000-	.25000-
PC155V	" "				.47000-	416.66000-	416.66000-	.23000-	.23000-
PC156V	" "				.51000-	17.82000-	26.19000-	.05000-	.36000-
PC162V	" "								
PC164V	" "				.32000-	94.94000-	94.94000-	.07000-	.20000-
PC167V	" "								
PC177	" "								
PI121	Wood-Industrial Products								
PI122	" "								
PI123	" "								
PI131	" "					.03000-	.06000-		
PI145	" "				.26000-	96.39000-	96.39000-	.08000-	.16000-
PI153	" "				.15761	36.04388	46.21970	.03448	.09851
PI156	" "								
PI183V	Total Market								
PI104V	" " "				.29000-	33.55000-	40.27000-	.07000-	.20000-
PI105V	" "				.16000-	4.43000-	6.64000-	.05000-	.09000-
PI106V	" "				.21000-	187.50000-	250.00000-	.06000-	.14000-
PI107V	" "				.28000-	125.00000-	142.85000-	.07000-	.09000-
PI108V	" "								
PI109V	" "				.42000-	333.33000-	375.00000-	.16000-	.16000-
PI110V	" "				.40000-	36.18000-	49.94000-	.08000-	.31000-
PI111V	" "				.37000-	160.12000-	223.56000-	.23000-	.11000-
PI112V	" "				.52000-	84.09000-	109.96000-	.10000-	.38000-
PI113V	" "				.41000-	137.17000-	190.26000-	.16000-	.22000-

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Appendix C, Table 4. Shadow Prices, COLPR [illegible] 1/, 1968, with Unrestricted Raw Material

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE 2/ WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WT) AT 457 MILLIONS U.S. $				
		WK=365 MILL.US$	WK=457 MILL.US$	WK=489 MILL.US$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
M114V	Total Market				.31000-	45.06000-	64.38000-	.08000-	.21000-
M115V	"								
M117V	"				.22000-	251.36000-	300.55000-	.13000-	.07000-
M118V	"				.41000-	85.97000-	103.60000-	.11000-	.27000-
M121V	"				.19540-	30.73563-	43.02299-	.03448-	.14943-
M122V	"				.12000-	14.19000-	15.52000-	.02000-	.10000-
M123V	"				.13000-	179.48000-	192.31000-	.07000-	.06000-
M124V	"				.14545-	28.50909-	43.43030-	.04848-	.07273-
M129V	"				.33000-	333.30000-	428.60000-	.11000-	.21000-
M130V	"				.33000-	266.67000-	400.00000-	.07000-	.23000-
M131V	"				.34000-	162.26000-	217.39000-	.21000-	.05000-
M132V	"				.40000-	90.00000-	115.00000-	.09000-	.26000-
M134V	"				.47761-	109.22388-	140.05970-	.10448-	.29851-
M135V	"				.26000-	86.09000-	86.09000-	.05000-	.14000-
M136V	"								
M137V	"								
M138V	"				.40000-	69.89000-	102.15000-	.11000-	.26000-
M139V	"				.27000-	48.19000-	68.27000-	.06000-	.20000-
M140V	"				.24000-	29.82000-	48.17000-	.07000-	.16000-
M141V	"				.83000-	41.07000-	41.07000-	.04000-	.74000-
M142V	"				.51000-	192.98000-	192.98000-	.11000-	.39000-
M145V	"				.75000-	54.50000-	59.95000-	.05000-	.69000-
M146V	"								
M147V	"				.32000-	118.81000-	118.81000-	.09000-	.20000-
M148V	"								
M149V	"				.11000-	166.67000-	200.00000-	.03000-	.08000-
M150V	"				.51000-	184.03000-	184.03000-	.16000-	.20000-
M151V	"				.23256-	23.34884-	28.02326-	.08140-	.12791-
M154V	"				.66000-	53.90000-	62.55000-	.09000-	.53000-
M155V	"								
M156V	"								
M157V	"								
M161V	"								
M162V	"								
M163V	"								
M165V	"								
M166V	"								
M167AIV	Market for Edible Oils				.21000-	32.63000-	43.51000-	.05000-	.12000-
EX112V	External Markets								
EX113V	"								
EX116V	"								

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Appendix C, Table 4. Shadow Prices, COLPR 1/, 1968, with Unrestricted Raw Material

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE 2/ WORKING CAPITAL (WK) WK=365 MILL. U.S.$	WK=457 MILL. U.S.$	WK=489 MILL. U.S.$	RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $ MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
EX103V	External Markets								
EX141V	"								
EX149V	"								
EX162V	"								
EX118V	"								
EX145RV	"								
IM145V	Inputs								
IM135RV	"								
IM124RV	"								
IM144RV	"								
IM110V	"								
IM137V	"								
IM141RV	"								
IM142V	"								
IM143V	"								
IM144V	"								
IM147V	"								
IM136V	"								
IM164RV	"								
IM125RV	"								
AG103V	Agr.Raw Material Avail.								
AG121V	"								
AG122V	"								
AG124V	"								
AG129V	"								
AG133V	"								
AG135V	"								
AG136V	"								
AG139V	"								
AG141V	"								
AG144V	"								
AG145V	"								
AG146V	"								
AG147V	"								
AG162V	"								
AG164V	"								
AG166V	"								
AG136CD	"								
AG136SB	"								
AG136SP	"								
AG136PA	"								
AG 142V	"								

1/ 1968 Colombian Technology only

2/ Not Applicable

Appendix C

Table 5. Activity Levels for COLPR 1 = 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPW"	Max "Labor"	Max "P"
LIVESTOCK SLAUGHTER	LVSLGTN	429.888	429.888	429.888	429.888	429.888	429.888	429.888	429.888
MEAT PKG. & PROD.	MEATPRA	9.905	9.905	9.905	9.905				
MEAT PKG. & PROD.	MEATPRB								
MEAT PKG. & PROD.	MEATPRC							9.905	
MEAT PKG. & PROD.	MEATPRD					9.905	9.905		9.905
MFG. PAST. MILK PROD.	PASTERA								
MFG. PAST. MILK PROD.	PASTERB								
MFG. PAST. MILK PROD.	PASTERC	58.836	62.195	62.195	62.195				
MFG. PAST. MILK PROD.	PASTERD								
MFG. PAST. MILK PROD.	PASTERF								
MFG. BUTTER & CREAM	BUTTERA	2.159	2.159	2.159	2.159	2.159		2.159	2.159
MFG. BUTTER & CREAM	BUTTERC								
MFG. BUTTER & CREAM	BUTTERD								
MFG. BUTTER & CREAM	BUTTERE						2.159		
MFG. BUTTER & CREAM	BUTTERG								
MFG. CHEESE	CHEESED	6.112	6.112	6.112	6.112	6.112	6.112	6.112	
MFG. CHEESE	CHEESEE								6.112
MFG. CHEESE	CHEESEG								
MFG. CASEIN & OTHER MILK PROD.	MILKOD	.200	.200	.200	.200	.200	.200	.200	.200
MFG. ICE CREAM & MILK SHERBET	ICECRN	2.680	2.680	2.680	2.680	2.680	2.680	2.680	2.680
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRA	17.491	17.491	17.491	17.491	17.491		17.491	17.491
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRC						17.491		
PKG. PRESERV. FRUIT & VEG. CANNING	FVCANB	1.346	1.346	1.346	1.346	1.346		1.346	1.346
PKG. PRESERV. FRUIT & VEG. CANNING	FVCAND						1.346		
PREP. CANNING FRUITS & VEG. JUICES	JUICEA	2.191	2.191	2.191	2.191	2.191	2.191	2.191	2.191
PREP. & PKG. JAMS, MARMALADES	MEJAMSB						.914	.914	.914
PREP. & PKG. JAMS, MARMALADES	MEJAMSD								
PREP. & PKG. JAMS, MARMALADES	MEJAMSE	.914	.914	.914	.914	.914			
PREP. & PKG. SAUCES, ESCABECHE	PICKLEB	5.001	5.001	5.001	5.001	5.001	5.001	5.001	5.001
PREP. & PKG. SAUCES, ESCABECHE	PICKLEC								
DEHYD. & FREEZING FRUITS & VEG.	FVDRYA	.506	.506	.506	.506				
DEHYD. & FREEZING FRUITS & VEG.	FVDRYB						.506	.506	.506
PREP. & CANNING FISH, SARDINES	FISHCAA	2.011	2.011	2.011	2.011		2.011		
PREP. & CANNING FISH, SARDINES	FISHCAG					2.011		2.011	2.011
PREP. & PKG. SHELLFISH	SEAPRC	2.239	2.239	2.239	2.239				
PREP. & PKG. SHELLFISH	SEAPRG					2.239	2.239		2.239

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Appendix C

Table 5. Activity Levels for COLPR 1 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPDN"	Max "Labor"	Max "P"
RICE, MILLING	RICEMIN	77.884	77.884	77.884	77.884	77.884	77.884	77.884	77.884
WHEAT MILLING	FLOURA	0							
WHEAT MILLING	FLOURC								
WHEAT MILLING	FLOURD		57.589	57.589	57.589				57.589
WHEAT MILLING	FLOURE					57.589	57.589	57.589	
GRAIN MILLING	GRAINMC	24.633	24.633	24.633	24.633	24.633	24.633		
GRAIN MILLING	GRAINMD								
GRAIN MILLING	GRAINME							24.633	24.633
CEREAL PREPARATION	CEREALB								
CEREAL PREPARATION	CEREALC	2.456	2.456		2.456	2.456	2.456	2.456	2.456
CEREAL PREPARATION	CEREALD			2.456					
MFG. OF FEED	FEEDDTA								
MFG. OF FEED	FEEDDTB					40.024			40.024
MFG. OF FEED	FEEDDTC	40.024	40.024	40.024	40.024				
MFG. OF FEED	FEEDDTD						40.024	40.024	
CORN MILLING	CORNMIN	0	77.961	91.171	77.961	0	91.171	91.171	0
BAKING WHITE BREAD (WHEAT)	BREADWH	45.350	45.350	45.350	45.350	45.350	45.350	45.350	45.350
BAKING CORN BREAD & OTHERS	BREADOB								
BAKING CORN BREAD & OTHERS	BREADOC								1.464
BAKING CORN BREAD & OTHERS	BREADOD	1.464	1.464	1.464	1.464			1.464	
BAKING CORN BREAD & OTHERS	BREADOE					1.464	1.464		
MFG. OF CRACKERS & COOKIES	CRACAKB	22.838	22.838	22.838	22.838				9.027
MFG. OF CRACKERS & COOKIES	CRACAKC								
MFG. OF CRACKERS & COOKIES	CRACAKD								
MFG. OF CRACKERS & COOKIES	CRACAKE							22.838	
MFG. OF CRACKERS & COOKIES	CRACAKF					22.838	22.838		
SUGAR & "PANELA" (BROWN SUGAR)	SUGARC	87.347	87.347	87.347	87.347	87.347	87.347		
SUGAR & "PANELA" (BROWN SUGAR)	SUGARG							87.347	87.347
COFFEE ROASTING	COFERN	44.892	44.892	44.892	44.892	44.892	44.892	44.892	44.892
COFFEE ROASTING	COFEHUB								
COFFEE ROASTING	COFEHUC	0							
COFFEE ROASTING	COFEHUD								
COFFEE ROASTING	COFEHUF						272.641		
COFFEE ROASTING	COFEHUG							258.575	
DIST. REFN. & MIXING ALCOHOL	SPIRITN		272.641	272.641	272.641	272.641			272.641
MINE INDUSTRIES	MINEC	77.045	77.045	77.045	77.045	77.045	77.045	77.045	77.045

