

Table C.5.3(11/15)

ECONOMIC NET RETURN PER HECTARE FOR POTATO
UNDER WITH PROJECT CONDITION

Sub-Project Area: Tibacuy

	Unit	Unit Price (col.\$)	Quantity	Amount (1000Col.\$)
I. Income				
Agro-Product	kg/ha	17	19000	323
II. Farm Input				
1. Seed	kg/ha	17	1000	17
2. Calfos	kg/ha	11	1000	11
3. Organic Matters	kg/ha	24	3000	72
4. Fertilizer	kg/ha	54	1200	65
5. Insecticide	Times		3	18
6. Fungicide	Times		4	4
7. Agro-Material	/ha	0	0	0
8. Packing Materials	/ha	140	152	21
9. Labour Force				
a. Plowing	Man-Day	300	0	0
b. Harrowing	Man-Day	300	0	0
c. Nursery Preparation	Man-Day	300	0	0
d. Sowing/Transplanting	Man-Day	300	15	5
e. Agro-Materials	Man-Day	300	0	0
f. Appli. of Fertilizer	Man-Day	300	14	4
g. Appli. of Agro-Chemical	Man-Day	300	12	4
h. Appli. of Herbicide	Man-Day	300	0	0
i. Appli. of Calfos	Man-Day	300	4	1
j. Weeding	Man-Day	300	45	14
k. Water Management	Man-Day	300	25	8
l. Harvesting	Man-Day	300	38	11
m. Selection/Packing	Man-Day	300	8	2
n. Transplanting	Man-Day	300	8	2
Sub-Total			169	51
10. Animal Power	Animal Day	1500	7	11
11. Miscellaneous				14
Total				284
III. Net Income				39

Table C.5.3(12/15)

ECONOMIC NET RETURN PER HECTARE FOR MAIZE/PUMPKIN
UNDER WITH PROJECT CONDITION

Sub-Project Area: Tibacuy

	Unit	Unit Price (col.\$)	Quantity	Amount (1000Col.\$)
I. Income				
Agro-Product	-Maiz	kg/ha	28	1800
	-Ahuyama		18	11200
II. Farm Input				
1. Seed	-Maiz	kg/ha	150	25
	-Ahuyama		18	1.5
2. Calfos		kg/ha		0
3. Organic Matters		kg/ha		0
4. Fertilizer		kg/ha	54	0
5. Insecticide		times		650
6. Fungicide		times		3
7. Agro-Material		/ha		3
8. Packing Materials		/ha	140	104
9. Labour Force				15
a. Plowing	Man-Day	300	0	0
b. Harrowing	Man-Day	300	0	0
c. Nursery Preparation	Man-Day	300	0	0
d. Sowing/Transplanting	Man-Day	300	14	4
e. Agro-Materials	Man-Day	300	0	0
f. Appli. of Fertilizer	Man-Day	300	6	2
g. Appli. of Agro-Chemical	Man-Day	300	9	3
h. Appli. of Herbicide	Man-Day	300	0	0
i. Appli. of Calfos	Man-Day	300	0	0
j. Weeding	Man-Day	300	45	14
k. Water Management	Man-Day	300	6	2
l. Harvesting	Man-Day	300	21	6
m. Selection/Packing	Man-Day	300	13	4
n. Transplanting	Man-Day	300	10	3
Sub-Total			124	38
10. Animal Power	Animal Day	1500	7	11
11. Miscellaneous				5
Total				114
III. Net Income				138

Table C.5.3(13/15) ECONOMIC NET RETURN PER HECTARE FOR ONION
UNDER WITH PROJECT CONDITION

Sub-Project Area: Tibacuy

	Unit	Unit Price (col.\$)	Quantity	Amount (1000Col.\$)
I. Income				
Agro-Product	kg/ha	31	17000	527
II. Farm Input				
1. Seed	kg/ha	7710	2.5	19
2. Calfos	kg/ha	11	1000	11
3. Organic Matters	kg/ha	24	3000	72
4. Fertilizer	kg/ha	54	450	24
5. Insecticide	times		4	3
6. Fungicide	times		5	8
7. Agro-Material	/ha	0	0	0
8. Packing Materials	/ha	140	136	19
9. Labour Force				
a. Plowing	Man-Day	300	0	0
b. Harrowing	Man-Day	300	12	4
c. Nursery Preparation	Man-Day	300	10	3
d. Sowing/Transplanting	Man-Day	300	32	10
e. Agro-Materials	Man-Day	300	0	0
f. Appli. of Fertilizer	Man-Day	300	6	2
g. Appli. of Agro-Chemical	Man-Day	300	12	4
h. Appli. of Herbicide	Man-Day	300	0	0
i. Appli. of Calfos	Man-Day	300	4	1
j. Weeding	Man-Day	300	45	14
k. Water Management	Man-Day	300	22	7
l. Harvesting	Man-Day	300	33	10
m. Selection/Packing	Man-Day	300	13	4
n. Transplanting	Man-Day	300	10	3
Sub-Total			201	62
10. Animal Power	Animal Day	1500	7	11
11. Miscellaneous				11
Total				240
III. Net Income				287