Appendix C

Table 5. Activity Levels for COLPR 1 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EMPTO"	Max "EMPW"	Max "Labor"	Max "P"
WOOD INDUSTRIES	WINED	3.699	3.699	3.699	3.699	3.699	3.699	3.699	3.699
MFG. OF BEER & MALTS	BEERN	165.423	165.423	165.423	165.423	165.423	165.423	165.423	165.423
MFG. OF SOFT DRINKS	SOFTDRN	50.710	50.710	50.710	50.710	50.710	50.710	50.710	50.710
MFG. OF CIGARS & CIGARETTES	TOB4FGA							9.476	
MFG. OF CIGARS & CIGARETTES	TOB4FGB								
MFG. OF CIGARS & CIGARETTES	TOB4FGC					94.564	75.088		
MFG. OF CIGARS & CIGARETTES	TOB4FGD						9.471		
MFG. OF CIGARS & CIGARETTES	TOB4FGE	94.564	94.564	94.564	94.564				9.476
COTTON SPINNING & YARN	COYARNA		55.869	55.869	55.869	55.869	55.869	55.869	55.869
COTTON SPINNING & YARN	COYARNB								
COTTON SPINNING & YARN	COYARND	55.869							
MFG. OF ROPE & CORDAGE	ROPEMFA								
MFG. OF ROPE & CORDAGE	ROPEMFB					11.868		11.868	
MFG. OF ROPE & CORDAGE	ROPEMFD						11.868		11.868
MFG. OF ROPE & CORDAGE	ROPEMFE								
MFG. OF ROPE & CORDAGE	ROPEMFF	11.868	11.868	11.868	11.868				
SAWMILLS	LUMBERA	6.748	6.748	6.748	6.748	6.748	6.748	6.748	6.748
MISCELLANEOUS WOOD FRAMES	WOODPLA								8.354
MISCELLANEOUS WOOD FRAMES	WOODPLC	8.354							
MISCELLANEOUS WOOD FRAMES	WOODPLD						8.354		
MISCELLANEOUS WOOD FRAMES	WOODPLE		8.354	8.354	8.354	8.354		8.354	
MISC. WOOD PRODUCTS FOR PACKING	WBOXESA					1.883			
MISC. WOOD PRODUCTS FOR PACKING	WBOXESC	1.883					1.883		
MISC. WOOD PRODUCTS FOR PACKING	WBOXESD		1.883	1.883	1.883			1.883	1.883
MFG. OF OUTERWEAR & PLYWOOD	PLYWOOA					13.811			
MFG. OF OUTERWEAR & PLYWOOD	PLYWOOC							13.811	13.811
MFG. OF OUTERWEAR & PLYWOOD	PLYWOOD	13.811	13.811	13.811	13.811		13.811		
MFG. OF PAPERBOARD	PAPERD	.347	.347	.347	.347	.347	.347	.347	.347
MISC. OF WOOD CONSTRUCT. MATERIAL	WOODSGA	4.446	4.446	4.446	4.446		4.446	4.446	
MISC. OF WOOD CONSTRUCT. MATERIAL	WOODSGB					4.446			4.446
MISC. OF WOOD CONSTRUCT. MATERIAL	WOODSGD								
MFG. OF WOOD & CORK PRODUCTS	PULPMFC	6.469	6.469	6.469	6.469	6.469	6.469	6.469	6.469
TANNING & LEATHER FINISHING	TANNIGA						35.817		
TANNING & LEATHER FINISHING	TANNIGC								
TANNING & LEATHER FINISHING	TANNIGD								
TANNING & LEATHER FINISHING	TANNIGE	35.817	35.817	35.817	35.817	35.817		35.817	35.817

Appendix C

Table 5. Activity Levels for COLPR 1 [1] 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
VEG. EDIBLE FATS & OILS (ANI & VEG)	INDOILA	5.426				5.426			
VEG. EDIBLE FATS & OILS (ANI & VEG)	INDOILB						5.426	5.426	
VEG. EDIBLE FATS & OILS (ANI & VEG)	INDOILC								5.426
VEG. EDIBLE FATS & OILS (ANI & VEG)	INDOILD		5.426	5.426	5.426				
VEG. EDIBLE FATS & OILS (ANI & VEG)	INDOILE								
VEG. OF "COCOA"	COCOAD	0	.431	.431	.431	.431	.431	.431	.431
VEG. OF CHOCOLATE & CANDIES	CHOCOPB								
VEG. OF CHOCOLATE & CANDIES	CHOCOPC						50.912		
VEG. OF CHOCOLATE & CANDIES	CHOCOPD								
VEG. OF CHOCOLATE & CANDIES	CHOCOPE							50.912	
VEG. OF CHOCOLATE & CANDIES	CHOCOPF	50.912	50.912	50.912	50.912	50.912			50.912
VEG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHA	28.229	28.229		28.229	28.229	28.229	28.229	28.229
VEG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHB								
VEG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHC								
VEG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHD								
VEG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHE			28.229					
VEG. OF COCO OIL	OILCOTN	0	0	0	0	0	49.829	49.829	49.829
VEG. OF SOY OIL	OILSBN	0	0	0	0	0	0	0	0
VEG. OF SESAME SEED OIL	OILSESN	0	0	0	0	0	0	0	0
VEG. OF AMERICAN PALM OIL	OILPALN	51.702	51.702	51.702	51.702	49.829	0	0	0
VEG. OF VEG. LARD (COTTON)	LARDCON	48.262	48.262	48.262	48.262	0	0	50.135	50.135
VEG. OF VEG. LARD (SOYBEAN)	LARDSBN	0	0	0	0	0	0	0	0
VEG. OF VEG. LARD (CORN)	LARDCRN	0	0	0	0	0	0	0	48.262
VEG. OF VEG. LARD (AMERICAN PALM)	LARDPAN	0	0	0	0	50.135	50.135	0	0
NON-INDUSTRIAL RICE PRODUCTS	RICENI	40.595	40.595	40.595	40.595	40.595	40.595	40.595	40.595
NON-INDUSTRIAL GREEN COFFEE PRODUCT.	CAFENI	66.494	66.494	66.494	66.494	66.494	66.494	66.494	66.494
NON-INDUSTRIAL WHEAT BREAD PRODUCT.	BREADNI	97.195	97.195	97.195	97.195	97.195	97.195	97.195	97.195
NON-INDUSTRIAL CRACKERS & CAKE PROD.	CRACKNI	18.308	18.308	18.308	18.308	18.308	18.308	18.308	18.308
NON-INDUSTRIAL COTTON GINNING	COTTONI	83.714	83.714	83.714	83.714	83.714	83.714	83.714	83.714
NON-INDUSTRIAL CROP PRODUCT.	TOBACNI								
NON-INDUSTRIAL "PANELA" PRODUCT.	PANELNI	82.592	82.592	82.592	82.592	82.592	82.592	82.592	82.592
EXPORTS- GREEN COFFEE	E122P1	378.107	378.107	378.107	378.107	378.107	378.107	378.107	378.107
EXPORTS- SUGAR	E131P12	40.410	40.410	40.410	40.410	40.410	40.410	40.410	40.410
EXPORTS- RAW COTTON	E145P1	56.380	56.380	56.380	56.380	56.380	56.380	56.380	56.380
EXPORTS- BEEF	E103AP	34.196	34.196	34.196	34.196	34.196	34.196	34.196	34.196
EXPORTS- FOODSTUFF	E141M	14.997	14.997	14.997	14.997	14.997	14.997	14.997	14.997

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Table 5. Activity Levels for COLPR 1 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
RECOV OF RUBBER	I149P1								
RECOV OF CURED HIDES	I162P12	6.980	6.980	6.980	6.980	6.980	6.980	6.980	6.980
RECOV OF STARCHES, ETC.	I134P1								
RECOV OF SHELLFISH	I111P1	18.211	18.211	18.211	18.211	18.211	18.211	18.211	18.211
RECOV OF MANUFACTURED TOBACCO	I145R	12.455	12.455	12.455	12.455	12.455	12.455	12.455	12.455
RECOV OF CIGARETTES	I145P1								
RECOV OF CACAO BEANS	I133R								
RECOV OF WHEAT AND FLOUR	I124RP								
RECOV OF BARLEY	I146R								
RECOV OF DRY MILK	I110P1								
RECOV OF OILS & FATS	I137P12								
RECOV OF PETROLEUM (FISCAL)	I141RP								
RECOV OF SPIRITS	I142RP								
RECOV OF WINES	I143P1								
RECOV OF BEER & MALT	I144P12								
RECOV OF COARSE	I147P1								
RECOV OF FINE (Wool)	I155P1								
RECOV OF UNSPECIFIED ANIMAL, ETC.	I164RP								
RECOV OF PROCESSED GRAIN PRODUCTS	I125R								
INTERSTOCK SLAUGHTER	LVSLGT2								
INTERSTOCK SLAUGHTER	LVSLGT3								
VEG. BASE, MILK PROD.	PASTER2								
VEG. BUTTER & CREAM	BUTTER2								
VEG. BUTTER & CREAM	BUTTER3								
VEG. CHEESE	CHEESE2								
VEG. OTHER MILK PRODUCTS	MILKO2								
VEG. ICE CREAM & MILK SHERBET	ICESR2								
VEG. ICE CREAM & MILK SHERBET	ICESR3								
VEG. CANNED, PRSD., FROZ. MILK	MILPR2								
VEG. PRESERV. FRUIT & VEG. CANNING	FVCAN2								
VEG. PRESERV. FRUIT & VEG. CANNING	FVCAN6								
VEG. PRESERV. FRUIT & VEG. CANNING	FVCAN7								
VEG. CANNED FRUITS & VEG. JUICES	JUICE3								
VEG. & VEG. SAUCES & RELISHES VEG.	PICKLE2								
VEG. PRESERVED FRUITS & VEG.	FVDRY2								
VEG. PRESERVED FRUITS & VEG.	FVDRY3								

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Table 5 Activity Levels for COLPHA 1 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EMPTO"	Max "[illegible]"	Max "Labor"	Max "F"
PREP. & CANNING FISH & SARDINES	FISHLA2								
PREP. & CANNING FISH & SARDINES	FISHLA3								
PREP. & CANNING FISH & SARDINES	FISHLA5								
PREP. & PACKAGING OF SHELLFISH	SEAPR2								
PREP. & PACKAGING OF SHELLFISH	SEAPR3								
RICE MILLING	RICEM2								
RICE MILLING	RICEM3								
WHEAT MILLING (FLOUR)	FLOUR2								
WHEAT MILLING (FLOUR)	FLOUR5								
WHEAT MILLING (FLOUR)	FLOUR9								
GRAIN MILLING	GRAIN8								
CEREAL PREPARATION	CEREAL2								
MFG. OF FEED	FEEDJT2								
MFG. OF FEED	FEEDJT3								
MFG. OF FEED	FEEDJT9								
BAKING OF WHITE BREAD (WHEAT)	BREADW2								
BAKING OF WHITE BREAD (WHEAT)	BREADW3								
MFG. OF CRACKERS & COOKIES	CRACAK2								
MFG. OF CRACKERS & COOKIES	CRACAK3								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR2								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR4								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR5								
COFFEE ROASTING	COFER2								
MFG. OF SPIRITS & ALCOHOL	SPIRIT2								
WINE PRODUCERS	WINE2								
MFG. OF BEER & MALTS	BEER2								
MFG. OF SOFT DRINKS	SOFTDR2								
MFG. OF SOFT DRINKS	SOFTDR3								
MFG. OF SOFT DRINKS	SOFTDR8								
MFG. OF CIGARS & CIGARETTES	TOBACF2								
COTTON GINNING & YARN	COYARN2								
COTTON GINNING & YARN	COYARN4								
COTTON GINNING & YARN	COYARN7								
MFG. OF ROPE AND CORDAGE	ROPEMF2								
MFG. OF ROPE AND CORDAGE	ROPEMF6								
MFG. OF ROPE AND CORDAGE	ROPEMF9								

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Table 5 Activity Levels for COLPR1 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EMPTO"	Max "EMPDW"	Max "Labor"	Max "P"
LUMBER MILLS	LUMBER2								
WOOD PLANING & WOOD FRAMES	WOODPL3								
WOOD PLANING & WOOD FRAMES	WOODPL8								
MFG. OF WOODEN BOXES FOR PACKING	BOXES2								
MFG. OF WOODEN BOXES FOR PACKING	BOXES3								
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD2								
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD8								
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD7								
MFG. OF PARTICLE	PARTCL3								
MFG. OF WOOD CONSTRUCT. MATERIALS	WOODOG2								
MFG. OF PULP	PULPMF2								
MFG. OF PULP	PULPMF3								
TANNING & LEATHER PROCESSING	TANNIG2								
TANNING & LEATHER PROCESSING	TANNIG4								
TANNING & LEATHER PROCESSING	TANNIG9								
MFG. OF LARD, VEG.	LARDV2								
MFG. OF LARD, VEG.	LARDV								
MFG. OF EDIBLE FATS & OILS (ANIMAL)	INDOIL2								
MFG. OF EDIBLE FATS & OILS (ANIMAL)	INDOIL3								
MFG. OF CHOCOLATE & CANDIES	CHOCOP2								
MFG. OF STARCHES & PASTES	STARCH2								
MFG. OF STARCHES & PASTES	STARCH9								
INTER. INDUS. I/O 103	INV103								
" 104	INV104								
" 105	INV105								
" 106	INV106								
" 107	INV107								
" 108	INV108								
" 109	INV109								
" 110	INV110								
" 111	INV111								
" 112	INV112								
" 113	INV113								
" 114	INV114								
" 115	INV115								
" 117	INV117								

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Table 5. Activity Levels for COLPR1 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EXPTO"	Max "EXPTW"	Max "Labor"	Max "P"
INVEST. IN IND. I/O 115	INV115								
" 121	INV121								
" 122	INV122								
" 123	INV123								
" 124	INV124								
" 125	INV125								
" 129	INV129								
" 130	INV130								
" 131	INV131								
" 132	INV132								
" 133	INV133								
" 135	INV135								
" 136	INV136								
" 137	INV137								
" 138	INV138								
" 139	INV139								
" 141	INV141								
" 142	INV142								
" 143	INV143								
" 144	INV144								
" 145	INV145								
" 146	INV146								
" 147	INV147								
" 149	INV149								
" 150	INV150								
" 151	INV151								
" 152	INV152								
" 153	INV153								
" 155	INV155								
" 156	INV156								
" 162	INV162								
" 164	INV164								
" 166	INV166								
" 167	INV167		✓						
"									

1/ Comprised only processing activities representing the existing 1968 Colombian technology.

Appendix C, Table 6. Shadow Prices, COLPR 1/, 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTR-ICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "F"
WK	Working Capital	.72727-	.47826-		.47826-	20.13636-	30.18182-	.09091-	.22727-
LA	Urban Lab.2/Reg. "A"								
LTA	Skl. Lab. 3/Reg. "A"								
LB	Urban Lab.2/Reg. "B"								
LTB	Skl. Labr.3/Reg. "B"								
LC	Urban Lab.2/Reg. "C"								
LTC	Skl. Labr.3/Reg. "C"								
LD	Urban Lab.2/Reg. "D"								
LTD	Skl. Labr.3/Reg. "D"								
LE	Urban Lab.2/Reg. "E"								
LTE	Skl. Labr.3/Reg. "E"								
LF	Urban Lab.2/Reg. "F"								
LTF	Skl. Labr.3/Reg. "F"								
LG	Urban Lab.2/Reg. "G"								
LTG	Skl. Labr.3/Reg. "G"								
LN	Econ. Act. Popn. Natl.								
LTN	Skl. Labr. Natl.								
P104V	Processing Capacity	.08727-	.73957-	.24000-	.13957-	5.57136-	7.45182-	.05091-	.10227-
P104V	" "	.14455-	.19435-	.29000-	.19435-	29.52273-	34.23364-	.05182-	.15455-
P105V	" "		.05478-	.16000-	.05478-			.03000-	.04000-
P106V	" "								
P107V	" "	.13455-	.18435-	.28000-	.18435-	120.97273-	136.81364-	.05182-	.04455-
P108V	" "	.16273-	.22000-	.33000-	.22000-	475.36864-	473.05818-	.20202-	.04773-
P109V	" "	.29636-	.33870-	.42000-	.33870-	329.90682-	369.86909-	.14455-	.12136-
P110V	" "	.27636-	.31870-	.40000-	.31870-	32.75682-	44.80909-	.06455-	.27136-
P111V	" "								
P112V	" "	.41091-	.44826-	.52000-	.44826-	81.6955-	105.43273-	.08636-	.34591-
P113V	" "								
P114V	" "								
P115V	" "	.05000-	.10478-	.21000-	.10478-	117.26000-	152.09000-	.09000-	.03000-
P117V	" "	.05273-	.11000-	.22000-	.11000-	246.72864-	293.60818-	.10909-	.91773-
P118V	" "	.27909-	.32391-	.41000-	.32391-	82.34545-	103.16727-	.09364-	.22909-
P121V	" "	.01000-	.06478-	.17000-	.96478-	22.31000-	30.79000-	.01000-	.08000-
P122V	" "		.01478-	.12000-	.01478-	9.76000-	8.88000-		.05000-
P123V	" "								
P124V	" "		.01000-	.12000-	.01000-	18.88864-	28.88818-	.01909-	.00773-
P125V	" "	.04000-	.98478-	.20000-	.09478-	15.65000-	17.46000-	.05000-	.06000-
P126V	" "								
P130V	" "								
P131V	" "	.18000-	.23478	.34000-	.23478-	157.83000-	211.05000-	.19000-	

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Appendix C, Table 6 Shadow Prices. COLPR 1/, 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTR-ICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "F"
R0135V	Processing Capacity	.18182-	.22913-	.32000-	.22913-	69.35409-	88.10545-	.05273-	.15682-
R0136V	" "	.11455-	.16435-	.26000-	.16435-	82.06273-	80.05364-	.03182-	.09455-
R0137V	" "					.17591-	7.42455-	.01727-	
R0138V	" "	.08182-	.07435-	.06000-	.07435-				.07682-
R0139V	" "								
R0141V	" "	.08727-	.13957-	.24000-	.13957-	25.59136-	41.83182-	.05091-	.11227-
R0142V	" "	.78636-	.80130-	.83000-	.80130-	39.86182-	39.25909-	.03455-	.72636-
R0143V	" "	.40091-	.43826-	.51000-	.43826-	189.95955-	188.45273-	.09636-	.35591-
R0144V	" "								
R0145V	" "								
R0146V	" "	.10727-	.15957-	.26000-	.15957-	92.16136-	90.05182-	.06091-	.11227-
R0147V	" "	.37364-	.41348-	.49000-	.41348-	166.12818-	180.65091-	.12545-	.28364-
R0148V	" "	.37455-	.42435-	.52000-	.42435-	402.17273-	431.46364-	.23182-	.13455-
R0149V	" "	.18455-	.23435-	.33000-	.23435-	185.16273-	209.96364-	.11182-	.01455-
R0150V	" "	.23455-	.28435-	.38000-	.28435-	329.30273-	382.84364-	.17182-	.10455-
R0152V	" "	.48091-	.51826-	.59000-	.51826-	182.67955-	222.79273-	.17636-	.35591-
R0154V	" "	.34182-	.38913-	.48000-	.38913-	268.89409-	357.89545-	.20273-	.20682-
R0155V	" "	.34636-	.38870-	.47000-	.38870-	413.23682-	411.62909-	.21455-	.19136-
R0156V	" "	.41545-	.44783-	.61000-	.44783-	15.20227-	22.2636-	.03818-	.33045-
R0162V	" "								
R0164V	" "	.18182-	.22913-	.32000-	.22913-	91.11409-	89.20545-	.05273-	.15682-
R0166V	" "								
R0167V	" "								
M1121	Non-Industrial Products	.01000-	.06478-	.17000-	.06478-	22.31000-	30.79000-	.01000-	.08000-
M1123	" "	.04000-	.01478-	.12000-	.01478-	9.76000-	8.88000-	.	.05000-
M1129	" "					.03000-	.06000-		
M1131	" "	.18000-	.23478-	.34000-	.23478-	157.83000-	211.05000-	.19000-	
M1136	" "	.10727-	.15957-	.26000-	.15957-	92.16136-	90.05182-	.06091-	.11227-
M1138	" "	.18182-	.22913-	.32000-	.22913-	69.35409-	88.10545-	.05273-	.15682-
M1145	" "					65.40000-	59.95000-	.60000-	.60000-
M1104V	Total Market								
M1105V	" "								
M1106V	" "	.04273-	.10000-	.21000-	.10000-	182.86864-	243.05818-	.03909-	.08773-
M1107V	" "								
M1108V	" "								
M1109V	" "								
M1110V	" "								
M1111V	" "	.21727-	.26957-	.37000-	.26957-	155.89136-	217.22182-	.21091-	.06227-
M1112V	" "					133.34409-	184.52545-	.14273-	.17682-
M1113V	" "	.27182-	.31913-	.41000-	.31913-	133.34409-	184.62545-	.14273-	.17682-

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Appendix C, Table 6 . Shadow Prices, COLPR [1/], 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WT) AT 457 MILLIONS U.S. $				
		WK=365 MILL.US$	WK=457 MILL.US$	WK=489 MILL.US$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
M114V	Total Market	.17182--	.21913-	.31000-	.21913-	41.23409-	58.64545-	.06273-	.16682-
M115V	"								
M117V	"								
M118V	"								
M121V	"								
M122V	"								
M123V	"		.01522-	.13000-	.01522-	174.64727-	185.06636-	.04818-	.00545-
M124V	"								
M125V	"	.19182-	.23913-	.33000-	.23913	329.47409-	422.86545-	.09273-	.16682-
M126V	"	.17000-	.22478-	.33000-	.22478-	262.24000	393.36000-	.05000-	.18000-
M127V	"								
M128V	"	.40000-	.40000-	.40000-	.40000-	90.00000-	115.00000-	.02000-	.26000-
M132V	"								
M135V	"								
M136V	"								
M137V	"								
M138V	"	.32727-	.35217-	.40000-	.35217-	67.87636-	99.13182-	.10091-	.23727-
M139V	"	.12455-	.17435-	.27000-	.17435-	44.16273-	62.23364-	.04182-	.15455-
M142V	"								
M143V	"								
M144V	"								
M145V	"	.69182-	.71174-	.75000-	.71174-	52.88909-	57.53545-	.04273-	.67182-
M146V	"								
M147V	"	.18182-	.22913-	.32000-	.22913-	114.98409-	113.07545-	.07273-	.15682-
M148V	"								
M149V	"								
M150V	"	.39364-	.43348-	.51000-	.43348-	180.80818-	179.20091	.14545-	.16364-
M153V	"								
M154V	"	.58000-	.60739-	.66000-	.60739-	51.69500-	59.23000-	.08000-	.50500-
M155V	"								
M156V	"								
M157V	"								
M158V	"								
M159V	"								
M160V	"								
M161V	"								
M162V	"								
M163V	"								
M164V	"								
M165V	"								
M166V	Market for Edible Oils	.05000-	.10478-	.21000-	.10478-	28.80409-	37.77545-	.03273-	.07000-
EX162V	External Markets								
EX163V	"								
EX166V	"								

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Appendix C, Table 6. Shadow Prices, COLPR 1/, 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL. U.S.$	WK=457 MILL. U.S.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPIO"	MAX "LABOR"	MAX "P"
EX135V	External Markets								
EX141V	"								
EX149V	"								
EX162V	"								
EX118V	"								
EX145RV	"								
IM145V	Inputs								
IM135RV	"								
IM124RV	"								
IM144RV	"								
IM110V	"								
IM157V	"								
IM141RV	"								
IM142V	"								
IM143V	"								
IM144V	"								
IM147V	"								
IM156V	"								
IM154RV	"								
IM125RV	"								
AG103V	Agr.Raw Material Avail.								
AG121V	"								
AG122V	"								
AG124V	"								
AG129V	"								
AG135V	"								
AG136V	"								
AG139V	"								
AG141V	"								
AG144V	"								
AG145V	"								
AG146V	"								
AG147V	"								
AG162V	"								
AG164V	"								
AG166V	"								
AG136CD	"								
AG136CB	"								
AG136SB	"								
AG136PB	"								
AG 142V	"								