Table C.5.3(14/15)

ECONOMIC NET RETURN PER HECTARE FOR TOMATO
UNDER WITH PROJECT CONDITION

Sub-Project Area: Tibacuy

	Unit	Unit Price (col.\$)	Quantity	Amount (1000Col.\$)
I. Income				
Agro-Product	kg/ha	33	21000	693
II. Farm Input				
1. Seed	kg/ha	12110	0.3	4
2. Calfos	kg/ha	11	1000	11
3. Organic Matters	kg/ha	24	3000	72
4. Fertilizer	kg/ha	54	450	24
5. Insecticide	times		5	10
6. Fungicide	times		12	22
7. Agro-Material	/ha	1	25000	25
8. Packing Materials	/ha	35	1400	49
9. Labour Force				
a. Plowing	Man-Day	300	0	0
b. Harrowing	Man-Day	300	12	4
c. Nursery Preparation	Man-Day	300	10	3
d. Sowing/Transplanting	Man-Day	300	32	10
e. Agro-Materials	Man-Day	300	35	11
f. Appli. of Fertilizer	Man-Day	300	8	2
g. Appli. of Agro-Chemical	Man-Day	300	24	7
h. Appli. of Herbicide	Man-Day	300	0	0
i. Appli. of Calfos	Man-Day	300	4	1
j. Weeding	Man-Day	300	45	14
k. Water Management	Man-Day	300	14	4
l. Harvesting	Man-Day	300	77	23
m. Selection/Packing	Man-Day	300	0	0
n. Transplanting	Man-Day	300	14	4
Sub-Total			275	83
10. Animal Power	Animal Day	1500	7	11
11. Miscellaneous				16
Total				327
III. Net Income				366

Table C.5.3(15/15)

ECONOMIC NET RETURN PER HECTARE FOR CUCUMBER
UNDER WITH PROJECT CONDITION

Sub-Project Area: Tibacuy

	Unit	Unit Price (col.\$)	Quantity	Amount (1000Col.\$)
I. Income				
Agro-Product	kg/ha	15	17000	255
II. Farm Input				
1. Seed	kg/ha	4070	4	16
2. Calfos	kg/ha	11	0	0
3. Organic Matters	kg/ha	24	0	0
4. Fertilizer	kg/ha	54	450	24
5. Insecticide	times		7	17
6. Fungicide	times		6	11
7. Agro-Material	/ha	1	25000	25
8. Packing Materials	/ha	35	1134	40
9. Labour Force				
a. Plowing	Man-Day	300	0	0
b. Harrowing	Man-Day	300	12	4
c. Nursery Preparation	Man-Day	300	0	0
d. Sowing/Transplanting	Man-Day	300	15	5
e. Agro-Materials	Man-Day	300	20	6
f. Appli. of Fertilizer	Man-Day	300	8	2
g. Appli. of Agro-Chemical	Man-Day	300	18	5
h. Appli. of Herbicide	Man-Day	300	0	0
i. Appli. of Calfos	Man-Day	300	0	0
j. Weeding	Man-Day	300	45	14
k. Water Management	Man-Day	300	20	6
l. Harvesting	Man-Day	300	65	20
m. Selection/Packing	Man-Day	300	0	0
n. Transplanting	Man-Day	300	13	4
Sub-Total			216	66
10. Animal Power	Animal Day	1500	7	11
11. Miscellaneous				11
Total				221
III. Net Income				34

Table C.5.4 (1) GROSS AND NET PRODUCTION VALUE OF FARM PRODUCTS
IN SUB-PROJECT AREA EXCEPT PILOT AREA

A) San Pedro de Iguaque

(Unit: 1,000 Col.\$)

	Without Project	With Project	Incremental
I. Gross Production Value			
Potato	19,421	21,964	
Maize	1,469	-	
Wheat	625	-	
Maize/Beans /1	-	2,108	
Welsh Onion	-	17,340	
Beans /2	-	7,548	
Beet	-	7,650	
Carrot	-	3,570	
Total	<u>21,515</u>	<u>60,180</u>	<u>38,665</u>
II. Gross Production Cost			
Potato	18,849	19,312	
Maize	1,959	-	
Wheat	639	-	
Maize/Beans /1	-	2,350	
Welsh Onion	-	13,872	
Beans /2	-	4,029	
Beet	-	4,658	
Carrot	-	2,448	
Total	<u>21,447</u>	<u>46,019</u>	<u>24,572</u>
III. Net Production Value	<u>68</u>	<u>14,161</u>	<u>14,093</u>

Remarks) /1: Broad Bean is proposed.