Appendix C

Table 7. Activity Levels for COLPR2 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPW"	Max "Labor"	Max "F"
LIVESTOCK SLAUGHTER	LVSLGTN								
MEAT PKG. & PROD.	MEATPRA					9.905			
MEAT PKG. & PROD.	MEATPRB							9.905	9.905
MEAT PKG. & PROD.	MEATPRC	9.905	9.905	9.905	9.905		9.905		
MEAT PKG. & PROD.	MEATPRD								
MFG. PAST. MILK PROD.	PASTERA								
MFG. PAST. MILK PROD.	PASTERB								
MFG. PAST. MILK PROD.	PASTERC								
MFG. PAST. MILK PROD.	PASTERD								
MFG. PAST. MILK PROD.	PASTERF								
MFG. BUTTER & CREAM	BUTTERA								
MFG. BUTTER & CREAM	BUTTERC								
MFG. BUTTER & CREAM	BUTTERD	2.159	2.159	2.159	2.159	2.159	2.159	2.159	2.159
MFG. BUTTER & CREAM	BUTTERE								
MFG. BUTTER & CREAM	BUTTERG								
MFG. CHEESE	CHEESED	6.112	6.112	6.112	6.112	6.112	6.112	6.112	6.112
MFG. CHEESE	CHEESEE								
MFG. CHEESE	CHEESEG								
MFG. CASEIN & OTHER MILK PROD.	MILKOD	.200	.200	.200	.200	.200	.200	.200	.200
MFG. ICE CREAM & MILK SHERBET	ICECRM	2.680	2.680	2.680	2.680		2.680		
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRA					17.491	17.491		17.491
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRC	17.491	17.491	17.491	17.491			17.491	
PKG. PRESERV. FRUIT & VEG. CANNING	FVCANB								
PKG. PRESERV. FRUIT & VEG. CANNING	FVCAND					1.346	1.346		
PREP. CANNING FRUITS & VEG. JUICES	JUICEA	2.191	2.191	2.191	2.191	2.191	2.191	2.191	2.191
PREP. & PKG. JAMS, MARMALADES	MEJMSB								.914
PREP. & PKG. JAMS, MARMALADES	MEJMSD	.914					.914	.914	
PREP. & PKG. JAMS, MARMALADES	MEJMSE		.914	.914	.914	.914			
PREP. & PKG. SAUCES, ESCABECHE	PICKLED					5.001	5.001		
PREP. & PKG. SAUCES, ESCABECHE	PICKLEC								5.001
PREPD. & PRESERVING FRUITS & VEG.	FVDRYA					.506	.506		
PREPD. & PRESERVING FRUITS & VEG.	FVDRYB								
PREP. & CANNING FISH, SARDINES	FISHCAA					2.011	2.011		
PREP. & CANNING FISH, SARDINES	FISHCAC								
PREP. & PKG. SHELLFISH	SEAPRC					2.239	2.239		
PREP. & PKG. SHELLFISH	SEAPRG	2.239	2.239	2.239	2.239				2.239

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Table 7 Activity Levels for COLPR2 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
RICE. MILLING	RICEMIN	77.884	77.884	77.884	77.884				
WHEAT MILLING	FLOURA								
WHEAT MILLING	FLOURC								
WHEAT MILLING	FLOURD								
WHEAT MILLING	FLOURE					57.589			
GRAIN MILLING	GRAINMC		24.633	24.633	24.633			24.633	
GRAIN MILLING	GRAINMD							24.633	
GRAIN MILLING	GRAINME	24.633							24.633
CEREAL PREPARATION	CEREALB								
CEREAL PREPARATION	CEREALC						2.456		
CEREAL PREPARATION	CEREALD					2.456			
MFG. OF FEED	FEEDDTA								
MFG. OF FEED	FEEDDTB								
MFG. OF FEED	FEEDDTC								
MFG. OF FEED	FEEDDTD								
CORN MILLING	CORNMN	0	91.171	91.171	91.171	91.171	91.171	91.171	91.171
BAKING WHITE BREAD (WHEAT)	BREADWH	45.350	45.350	45.350	45.350	45.350	45.350	5.326	45.350
BAKING CORN BREAD & OTHERS	BREADOB							1.464	
BAKING CORN BREAD & OTHERS	BREADOC								
BAKING CORN BREAD & OTHERS	BREADOD	1.464	1.464	1.464	1.464	1.464	1.464		1.464
BAKING CORN BREAD & OTHERS	BREADOE								
MFG. OF CRACKERS & COOKIES	CRACAKB								
MFG. OF CRACKERS & COOKIES	CRACAKC					9.027		9.027	
MFG. OF CRACKERS & COOKIES	CRACAKD						9.027		
MFG. OF CRACKERS & COOKIES	CRACAKE								
MFG. OF CRACKERS & COOKIES	CRACAKF								
SUGAR & "PANELA" (BROWN SUGAR)	SUGARC					87.347	87.347		
SUGAR & "PANELA" (BROWN SUGAR)	SUGARG								
COFFEE ROASTING	COFERN					44.892	44.892		
COFFEE MILLING	COFEHUB	14.076	272.641	272.641	272.641				272.641
COFFEE MILLING	COFEHUC								
COFFEE MILLING	COFEHUD					272.641		117.570	
COFFEE MILLING	COFEHUE								
COFFEE MILLING	COFEHUS						272.641		
DIST. INDUS. EXCEPT ALCOHOL	SPIRITH	77.045	77.045	77.045	77.045	77.045	77.045		77.045
WINE INDUSTRIES	WINEC								3.699

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Table 7 Activity Levels for COLPR2. 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPW"	Max "Labor"	Max "MP"
WINE INDUSTRIES	WINED	3.699	3.699	3.699	3.699	3.699	3.699	3.699	
MFG. OF BEER & MALTS	BEERN	165.423	165.423	165.423	165.423	165.423	165.423		165.423
MFG. OF SOFT DRINKS	SOFTDRN								
MFG. OF CIGARS & CIGARETTES	TOB4FGA	19.476	19.476	19.476	19.476				
MFG. OF CIGARS & CIGARETTES	TOB4FGB								
MFG. OF CIGARS & CIGARETTES	TOB4FGC								
MFG. OF CIGARS & CIGARETTES	TOB4FGD								
MFG. OF CIGARS & CIGARETTES	TOB4FGE					19.476	19.476		19.476
COTTON GINNING & YARN	COYARNA								
COTTON GINNING & YARN	COYARNB								
COTTON GINNING & YARN	COYARND						55.869		55.869
MFG. OF ROPE & CORDAGE	ROPEMFA								
MFG. OF ROPE & CORDAGE	ROPEMFB								
MFG. OF ROPE & CORDAGE	ROPEMFD	11.868							
MFG. OF ROPE & CORDAGE	ROPEMFE								11.868
MFG. OF ROPE & CORDAGE	ROPEMFF								
LUMBER MILL	LUMBERN	6.748	6.748	6.748	6.748	6.748	6.748	6.748	0
WOOD FRAMING WOOD FRAMES	WOODPLA								
WOOD FRAMING WOOD FRAMES	WOODPLC								
WOOD FRAMING WOOD FRAMES	WOODPLD					8.354	0		
WOOD FRAMING WOOD FRAMES	WOODPLG								
MFG. WOODEN BOXES FOR PACKING	WBOXESB								
MFG. WOODEN BOXES FOR PACKING	WBOXESC						1.883	1.883	
MFG. WOODEN BOXES FOR PACKING	WBOXESD								
MFG. OF CHIPBOARD & PLYWOOD	PLYWODA								
MFG. OF CHIPBOARD & PLYWOOD	PLYWODC	13.811	13.811	13.811	13.811				13.811
MFG. OF CHIPBOARD & PLYWOOD	PLYWODG					.347	.347		
MFG. OF PARQUETS	PARQETD								
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODSGA								
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODSGB								
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODSGD	0	0	0	0	4.446	4.446		0
MFG. OF PULPWOOD & OTHER FIBERS	PULPMFC	6.469	6.469	6.469	6.469	6.469	6.469	6.469	6.469
TANNING & LEATHER PROCESSING	TANNIGB						35.817		35.817
TANNING & LEATHER PROCESSING	TANNIGC								
TANNING & LEATHER PROCESSING	TANNIGD								
TANNING & LEATHER PROCESSING	TANNIGG								

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Table 7 Activity Levels for COLPR2 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "A"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDOILA					5.426	5.426		
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDOILB								
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDOILC								
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDOILD								
MFG. INEDIBLE FATS & OILS (ANI & VEG)	INDOILE								
MFG. OF "COCHICOS"	CUCHOD	0	.431	.431	.431	.431	.431	.431	.431
MFG. OF CHOCOLATE & CANDIES	CHOCOPB								
MFG. OF CHOCOLATE & CANDIES	CHOCOPC								
MFG. OF CHOCOLATE & CANDIES	CHOCOPD								
MFG. OF CHOCOLATE & CANDIES	CHOCOPE								
MFG. OF CHOCOLATE & CANDIES	CHOCOPF					50.912	50.912		
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHA								
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHB								28.229
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHC								
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHD								
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHE								
MFG. OF COTTON OIL	OILCOTN	51.702	51.702	51.702	51.702	0	0	0	0
MFG. OF SOYBEAN OIL	OILSBN	0	0	0	0	49.829	49.829	0	0
MFG. OF SESAME SEED OIL	OILSESN	0	0	0	0	0	0	0	0
MFG. OF AFRICAN PALM OIL	OILPALN	0	0	0	0	0	0	49.829	51.702
MFG. OF VEG. LARD (COTTON)	LARDCON								
MFG. OF VEG. LARD (SOYBEAN)	LARDSBN	0	0	0	0	0	0	0	0
MFG. OF VEG. LARD (SESAME)	LARDSEN	0	0	0	0	0	50.135	0	0
MFG. OF VEG. LARD (AFRICAN PALM)	LARDPAN	0	0	0	0	50.135	0	1.950	0
NON-INDUSTRIAL RICE PRODUCTION	RICENI	40.595	40.595	40.595	40.595	40.595	40.595	40.595	40.595
NON-INDUSTRIAL GREEN COFFEE PRODUCT.	CAFENI	66.494	66.494	66.494	66.494	66.494	66.494	66.494	66.494
NON-INDUSTRIAL WHEAT BREAD PRODUCT.	BREADNI	97.195	97.195	97.195	97.195	97.195	97.195	97.195	97.195
NON-INDUSTRIAL CRACKERS & CAKE PROD.	CRACKNI	18.308	18.308	18.308	18.308	18.308	18.308	18.308	18.308
NON-INDUSTRIAL COTTON GINNING	COTTONI	83.714	83.714	83.714	83.714	83.714	83.714	83.714	83.714
NON-INDUSTRIAL CIGAR PRODUCT.	TOBACNI								
NON-INDUSTRIAL "PANELA" PRODUCT.	PANELNI	82.592	82.592	82.592	82.592	82.592	82.592	82.592	82.592
EXPORTS- GREEN COFFEE	E122P1	378.107	378.107	378.107	378.107	378.107	378.107	378.107	378.107
EXPORTS- SUGAR	E133P12	40.410	40.410	40.410	40.410	40.410	40.410	40.410	40.410
EXPORTS- LINT COTTON	E145P1	56.380	56.380	56.380	56.380	56.380	56.380	56.380	56.380
EXPORTS- BEEF	E103RP	34.196	34.196	34.196	34.196	34.196	34.196	34.196	34.196
EXPORTS- FEEDSTUFF	E141R	14.997	14.997	14.997	14.997	14.997	14.997	14.997	14.997

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Table.7 Activity Levels for COLPR2 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
IMPORT OF LUMBER	I149P1								
IMPORT OF CURED HIDES	I162P12	6.980	6.980	6.980	6.980	6.980	6.980	6.980	6.980
IMPORT OF SKINS, ETC.	I133P1								
IMPORT OF SHELLFISH	I113P1	18.211	18.211	18.211	18.211	18.211	18.211	18.211	18.211
IMPORT OF MANUFACTURED TOBACCO	I145R	12.455	12.455	12.455	12.455	12.455	12.455	12.455	12.455
IMPORT OF CIGARETTES	I146P1								
IMPORT OF CACAO BEANS	I135R								
IMPORT OF WHEAT AND FLOUR	I124RP								
IMPORT OF BARLEY	I144R								
IMPORT OF DRY MILK	I110P1								
IMPORT OF OILS & FATS	I137P12								
IMPORT OF FEEDSTUFF (FISHMEAL)	I141RP								
IMPORT OF SPIRITS	I142RP								
IMPORT OF WINES	I143P1								
IMPORT OF BEER & MALT	I144P12								
IMPORT OF CORDAGE	I147P1								
IMPORT OF PULP (Wood)	I155P1								
IMPORT OF INEDIBLE TALLOW, ETC.	I164RP								
IMPORT OF PROCESSED GRAIN PRODUCTS	I125R								
[illegible] SLAUGHTER	LVSLGT2								
LIVESTOCK SLAUGHTER	LVSLGT3	429.888	429.888	429.888	429.888	429.888	429.888	429.888	429.888
MFG. PAST. MILK PROD.	PAST2R2	62.195	62.195	62.195	62.195	62.195	62.195	62.195	62.195
MFG. BUTTER & CREAM	BUTTER2								
MFG. BUTTER & CREAM	BUTTER3								
MFG. CHEESE	CHEESE2								
MFG. OTHER MILK PRODUCTS	MILKP3								
MFG. ICE CREAM & MILK SHERBET	ICECR2								
MFG. ICE CREAM & MILK SHERBET	ICECR7					2.680		2.680	2.680
MFG. & PRO. COND. EVAP. DRY MILK	MILPR2								
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN2	1.346	1.346	1.346	1.346				
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN6							1.346	1.346
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN7								
PREP. CANNING FRUITS & VEG. JUICES	JUICE3								
PREP. & PRO. SAUCES & PICKLES VEG.	PICKLE2	5.001	5.001	5.001	5.001			5.001	
PREP. & PRESERVING FRUITS & VEG.	FVDRY2	.506	.506	.506	506			506	506
PREP. & PRESERVING FRUITS & VEG.	FVDRY3								

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Table 7 Activity Levels for COLPR 2 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EMPTO"	Max "EMPDY"	Max "Labor"	Max "P"
PREP. & CANNING FISH & SARDINES	FISHCA2							2.011	
PREP. & CANNING FISH & SARDINES	FISHCA3	2.011	2.011	2.011	2.011				2.011
PREP. & CANNING FISH & SARDINES	FISHCA5								
PREP. & PACKAGING OF SHELLFISH	SEAPR2							2.239	
PREP. & PACKAGING OF SHELLFISH	SEAPR3								
RICE MILLING	RICEM2								
RICE MILLING	RICEM3	77.884	77.884	77.884	77.884				
[illegible] (FLOUR)	FLOUR2	57.589	57.589	57.589	57.589			57.589	57.589
[illegible] (FLOUR)	FLOUR5						57.589		
[illegible] (FLOUR)	FLOUR9								
[illegible]	GRAIN3					24.633	24.633		
[illegible] PREPARATION	CEREAL2	2.456	2.456	2.456	2.456			2.456	2.456
[illegible]	FEEDJT2								
[illegible]	FEEDJT3	40.024	40.024	40.024	40.024				40.024
[illegible]	FEEDJT9					40.024	0	0	
[illegible] BREAD (WHEAT)	BREAD2								
[illegible] BREAD (WHEAT)	BREAD3								
[illegible] & COOKIES	CRACAR2								
[illegible] & COOKIES	CRACAR3	22.838	22.838	22.838	22.838				9.027
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR2	87.347	87.347	87.347	87.347			87.347	
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR4								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR5								87.347
COFFEE ROASTING	COFFE2	44.892	44.892	44.892	44.892			44.892	44.892
[illegible] & ALCOHOL	SPIRIT2							76.196	
[illegible]	WINE2								
[illegible]	BEER2							165.423	
[illegible]	SOFTDR2							50.710	
[illegible]	SOFTDR3	50.710	50.710	50.710	50.710				50.710
[illegible]	SOFTDR4					50.710	50.710		
[illegible] CIGARETTES	TOBAFG2							19.476	
[illegible] YARN	COYARN2	55.869	55.869	55.869	55.869				
[illegible] YARN	COYARN4								
[illegible] YARN	COYARN7					55.869		55.869	
[illegible] & ROPE AND CORDAGE	ROPEMF2		11.868	11.868	11.868				
[illegible] & ROPE AND CORDAGE	ROPEMF6								
[illegible] & ROPE AND CORDAGE	ROPEMF9				11.868	11.868	11.868		

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Table 7 Activity Levels for COLPR 2 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 469	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EXPTO"	Max "IMPIM"	Max "Labor"	Max "P"
LUMBER MILLS	LUM3eR2								
WOOD PLAYING & WOOD FRAMES	WOODPL3								6.748
WOOD PLAYING & WOOD FRAMES	WOODPL6	8.354	8.354	8.354	8.354		0	8.354	8.354
MFG. OF WOODEN BOXES FOR PACKING	BOXES2								
MFG. OF WOODEN BOXES FOR PACKING	BOXES3	1.883	1.883	1.883	1.883			1.883	1.883
MFG. OF PLYWOOD & PLYWOOD	PLYWOD2								
MFG. OF PLYWOOD & PLYWOOD	PLYWOD8					13.811	13.811		
MFG. OF PLYWOOD & PLYWOOD	PLYWOD9							13.811	
MFG. OF PARTICLE BOARDS	PARTeB3	.347	.347	.347	.347			.347	.347
MFG. OF WOOD CONSTRUCT. MATERIALS	WOODoG2							4.446	
MFG. OF PULP	PULP4F2								
MFG. OF PULP	PULP4F3								
TANNING & LEATHER PROCESSING	TANNIG2	35.817	35.817	35.817	35.817				
TANNING & LEATHER PROCESSING	TANNIG4							35.817	
TANNING & LEATHER PROCESSING	TANNIG9					35.817			
MFG. OF LARD, MFG.	LARDV2	48.262	48.262	48.262	48.262	0	0	48.185	48.185
MFG. OF LARD, MFG.	LARDV9							5.426	
MFG. OF EDIBLE FATS & OILS (ANIMVEG	INDIIL2								5.426
MFG. OF EDIBLE FATS & OILS (ANI &VEG	INDIIL3	5.426	5.426	5.426	5.426			50.912	50.912
MFG. OF CHOCOLATE & CANDIES	CHOCOP2	50.912	50.912	50.912	50.912				
MFG. OF STARCHES & PASTES	STARCH2								
MFG. OF STARCHES & PASTES	STARCH9	28.229	28.229	28.229	28.229	28.229	28.229	28.229	
INVEST. IN IND. I/O 103	INV103								
" 104	INV104								
" 105	INV105								
" 106	INV106								
" 107	INV107								
" 108	INV108								
" 109	INV109								
" 110	INV110								
" 111	INV111								
" 112	INV112								
" 113	INV113								
" 114	INV114								
" 115	INV115								
" 117	INV117								

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Table 7 Activity Levels for COLPR2 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "?"
INVEST. IN MD. I/O 118	INV118								
" 121	INV121								
" 122	INV122								
" 123	INV123								
" 124	INV124								
" 125	INV125								
" 129	INV129								
" 130	INV130								
" 131	INV131								
" 132	INV132								
" 133	INV133								
" 135	INV135								
" 136	INV136								
" 137	INV137								
" 138	INV138								
" 139	INV139								
" 141	INV141								
" 142	INV142								
" 143	INV143								
" 144	INV144								
" 145	INV145								
" 146	INV146								
" 147	INV147								
" 149	INV149								
" 150	INV150								
" 151	INV151								
" 152	INV152								
" 153	INV153								
" 155	INV155								
" 156	INV156								
" 162	INV162								
" 164	INV164								
" 166	INV166								
" 167	INV167								
"									

1/ Comprised processing activities representing both the existing 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development.

Appendix C, Table 8. Shadow Prices, COLPR2, 1975, with Unrestricted Raw Material and Working Capital Alternatives 1/

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "I"
WK	Working Capital	.54545						.09091	
LA	Urban Lab.2/Reg. "A"								
LTA	Skl. Labr.3/Reg. "A"								
LB	Urban Lab.2/Reg. "B"								
LTB	Skl. Labr.3/Reg. "B"								
LC	Urban Lab.2/Reg. "C"								
LTC	Skl. Labr.3/Reg. "C"								
LD	Urban Lab.2/Reg. "D"								
LTD	Skl. Labr.3/Reg. "D"								
LE	Urban Lab.2/Reg. "E"								
LTE	Skl. Labr.3/Reg. "E"								
LF	Urban Lab.2/Reg. "F"								
LTF	Skl. Labr.3/Reg. "F"								
LG	Urban Lab.2/Reg. "G"								
LTG	Skl. Labr.3/Reg. "G"								
LN	Econ. Act. Popn. Natl.								
LTN	Skl. Labr. Natl.								
PC101V	Processing Capacity	.23182 -	.33000-	.33000-	.33000-	11.11000-	16.67000-	.05818-	.27000-
PC104V	" "	.18091 -	.29000-	.29000-	.29000-	33.55000-	46.27000-	.05122-	.20000 -
PC105V	" "	.18545 -	.30000 -	.30000-	.30000-	8.01000-	20.46000-	.12091-	.13000 -
PC106V	" "								
PC107V	" "	.17091 -	.28000 -	.28000-	.28000-	125.00000-	142.85000-	.05182-	.09000 -
PC108V	" "	.20455 -	.33000 -	.28000-	.33000-	480.00000-	480.00000-	.20909-	.10000 -
PC109V	" "	.32727 -	.42000 -	.42000-	.42000-	333.33000-	390.79000-	.16182-	.20000 -
PC110V	" "	.30727 -	.40000 -	.40000-	.40000-			.06455-	.31000 -
PC111V	" "								
PC112V	" "	.43818 -	.52000 -	.52000-	.52000-	84.09000-	109.96000-	.08636-	.00 -
PC113V	" "								
PC114V	" "								
PC115V	" "	.28636 -	.39000 -	.39000-	.39000-	121.69000-	158.73000-	.12273-	.21000 -
PC117V	" "	.27182 -	.37000 -	.37000-	.37000-	251.36000-	300.55000-	.11182-	.29000 -
PC118V	" "	.31182 -	.41000 -	.41000-	.41000-	85.97000-	108.60000-	.12091-	.27000 -
PC121V	" "	.12091 -	.23000 -	.23000-	.23000-	26.74000-	37.43000-	.02091-	.19000 -
PC122V	" "		.12000 -	.12000-	.12000-	14.19000-	15.52000-		.10000 -
PC123V	" "								
PC124V	" "	.08000 -	.20000 -	.20000-	.20000-				
PC125V	" "	.08000 -	.20000 -	.20000-	.20000-	23.83000-	35.83000-	.04000-	.11000-
PC126V	" "					98.94000-	115.09000-	.05000-	.11000-
PC130V	" "								
PC131V	" "	.56364 -	.64000 -	.64000-	.64000-	162.26000-	217.69000-	.19000-	.42000-
PC132V	" "								

1/ Comprised processing activities representing both the 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development.

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Appendix C, Table 8. Shadow Prices, COLPR2 1/ 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
[illegible]V	Processing Capacity	.24091-	.35000-	.35000-	.35000-	73.18000-	93.84000-	.11182-	.26000-
[illegible]V	" " "	.36182-	.46000-	.46000-	.46000-	86.09000-	86.09000-	.16364-	.24000-
[illegible]V	" "					.78000-	8.33000-	.01680-	
[illegible]V	" "	.05091-	.04000-	.04000-	.04000-				.06000-
[illegible]V	" "								
[illegible]V	" "								
[illegible]V	" "	.22636-	.33000-	.33000-	.33000-	29.82000-	57.78000-	.70000-	.22000-
[illegible]V	" "	.79727-	.83000-	.83000-	.83000-	41.07000-	41.07000-	.08727-	.24000-
[illegible]V	" "	.42818-	.51000-	.51000-	.51000-	192.98000-	192.98000-	.08909-	.39000-
[illegible]V	" "					96.39000-			
[illegible]V	" "					372.83000-			
[illegible]V	" "	.27515-	.39000-	.39000-	.39000-	406.20000-	126.42000-	.29636-	.16000-
[illegible]V	" "	.40273-	.50000-	.50000-	.50000-	189.19000-	380.49000-	.35818-	.32000-
[illegible]V	" "	.42091-	.52000-	.52000-	.52000-	333.33000-	437.50000-	.23183-	.32000-
[illegible]V	" "	.28636-	.39000-	.39000-	.39000-	468.68000-	216.00000-	.14273-	.22000-
[illegible]V	" "	.48091-	.59000-	.59000-	.59000-	272.72000-	388.88000-	.37182-	.18000-
[illegible]V	" "	.50818-	.59000-	.59000-	.59000-	416.66000-	503.03000-	.27182-	.39000-
[illegible]V	" "	.52273-	.61000-	.61000-	.61000-	17.82000-	363.63000-	.24545-	.33000-
[illegible]V	" "	.54273-	.63000-	.63000-	.63000-	416.66000-	416.66000-	.26182-	.32000-
[illegible]V	" "	.43909-	.51000-	.51000-	.51000-	17.82000-	26.19000-	.03818-	.36000-
[illegible]V	" "								
[illegible]V	" "	.31727-	.41000-	.41000-	.41000-	94.94000-	94.94000-	.14182-	.30000-
[illegible]V	" "								
[illegible]V	" "								
[illegible]1	Non-Industrial Products	.05000-	.17000-	.17000-	.17000-	26.74000-	37.43000-	.01000-	.13000-
[illegible]2	" "		.12000-	.12000-	.12000-	14.19000-	15.52000-		.10000-
[illegible]9	" "					.03000-	.06000-		
[illegible]1	" "	.22000-	.34000-	.34000-	.34000-	162.26000-	217.69000-	.19000-	.05000-
[illegible]6	" "	.14545-	.26000-	.26000-	.26000-	96.39000-	96.39000-	.06091-	.16000-
[illegible]3	" "	.21636-	.32000-	.32000-	.32000-	73.18000-	93.84000-	.05273-	.20000-
[illegible]5	" "					34.60000-	59.95000-	.58455-	.60000-
[illegible]V	Total Market								
[illegible]V	" " "								
[illegible]V	" "								
[illegible]V	" "	.08455-	.21000-	.21000-	.21000-	187.50000-	250.00000-	.03909-	.14000-
[illegible]V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]1V	" "	.31182-	.41000-	.41000-	.41000-	160.12000-	223.56000-	.22000-	.24000-
[illegible]2V	" "								
[illegible]4V	" "	.30636-	.41000-	.41000-	.41000-	137.17000-	190.26000-	.19273-	.22000-

1/ Comprised processing activities representing both the 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development.