/2: Adopted to Kidny Bean, Pea, Snap Bean and Broad Bean

Table C.5.4 (2) GROSS AND NET PRODUCTION VALUE OF FARM PRODUCTS
IN SUB-PROJECT AREA EXCEPT PILOT AREA

B) Santa Sofia

(Unit: 1,000 Col.\$)

	Without Project	With Project	Incremental
I. Gross Production Value			
Potato	11,658	-	
Maize/Beans ^{/1}	6,330	4,431	
Wheat	310	1,952	
Onion	-	55,599	
Garlic	-	38,033	
Beans ^{/2}	6,887	27,325	
Others ^{/3}	3,684	-	
Total	28,869	127,340	98,471
II. Gross Production Cost			
Potato	10,603	-	
Maize/Beans ^{/1}	5,539	3,455	
Wheat	304	1,635	
Onion	-	25,320	
Garlic	-	16,564	
Beans ^{/2}	3,659	14,585	
Others ^{/3}	1,269	-	
Total	21,374	61,559	40,185
III. Net Production Value	7,495	65,781	58,286

Remarks) ^{/1}: Kidny Bean is proposed.

^{/2}: Adopted to Kidny Bean, Pea, etc.

^{/3}: Included with Cassava, Sugar Cane, etc.

Table C.5.4 (3) GROSS AND NET PRODUCTION VALUE OF FARM PRODUCTS
IN SUB-PROJECT AREA EXCEPT PILOT AREA

C) Caqueza (Unit: 1,000 Col.\$)

	Without Project	With Project	Incremental
I. Gross Production Value			
Maize/beans/ ^{/1} Pumpkin	-	33,360	
Maize/Beans/ ^{/1}	29,461	-	
Onion	16,288	82,733	
Beans	25,149/ ^{/3}	48,039/ ^{/2}	
Tomato	21,054	55,044	
Peruvian Carrot	-	18,348	
Total	<u>91,952</u>	<u>237,524</u>	<u>145,572</u>
II. Gross Production Cost			
Maize/Beans/ ^{/1} Pumpkin	-	14,011	
Maize/Beans/ ^{/1}	19,891	-	
Onion	6,830	39,865	
Beans	13,423/ ^{/3}	25,521/ ^{/2}	
Tomato	9,420	26,771	
Peruvian Carrot	-	9,174	
Total	<u>49,564</u>	<u>115,342</u>	<u>65,778</u>
III. Net Production Value	<u>42,388</u>	<u>122,182</u>	<u>79,794</u>

Remarks) ^{/1}: Kidny Bean is proposed.

^{/2}: Adopted to Pea, Snap Bean, etc.

^{/3}: Adopted to Pea, Snap Bean, Kidny Bean, etc.

Table C.5.4 (4) GROSS AND NET PRODUCTION VALUE OF FARM PRODUCTS
IN SUB-PROJECT AREA EXCEPT PILOT AREA

D) Tibacuy

(Unit: 1,000 Col.\$)

	Without Project	With Project	Incremental
I. Gross Production Value			
Potato	950	2,778	
Maize/Beans ^{/2}	1,517	-	
Maize/Pumpkin	-	2,167	
Beans	4,739 ^{/3}	8,901 ^{/1}	
Onion	-	9,064	
Tomato	4,257	5,960	
Cucumber	-	2,193	
Others ^{/4}	967	-	
Coffee	133,800	174,000	
Total	146,230	205,063	58,833
II. Gross Production Cost			
Potato	864	2,442	
Maize/Beans ^{/2}	1,084	-	
Maize/Pumpkin	-	980	
Beans	2,516 ^{/3}	4,730 ^{/1}	
Onion	-	4,128	
Tomato	2,116	2,838	
Cucumber	-	1,901	
Others ^{/4}	361	-	
Coffee	13,400	26,800	
Total	20,341	43,819	23,178
III. Net Production Value	125,889	161,244	35,355

Remarks) ^{/1}: Adopted to Kidney Bean, Snap Bean, etc.
^{/2}: Kidney Bean is proposed.
^{/3}: Adopted to Kidney Bean, Pea, Snap Bean
^{/4}: Included with Cassava, Sugar Cane, etc.