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Appendix C, Table 6 . Shadow Prices, COLPR2 , 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL.US$	WK=457 MILL.US$	WK=489 MILL.US$	MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
P1114V	Total Market	25636 -	36000 -	36000 -	36000 -	45.06000-	64.38000 -	.10273 -	.21000-
P1115V	"								
P1117V	"								
P1123V	"								
P1124V	"								
P1125V	"								
P1133V	"		.13000 -	.13000 -	.13000 -	179.48000-	192.31000 -	.04818 -	.05000-
P1134V	"								
P1135V	"	.22636 -	.33000 -	.33000 -	.33000 -	333.30000-	428.60000 -	.00273 -	.21000-
P1136V	"	.21000 -	.33000 -	.33000 -	.33000 -	266.67000-	400.00000 -	.05000 -	.23000-
P1141V	"								
P1142V	"	.51909 -	.59000 -	.59000 -	.59000 -	90.00000-	115.00000 -	.10818 -	.39000-
P1143V	"								
P1144V	"								
P1145V	"								
P1146V	"								.00138 -
P1147V	"	.44545 -	.56000 -	.56000 -	.56000 -	146.34000-	333.33000 -	.38091 -	.28000-
P1148V	"	.25182 -	.35000 -	.35000 -	.35000 -	48.19000-	68.27000 -	.04364 -	.25000-
P1149V	"								
P1150V	"								
P1151V	"								
P1152V	"	.70636 -	.75000 -	.75000 -	.70636 -	54.50000-	59.95000 -	.00727 -	.69000-
P1153V	"								.05818 -
P1154V	"	.25545 -	.37000 -	.37000 -	.37000 -	118.81000-	125.00000 -		
P1155V	"							.21818 -	.20000-
P1156V	"		.11000 -	.11000 -	.11000 -	166.67000-	200.00000 -		.08000-
P1157V	"	.56364 -	.64000 -	.64000 -	.64000 -	302.10000-	351.14000 -	.00909 -	.39000-
P1158V	"							.21364 -	
P1159V	"	.60000 -	.66000 -	.66000 -	.66000 -	53.90000-	62.55000 -	.16545 -	.53000-
P1160V	"								
P1161V	"			.23000 -		32.63000-			
P1162V	"								
P1163V	"								
P1164V	"								
P1165V	"								
P1166V	"								
P1167V	Market for Edible Oils	.11545-	.23000-		.23000-		43.51000-	.03273-	
P1172V	External Markets								
P1173V	"								
P1174V	"								

1/ Comprised processing activities representing both the 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development.

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Appendix C, Table 8. Shadow Prices, COLPR2[1/], 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK) WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $ MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
EX103V	External Markets								
EX141V	"								
EX149V	"								
EX162V	"								
EX118V	"								
EX145RV	"								
IM145V	Inputs								
IM135RV	"								
IM124RV	"								
IM144RV	"								
IM110V	"								
IM137V	"								
IM141RV	"								
IM142V	"								
IM143V	"								
IM144V	"								
IM147V	"								
IM156V	"								
IM164RV	"								
IM125RV	"								
AG103V	Agr.Raw Material Avail.								
AG121V	"								
AG122V	"								
AG124V	"								
AG129V	"								
AG133V	"								
AG135V	"								
AG136V	"								
AG139V	"								
AG141V	"								
AG144V	"								
AG145V	"								
AG146V	"								
AG147V	"								
AG162V	"								
AG164V	"								
AG166V	"								
AG136CD	"								
AG136SB	"								
AG136S2	"								
AG136PA	"								
AG 142V	"								

1/ Comprised processing activities representing both the 1968 Colombian technology and alternative foreign technologies from various countries at different stages of development.

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Appendix C

Table 9 Activity Levels for COLPR3 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital at 457$ Millions				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
LIVESTOCK SLAUGHTER	LVSLGTN								10.491
MEAT PKG. & PROD.	MEATPRA								
MEAT PKG. & PROD.	MEATPRB								
MEAT PKG. & PROD.	MEATPRC					10.491		10.491	
MEAT PKG. & PROD.	MEATPRD		10.491	10.491	10.491		9.905		
MFG. PAST. MILK PROD.	PASTERA								
MFG. PAST. MILK PROD.	PASTERB								
MFG. PAST. MILK PROD.	PASTERC								
MFG. PAST. MILK PROD.	PASTERD								
MFG. PAST. MILK PROD.	PASTERF								
MFG. BUTTER & CREAM	BUTTERA								
MFG. BUTTER & CREAM	BUTTERC								
MFG. BUTTER & CREAM	BUTTERD		2.159		2.159	2.159			
MFG. BUTTER & CREAM	BUTTERE								
MFG. BUTTER & CREAM	BUTTERG			2.159			2.159		
MFG. CHEESE	CHEESED			5.863					
MFG. CHEESE	CHEESEE		6.378	0.515	6.378	6.378	6.378		
MFG. CHEESE	CHEESEG							6.378	
MFG. CASEIN & OTHER MILK PROD.	MILKOD		0.287	0.287	0.287	0.287	0.287	0.287	
MFG. ICE CREAM & MILK SHERBET	ICECRN	2.788	2.788	2.788	2.788		2.788		
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRA	19.366	19.366	19.366	19.366	19.366	19.366	19.366	19.366
MFG. & PKG. COND. EVAP. DRY MILK	MILKPRC								
MFG. PRESERV. FRUIT & VEG. CANNING	FVCANB								
MFG. PRESERV. FRUIT & VEG. CANNING	FVCANC					1.346	1.346		
PREP. CANNING FRUITS & VEG. JUICES	JUICEA	2.297	2.297	2.297	2.297	2.297	2.297	2.297	2.297
PREP. & PKG. JAMS, MARMALADES	MEJAMSB			0.914					0.914
PREP. & PKG. JAMS, MARMALADES	MEJAMSD	0.914	0.914		0.914				
PREP. & PKG. JAMS, MARMALADES	MEJAMSE					0.914	0.914		0.914
PREP. & PKG. SAUCES, ESCABECHE	PICKLEB								
PREP. & PKG. SAUCES, ESCABECHE	PICKLEC					5.001			5.001
DEHYD. & FREEZING FRUITS & VEG.	FVDRYA								
DEHYD. & FREEZING FRUITS & VEG.	FVDRYB					1.031	1.031		
PREP. & CANNING FISH, SARDINES	FISHCAA								
PREP. & CANNING FISH, SARDINES	FISHCAG					2.514	2.514		
PREP. & PKG. SHELLFISH	SEAPRC					2.347			
PREP. & PKG. SHELLFISH	SEAPRG	2.347	2.347	2.347	2.347	2.347			2.347

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Table 9 Activity Levels for COLPR3 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPD"	Max "Labor"	Max "P"
RICE, MILLING	RICEMIN					87.497			
[illegible] MILLING	FLOJRA								
[illegible] MILLING	FLOJRC								
[illegible] MILLING	FLOJRD					63.904			
[illegible] MILLING	FLOJRE								
[illegible] MILLING	GRAINMC		26.076		26.076				
GRAIN MILLING	GRAINMD			26.076					
[illegible] MILLING	GRAINME								
[illegible] PREPARATION	CEREALB								
CEREAL PREPARATION	CEREALC	2.456				2.456	2.456	2.456	
CEREAL PREPARATION	CEREALD								
MFG. OF FEED	FEEDJTA								
MFG. OF FEED	FEEDJTB								
MFG. OF FEED	FEEDJTC						51.728		
MFG. OF FEED	FEEDJTD								
CORN MILLING	CORNMIN					9.171	9.171	9.171	
BAKING WHITE BREAD (WHEAT)	BREADWH			45.350		45.350	45.350	45.350	
BAKING CORN BREAD & OTHERS	BREADOB			1.464					
BAKING CORN BREAD & OTHERS	BREADOC								
BAKING CORN BREAD & OTHERS	BREADOD		1.464		1.464	1.464	1.464		1.464
BAKING CORN BREAD & OTHERS	BREADOE								
MFG. of CRACKERS & COOKIES	CRACAKB								
MFG. of CRACKERS & COOKIES	CRACAKC								
MFG. of CRACKERS & COOKIES	CRACAKD								
MFG. of CRACKERS & COOKIES	CRACAKE					23.511	23.511	23.511	
MFG. of CRACKERS & COOKIES	CRACAKF								
SUGAR "REFINERA" (BROWN SUGAR)	SUGARC					159.551	159.551		
SUGAR "REFINERA" (BROWN SUGAR)	SUGARD								
COFFEE ROASTING	COFERN					44.892	44.892		
COFFEE ROASTING	COFEHUB								
COFFEE ROASTING	COFEHUC								
COFFEE ROASTING	COFEHUD						378.559		
COFFEE ROASTING	COFEHUF								
COFFEE ROASTING	COFEHUG								
DIST. REDT. & MINING ALCOHOL	SPIRITN	77.566	77.566	77.566	77.566	77.566	77.566		77.566
MINE INDUSTRIES	MINEC	4.548	4.548	4.548	4.548	4.548	4.548		4.548

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Table 9 Activity Levels for COLPR3 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Later"	Max "D"
WINE INDUSTRIES	WINED							4.548	
MFG. OF BEER & MALTS	BEERN	165.423	165.423	165.423	165.423	165.423	165.423		165.423
MFG. OF SOFT DRINKS	SOFTDRN								
MFG. OF CIGARS & CIGARETTES	TOB4FGA	95.564	94.564	94.564	94.564				
MFG. OF CIGARS & CIGARETTES	TOB4FGB								
MFG. OF CIGARS & CIGARETTES	TOB4FGC								
MFG. OF CIGARS & CIGARETTES	TOB4FGD						94.564		94.564
MFG. OF CIGARS & CIGARETTES	TOB4FGE					94.564			
[illegible] & YARN	COYARNA					309.888			
[illegible] & YARN	COYARNB								
[illegible] & YARN	COYARND		28.867	266.962	28.867		221.905		212.485
MFG. OF ROPE & CORDAGE	ROPEMFA								
MFG. OF ROPE & CORDAGE	ROPEMFB		16.548		16.548				
MFG. OF ROPE & CORDAGE	ROPEMFD			16.548					
MFG. OF ROPE & CORDAGE	ROPEMFE	16.548							16.548
MFG. OF ROPE & CORDAGE	ROPEMFF								
LUMBER MILL	LUMBERN	10.280	10.280	10.280	10.280	10.280	10.280	10.280	10.280
WOOD PLANING-WOOD FRAMES	WOODPLA								
WOOD PLANING WOOD FRAMES	WOODPLC						10.907		
WOOD PLANING WOOD FRAMES	WOODPLD								
WOOD PLANING WOOD FRAMES	WOODPLE					10.907		10.907	
MFG. WOODEN BOXES FOR PACKING	WBOXESA								
MFG. WOODEN BOXES FOR PACKING	WBOXESC					2.937	2.937		
MFG. WOODEN BOXES FOR PACKING	WBOXESD								
MFG. OF CHIPBOARD & PLYWOOD	PLYWOODA	21.467							21.467
MFG. OF CHIPBOARD & PLYWOOD	PLYWOODC		21.467	21.467	21.467				21.467
MFG. OF CHIPBOARD & PLYWOOD	PLYWOODG								
MFG. OF PARQUETS	PARQETD					.544	.544		
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODBGA								
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODBGB								
MFG. OF WOOD CONSTRUCT. MATERIAL	WOODBGD					6.364	6.364		
MFG. OF PULPWOOD & OTHER FIBERS	PULPMFC	15.741	15.741	15.741	15.741	15.741		15.741	15.741
[illegible] & LEATHER PROCESSING	TANNIGB								
TANNING & LEATHER PROCESSING	TANNIGC						35.817		
[illegible] & LEATHER PROCESSING	TANNIGD								35.817
[illegible] & LEATHER PROCESSING	TANNIGE								

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Table 9 Activity Levels for COLPR 3 [1] 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
MFG. EDIBLE FATS & OILS (ANI & VEG)	INDOILA								
MFG. EDIBLE FATS & OILS (ANI & VEG)	INDOILB								
MFG. EDIBLE FATS & OILS (ANI & VEG)	INDOILC								
MFG. EDIBLE FATS & OILS (ANI & VEG)	INDOILD								
MFG. EDIBLE FATS & OILS (ANI & VEG)	INDOILE					18.037	18.037		
MFG. OF "SWEETS"	CUCHOD					.431	.431		
MFG. OF CHOCOLATE & CANDIES	CHOCOPB						54.546		
MFG. OF CHOCOLATE & CANDIES	CHOCOPC								
MFG. OF CHOCOLATE & CANDIES	CHOCOPD								
MFG. OF CHOCOLATE & CANDIES	CHOCOPE								
MFG. OF CHOCOLATE & CANDIES	CHOCOPF					54.546			
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHA	28.229							28.229
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHB								
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHC								
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHD								
MFG. CORNSTARCH, YEAST, SPAG. PASTE	STARCHE								
MFG. OF COTTON OIL	OILCOTN								
MFG. OF SOYBEAN OIL	OILSBN								
MFG. OF SESAME SEED OIL	OILSESN								99.964
MFG. OF AFRICAN PALM OIL	OILPALN		99.964	99.964	99.964				
MFG. OF VEG. LARD (COTTON)	LARDCON								
MFG. OF VEG. LARD (SOYBEAN)	LARDSBN								
MFG. OF VEG. LARD (SESAME)	LARDSEN					99.964			
MFG. OF VEG. LARD (AFRICAN PALM)	LARDPAN								
NON-INDUSTRIAL RICE PRODUCTION	RICENI	40.595	40.595	40.595	40.595	40.595	40.595	40.595	40.595
NON-INDUSTRIAL GREEN COFFEE PRODUCT.	CAFENI	66.494	66.494	66.494	66.494	66.494	66.494	66.494	66.494
NON-INDUSTRIAL WHEAT BREAD PRODUCT.	BREADNI	97.195	97.195	97.195	97.195	97.195	97.195	97.195	97.195
NON-INDUSTRIAL CRACKERS & CAKE PROD.	CRACKNI	18.308	18.308	18.308	18.308	18.308	18.308	18.308	18.308
NON-INDUSTRIAL COTTON GINNING	COTTONI	83.715	83.715	83.715	83.715	83.715	83.715	83.715	83.715
NON-INDUSTRIAL CIGAR PRODUCT.	TOBACNI								
NON-INDUSTRIAL "PANELA" PRODUCT.	PANELNI	82.592	82.592	82.592	82.592	82.592	82.592	82.592	82.592
EXPORTS- GREEN COFFEE	E122P1	378.107	378.107	378.107	378.107	378.107	378.107	378.107	378.107
EXPORTS- SUGAR	E133P12	40.410	40.410	40.410	40.410	40.410	40.410	40.410	40.410
EXPORTS- LINT COTTON	E149P1	56.380	56.380	56.380	56.380	56.380	56.380	56.380	56.380
EXPORTS- BEEF	E103RP	34.196	34.196	34.196	34.196	34.196	34.196	34.196	34.196
EXPORTS- FEEDSTUFF	E141R	14.997	14.997	14.997	14.997	14.997	14.997	14.997	14.997

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Table 9 Activity Levels for COLFR3 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK) WK = 365	WK = 457	WK = 489	Activity Levels (in Millions US$) Restricted Working Capital Max "VA"	Max "EMPTO"	Max "EMPDI"	Max "Labor"	Max "P"
EXPORT OF LEATHER	E149P1								
EXPORT OF CURED HIDES	E162P12	56.380	56.380	56.380	56.380	56.380	56.380	56.380	56.380
EXPORT OF STARCHES, ETC.	E138P1								
EXPORT OF SHELLFISH	E111P1	18.211	18.211	18.211	18.211	18.211	18.211	18.211	18.211
EXPORT OF MANUFACTURED TOBACCO	E145R	12.455	12.455	12.455	12.455	12.455	12.455	12.455	12.455
EXPORT OF CIGARETTES	I145P1								
EXPORT OF CACAO BEANS	I135R								
EXPORT OF WHEAT AND FLOUR	I124RP								
EXPORT OF BARLEY	I144R								
EXPORT OF DRY MILK	I110P1								
EXPORT OF OILS & FATS	I137P12								
EXPORT OF FEEDSTUFF (FISHMEAL)	I141RP								
EXPORT OF SPIRITS	I142RP								
EXPORT OF WINES	I143P1								
EXPORT OF BEER & MALT	I144P12								
EXPORT OF COTTAGE	I147P1								
EXPORT OF PULP (Wood)	I153P1								
EXPORT OF INEDIBLE TALLOW, ETC.	I164RP								
EXPORT OF PROCESSED GRAIN PRODUCTS	I125R								
LIVESTOCK SLAUGHTER	LVSLGT2					291.752		591.789	
LIVESTOCK SLAUGHTER	LVSLGT3	700.298	700.298	700.298	700.298		291.752		700.298
MFG. PAST. MILK PROD.	PASTER2		64.733	64.733	64.733	64.733		64.733	5.536
MFG. BUTTER & CREAM	BUTTER2								
MFG. BUTTER & CREAM	BUTTER3								
MFG. CHEESE	CHEESE2								
MFG. CONDENSED MILK PRODUCTS	MILK3								
MFG. ICE CREAM & MILK SHERBET	ICECR2								2.788
MFG. ICE CREAM & MILK SHERBET	ICECR7					2.788		2.788	
MFG. & PRO. COND. EVAP. DRY MILK	MILPR2								
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN2	1.346	1.346	1.346	1.346				1.346
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN6							1.346	
MFG. PRESERV. FRUIT & VEG. CANNING	FVCAN7								
MFG. CANNING FRUITS & VEG. JUICES	JUICE3								
MFG. & PRO. SAUCES & PICKLES VEG.	PICKLE2	5.001	5.001	5.001	5.001			5.001	
MFG. & FREEZING FRUITS & VEG.	FVDRY2	1.031	1.031	1.031	1.031			1.031	1.031
MFG. & FREEZING FRUITS & VEG.	FVDRY3								

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Table 9 Activity Levels for COLPR 3 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels (in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
PREP. & CANNING FISH & SARDINES	FISHCA2							2.514	
PREP. & CANNING FISH & SARDINES	FISHCA3	2.514	2.514	2.514	2.514				2.514
PREP. & CANNING FISH & SARDINES	FISHCA5								
PREP. & PACKAGING OF SHELLFISH	SEAPR2						2.347	2.347	
PREP. & PACKAGING OF SHELLFISH	SEAPR3								
RICE MILLING	RICEM2								
RICE MILLING	RICEM3	87.497	87.497	87.497	87.497		87.497		87.497
WHEAT MILLING (FLOUR)	FLOUR2		63.904	63.904	63.904				
WHEAT MILLING (FLOUR)	FLOUR5						63.904		
WHEAT MILLING (FLOUR)	FLOUR9								
GRAIN MILLING	GRAIN3					26.076	26.076		
MISC. GRAIN PREPARATION	CEREAL2		2.456	2.456	2.456				2.456
MISC. OF FEED	FEEDDT2							51.728	
MISC. OF FEED	FEEDDT3	12.968	51.728	51.728	51.728				51.728
MISC. OF FEED	FEEDDT9					51.728			
BAKING OF WHITE BREAD (WHEAT)	BREADW2	45.350	45.350	45.350	45.350			45.350	
BAKING OF WHITE BREAD (WHEAT)	BREADW3								45.350
MISC. MANUFACTURING & COOKIES	CRACKR2								
MISC. OF CRACKERS & COOKIES	CRACKR3	23.511	23.511	23.511	23.511				23.511
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR2		159.551	159.551	159.551			159.551	
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR4								
SUGAR & "PANELA" (BROWN SUGAR)	SUGAR5	159.551							159.551
COFFEE ROASTING	COFFER2	44.892	44.892	44.892	44.892			44.892	44.892
MISC. OF BEVERAGES & ALCOHOL	SPIRIT2							4.548	
WINERIES	WINE2								
MISC. OF BEER & MALTS	BEER2							165.423	
MISC. OF SOFT DRINKS	SOFTDR2							50.710	
MISC. OF SOFT DRINKS	SOFTDR3	50.710	50.710	50.710	50.710				50.710
MISC. OF SOFT DRINKS	SOFTDR9					50.710	50.710		
MISC. OF TOBACCO & CIGARETTES	TOBMFG2							94.564	
COTTON SPINNING & YARN	COYARN2	122.700		26.595	112.309				
COTTON SPINNING & YARN	COYARN4					0.131	118.931		128.351
COTTON SPINNING & YARN	COYARN7							122.700	
MISC. OF ROPE AND CORDAGE	ROPEMF2								
MISC. OF ROPE AND CORDAGE	ROPEMF6								
MISC. OF ROPE AND CORDAGE	ROPEMF9					16.548	16.548	16.548	

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Table 9 Activity Levels for COLPR 3 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital				
		WK = 365	WK = 497	WK = 469	Max "VA"	Max "EMPTO"	Max "EMPDM"	Max "Labor"	Max "P"
LUMBER MILLS	LUMBER2								
WOOD PLANING & WOOD FRAMES	WOODPL3	10.907	10.907	10.907	10.907				10.907
WOOD PLANING & WOOD FRAMES	WOODPL6							10.907	
MFG. OF WOODEN BOXES FOR PACKING	BOXES2								
MFG. OF WOODEN BOXES FOR PACKING	BOXES3	2.937	2.937	2.937	2.937			2.937	2.937
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD2								
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD6					21.467	21.467		
MFG. OF CHIPBOARD & PLYWOOD	PLYWOD9							21.467	
MFG. OF PARQUETS	PARQET3	.544	.544	.544	.544			.544	.544
MFG. OF WOOD CONSTRUCT. MATERIALS	WOODOG2								
MFG. OF PULP	PULP4F2								
MFG. OF PULP	PULP4F3	6.364							
TANNING & LEATHER PROCESSING	TANNIG2	35.817	35.817	35.817	35.817				
TANNING & LEATHER PROCESSING	TANNIG4							35.817	
TANNING & LEATHER PROCESSING	TANNIG9					35.817			
MFG. OF LARD, VEG.	LARD2							48.848	
MFG. OF LARD, VEG.	LARD9						31.302		
MFG. OF INEDIBLE FATS & OILS (ANIMAL)	INEDIL2							18.037	
MFG. OF INEDIBLE FATS & OILS (ANIMAL)	INEDIL3	18.037	18.037	18.037	18.037				18.037
MFG. OF CHOCOLATE & CANDIES	CHOCOP2	54.546	54.546	54.546	54.546			54.546	54.546
MFG. OF STARCHES & PASTES	STARCH2								
MFG. OF STARCHES & PASTES	STARCH9		28.229	28.229	28.229	28.229	28.229	28.229	
" 103	INV103	270.410	270.410	270.410	270.410			161.901	270.410
" 104	INV104		.586	.586	.586	.586		.586	
" 105	INV105		2.538	2.538	2.538	2.538		2.538	
" 106	INV106								
" 107	INV107		.266	.266	.266	.266	.266	.266	
" 108	INV108		.087	.087	.087	.087	.087	.087	
" 109	INV109	.586	.108	.108	.108	.108	.108	.108	.108
" 110	INV110	1.875	1.875	1.875	1.875	1.875	1.875	1.875	1.875
" 111	INV111								
" 112	INV112	.106	.106	.106	.106	.106	.106	.106	.106
" 113	INV113								
" 114	INV114								
" 115	INV115	.525	.525	.525	.525	.525	.525	.525	.525
" 117	INV117	.503	.503	.503	.503	.503	.503	.503	.503

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Appendix C
Table 9 Activity Levels for COLPR63 1/ 1975 with Unrestricted Raw Material and Working Capital Alternatives

Industry Description	Activity Symbol	Activity Levels(in Millions US$) Restricted Working Capital (WK)			Activity Levels (in Millions US$) Restricted Working Capital				
		WK = 365	WK = 457	WK = 489	Max "VA"	Max "EXPTO"	Max "EXPDA"	Max "Labor"	Max "?"
INVEST. IN IND. I/O 118	INV118	.108	.108	.108	.108	.108	.108	.108	.108
" 121	INV121		9.613	9.613	9.613	9.613	9.613		9.613
" 122	INV122						105.918		
" 123	INV123								
" 124	INV124		6.315	6.315	6.315	6.315	6.315		
" 125	INV125		1.443	1.443	1.443	1.443	1.443		
" 129	INV129								
" 130	INV130								
" 131	INV131	.673	.673	.673	.673	.673	.673	.673	.673
" 132	INV132								
" 133	INV133	72.204	72.204	72.204	72.204	72.204	72.204	72.204	72.204
" 135	INV135	3.634	3.634	3.634	3.634	3.634	3.634	3.634	3.634
" 136	INV136					49.829	49.829		
" 137	INV137		48.262	48.262	48.262				48.262
" 138	INV138								
" 139	INV139								
" 141	INV141	16.294	57.054	57.054	57.054	11.704	11.704	57.054	57.054
" 142	INV142	.521	.521	.521	.521	.521	.521	.521	.521
" 143	INV143	.849	.849	.849	.849	.849	.849	.849	.849
" 144	INV144								
" 145	INV145								
" 146	INV146	66.832	85.307	237.688	85.307	265.245	284.967	66.831	284.957
" 147	INV147	4.680	4.680	4.680	4.680	4.680	4.680	4.680	4.680
" 149	INV149	14.439	14.439	14.439	14.439	3.532	3.532	3.532	14.439
" 150	INV150					2.553	2.553	2.553	
" 151	INV151	1.054	1.054	1.054	1.054	1.054	1.054	1.054	1.054
" 152	INV152	7.656				7.656	7.656	7.656	7.656
" 153	INV153	.197	.197	.197	.197	.197	.197	.197	.197
" 155	INV155	1.918	1.918	1.918	1.918	1.918	1.918	1.918	1.918
" 156	INV156	9.272	9.272	9.272	9.272	9.272		9.272	9.272
" 162	INV162								
" 164	INV164	12.611	12.611	12.611	12.611	12.611	12.611	12.611	12.611
" 166	INV166								
" 167	INV167								
"									

1/ Comprised processing activities representing: (1) the existing 1968 Colombian technology, (2) alternative foreign technologies from various countries at different stages of development, and (3) investment activities for expanding processing capacities of all 48 agro-industries in the model.

Appendix C, Table 10. Shadow Prices, COLPR3[1], 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK	WK=365 MILL. U.S.$	WK=457 MILL. U.S.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDM"	MAX "EMPTO"	MAX "LABOR"	MAX "I"
WK	Working Capital									
LA	Urban Lab.2/Reg. "A"									
LTA	Skl. Labr.3/Reg. "A"									
LB	Urban Lab.2/Reg. "B"									
LTB	Skl. Labr.3/Reg. "B"									
LC	Urban Lab.2/Reg. "C"									
LTC	Skl. Labr.3/Reg. "C"									
LD	Urban Lab.2/Reg. "D"									
LTD	Skl. Labr.3/Reg. "D"									
LE	Urban Lab.2/Reg. "E"									
LTE	Skl. Labr.3/Reg. "E"									
LF	Urban Lab.2/Reg. "F"									
LTF	Skl. Labr.3/Reg. "F"									
LG	Urban Lab.2/Reg. "G"									
LTG	Skl. Labr.3/Reg. "G"									
EI	Econ. Act. Popn. Natl.									
STN	Skl. Labr. Natl.									
PC10 V	Processing Capacity									
PC104V	" "									
PC105V	" "									
PC106V	" "									
PC107V	" "									
PC108V	" "									
PC109V	" "									
PC110V	" "									
PC111V	" "									
PC112V	" "									
PC113V	" "									
PC114V	" "									
PC115V	" "									
PC117V	" "									
PC118V	" "									
PC121V	" "									
PC123V	" "									
PC124V	" "									
PC125V	" "									
PC129V	" "									
PC130V	" "									
PC131V	" "									
PC132V	" "									

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Appendix C, Table 10 Shadow Prices, COLPR 1/, 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK): WK=365 MILL. U.S.$	WK=457 MILL. US.$	WK=489 MILL. U.S.$	RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $: MAX "VA"	MAX "EMPDW"	MAX "EMPTO"	MAX "LABOR"	MAX "F"
[illegible]V	Processing Capacity								
[illegible]5V	" "								
[illegible]6V	" "								
[illegible]7V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]1V	" "								
[illegible]2V	" "								
[illegible]3V	" "								
[illegible]4V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]1V	" "								
[illegible]2V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]V	" "								
[illegible]2V	" "								
[illegible]4V	" "								
[illegible]6V	" "								
[illegible]	" "								
[illegible]1	Non-Industrial Products	.21211	.07760	.07780	.07780	26.65000-	15.67169-	.04333	.07238
[illegible]2	" "	.26211	.07577	.07577	.07577	14.19000-	3.10383-	.05333	.03619
[illegible]3	" "	.21000	.21000	.21000	.21000	333.33000-	195.39940-	.17000	.10238
[illegible]1	" "	.43895	.37119	.37119	.37119	162.26000-	95.09682-		.41952
[illegible]	" "	.11383	.	.		96.39000-	56.49194-	.07400	
[illegible]3	" "	.03592	.10583	.10583	.10583	73.18000-	23.07539-	.08786	.13937
[illegible]5	" "	.			.	19.89119-	91.89119-	.59667-	.60000
[illegible]V	Total Market	.02171	.21228-	.21228-	.21228-				.19821-
[illegible]V	" "		.11202-	.11202-	.11202-		9.31969-	.00333-	.07519-
[illegible]V	" "		.11312-	.11312-	.11312-		3.91372-	.07000-	
[illegible]V	" "		.00533-	.00533-	.00533-		127.13006-		
[illegible]V	" "		.10202-	.10202-	.10202-		58.30297-	.00333-	
[illegible]V	" "		.12533-	.12533-	.12533-		185.70259-	.15333-	
[illegible]V	" "	.12474-	.26872-	.26572-	.26872-		204.45315-	.11333-	.08238-
[illegible]0V	" "	.10474-	.24872-	.24872-	.24872-		19.14143-	.02333-	.20476-
3111V	" "	.09737-	.24982-	.24982-	.24872-		117.86558-	.16667-	.12857-
3112V	" "	.25947-	.38652-	.38652-	.36852-		52.21123-	.05000-	.28714-
3113V	" "	.08000-	.24092-	.24092-	.24092-		99.14479-	.09667-	.10238-

ndix C, Table 10. Shadow Prices, COLFR 1/ , 1975, with Unrestricted Raw Material and Working Capital Alternatives

TRI-SION CONTROL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL.US$	WK=457 MILL.US$	WK=489 MILL.US$	MAX "VA"	MAX "EMPDM"	MAX "EMPTO"	MAX "LABOR"	MAX "F"
1114V	Total Market	.03000-	.19092-	.19092-	.19092-		27.24832-	.06667-	.09238-
1115V	"	.06000-	.22092-	.22092-	.22092-		74.99414-	.07667-	.09238-
1116V	"	.05737-	.20982-	.20982-	.20982-		140.25319-	.06333-	.17857-
1117V	"	.09737-	.24982-	.24982-	.24982-		45.71198-	.07000-	.15857-
1118V	"		.05980-	.05980-	.05980-	.10345-	10.73808-		.07608-
1119V	"								
1120V	"						73.57602-		
1121V	"		.00512-	.00512-	.00512-		10.98779-		
1122V	"	.21000-	.37092-	.37092-	.37092-		222.53754-	.21667-	.19476-
1123V	"		.13423-	.13423-	.13423-		231.29473-		.09381-
1124V	"	.39684-	.51542-	.51542-	.51542-		110.17701-	.13667-	.33333-
1125V	"	.40000-	.47432-	.47432-	.47432-		62.25309-	.08000-	.30952-
1126V	"	.02592-	.25675-	.25675-	.25675-		60.04155-	.09453-	.22175-
1127V	"	.14737-	.29982-	.29982-	.29982-		24.34722-	.12000-	.12857-
1128V	"								
1129V	"								
1130V	"	.22632-	.37312-	.37312-	.37312-		235.71172-	.33000-	.19810-
1131V	"	.03737-	.18982-	.18982-	.18982-		28.73953-		.13857-
1132V	"		.16092-	.16092-	.16092-		27.86770-	.05667-	.10238-
1133V	"	.72579-	.77661-	.77661-	.77661-		13.61360-	.05333-	.70286-
1134V	"	.24947-	.37652-	.37652-	.37652-		71.41333-	.06000-	.29714-
1135V	"	.61105-	.67881-	.67881-	.67881-		23.49384-	.02667-	.64048-
1136V	"	.02526-	.20312-	.20312-	.20312-		77.90627-	.23333-	.08333-
1137V	"	.00526-	.18312-	.18312-	.18312-		58.86229-	.16000-	.08238-
1138V	"	.11474-	.25872-	.25872-	.25872-		28.57481-	.09333-	.19476-
1139V	"						89.33804-		
1140V	"	.39684-	.51542-	.51542-	.51542-		165.62063-	.17000-	.30333-
1141V	"		.00491-	.00491-	.00491-		51.30583-		
1142V	"	.46895-	.56211-	.56211-	.56211-		24.75237-	.12667-	.46190-
1143V	"	.21211-	.34762-	.34762-	.34762-		148.43807-	.30000-	.22095-
1144V	"	.17263-	.34202-	.34202-	.34202-		188.14817-	.18333-	.05619-
1145V	"	.16000-	.32092-	.32092-	.32092-		93.83270-	.09667-	.20238-
1146V	"	.24263-	.41202-	.41202-	.41202-		182.23559-	.32333-	.05619-
1147V	"	.32947-	.45652-	.45652-	.45652-		217.06010-	.22333-	.29714-
1148V	"	.33211-	.46762-	.46762-	.46762-		193.07208-	.20667-	.23095-
1149V	"	.35211-	.48762-	.48762-	.48762-		162.87093-	.21667-	.22095-
1150V	"	.28421-	.39432-	.39432-	.39432-		8.40928-	.00667-	.27952-
1151V	Market for Edible Oils		.10092-	.10092-	.10092-		19.84300-		.07238-
1152V	External Markets								
1153V	"								
1154V	"								

Appendix C, Table 10. Shadow Prices, COLPR 1/, 1975, with Unrestricted Raw Material and Working Capital Alternatives

RESTRICTION SYMBOL	RESTRICTION NAME	MAX. VALUE ADDED (VA) WITH ALTERNATIVE WORKING CAPITAL (WK)			RESTRICTED WORKING CAPITAL (WK) AT 457 MILLIONS U.S. $				
		WK=365 MILL. U.S.$	WK=457 MILL. U.S.$	WK=489 MILL. U.S.$	MAX "VA"	MAX "EMPDM"	MAX "EMPTO"	MAX "LABOR"	MAX "P"
[illegible]3V	External Markets								
EX141V	"								
EX149V	"								
EX162V	"								
EX118V	"								
EX145RV	"								
IM145V	Inputs								
IM135RV	"								
IM124RV	"								
IM144RV	"								
IM110V	"								
IM137V	"								
IM141RV	"								
IM142V	"								
IM143V	"								
IM144V	"								
IM147V	"								
IM156V	"								
IM164RV	"								
IM125RV	"								
AG103V	Agr.Raw Material Avail.								
AG121V	"								
AG122V	"								
AG124V	"								
AG129V	"								
AG133V	"								
AG135V	"								
AG136V	"								
AG139V	"								
AG141V	"								
AG144V	"								
AG145V	"								
AG146V	"								
AG147V	"								
AG162V	"								
AG164V	"								
AG166V	"								
AG136CD	"								
AG136SB	"								
AG136SB	"								
AG136PA	"								
AG 142V									

1/ Comprised processing activities representing: (1) the existing 1968 Colombian technology, (2) alternative foreign technologies from various countries at different stages of development, and (3) investment activities for expanding processing capacities of all 48 agro-industries in the model.