Table C.5.5 (1) GROSS AND NET PRODUCTION VALUE OF FARM PRODUCTS
IN PILOT AREA

A) San Pedro de Iguaque (26 ha)

(Unit: 1,000 Col.\$)

	Without Project	With Project	Incremental
I. Gross Production Value			
Potato	3,713	4,199	
Maize	281	-	
Wheat	120	-	
Maize/Beans /1	-	403	
Welsh Onion	-	3,315	
Beans /2	-	1,443	
Beet	-	1,463	
Carrot	-	683	
Total	<u>4,114</u>	<u>11,506</u>	<u>7,392</u>
II. Gross Production Cost			
Potato	3,604	3,692	
Maize	374	-	
Wheat	122	-	
Maize/Beans /1	-	325	
Welsh Onion	-	2,652	
Beans /2	-	771	
Beet	-	891	
Carrot	-	468	
Total	<u>4,100</u>	<u>8,799</u>	<u>4,699</u>
III. Net Production Value	<u>14</u>	<u>2,707</u>	<u>2,693</u>

Remarks) /1: Broad Bean is proposed.

/2: Adopted to Kidny Bean, Pea, Snap Bean and Broad Bean

Table C.5.5 (2) GROSS AND NET PRODUCTION VALUE OF FARM PRODUCTS
IN PILOT AREA

B) Santa Sofia

(Unit: 1,000 Col.\$)

	Without Project	With Project	Incremental
I. Gross Production Value			
Potato	1,547	-	
Maize/Beans ^{/1}	840	588	
Wheat	41	259	
Onion	-	7,378	
Garlic	-	5,047	
Beans ^{/2}	914	3,626	
Others ^{/3}	489	-	
Total	3,831	16,898	13,067
II. Gross Production Cost			
Potato	1,407	-	
Maize/Beans ^{/1}	735	459	
Wheat	40	217	
Onion	-	3,360	
Garlic	-	2,198	
Beans ^{/2}	485	1,936	
Others ^{/3}	169	-	
Total	2,836	8,170	5,334
III. Net Production Value	995	8,728	7,733

Remarks) ^{/1}: Kidny Bean is proposed.

^{/2}: Adopted to Kidny Bean, Pea, etc.

^{/3}: Included with Cassava, Sugar Cane, etc.

Table C.5.5 (3) GROSS AND NET PRODUCTION VALUE OF FARM PRODUCTS
IN PILOT AREA

C) Tibacuy

(Unit: 1,000 Col.\$)

	Without Project	With Project	Incremental
I. Gross Production Value			
Potato	-	323	
Maize/Pumpkin	-	252	
Beans/ ¹	-	1,035	
Onion	-	1,054	
Tomato	-	693	
Cucumber	-	255	
Coffee	6,690	8,700	
Total	<u>6,690</u>	<u>12,312</u>	<u>5,622</u>
II. Gross Production Cost			
Potato	-	284	
Maize/Pumpkin	-	114	
Beans/ ¹	-	550	
Onion	-	480	
Tomato	-	330	
Cucumber	-	221	
Coffee	670	1,340	
Total	<u>670</u>	<u>3,319</u>	<u>2,649</u>
III. Net Production Value	<u>6,020</u>	<u>8,993</u>	<u>2,973</u>

Remark) /¹:Adopted to Kidny Bean, Snap Bean, etc.

Table C.5.6 (1) GROSS PRODUCTION VALUE AND GROSS PRODUCTION COST
PER HA OF FARM PRODUCTS

Sub-project area: San Pedro de Iquaque

(Unit: 1,000 Col.\$/ha)

Farm Products	Gross Production Value	Gross Production Cost	Net Production Value
I. With Project			
Potato	323	284	39
Maize/Beans ^{/1}	124	100	24
Welsh Onion	510	408	102
Beans ^{/2}	148	79	69
Beet	225	137	88
Carrot	210	144	66
II. Without Project			
Potato	204	198	6
Maize	36	48	-12
Wheat	46	47	-1

Remarks: ^{/1}: Broad Bean is proposed.

^{/2}: Adopted to Kidny Bean, Pea, Snap Bean and Broad Bean

Note) See Table C.5.2 and C.5.3

Table C.5.6 (2) GROSS PRODUCTION VALUE AND GROSS PRODUCTION COST
PER HA OF FARM PRODUCTS

Sub-project area: Santa Sofia

(Unit: 1,000 Col.\$/ha)

Farm Products	Gross Production Value	Gross Production Cost	Net Production Value
I. With Project			
Maize/Beans ^{/1}	168	131	37
Wheat	74	62	12
Onion	527	240	287
Garlic	721	314	407
Beans ^{/2}	148	79	69
II. Without Project			
Maize/Beans ^{/1}	120	105	15
Wheat	49	48	1
Potato	221	201	20
Beans ^{/2}	96	51	45
Others ^{/3}	153	50	103

Remarks: ^{/1}: Kidny Bean is proposed.

^{/2}: Adopted to Kidny Bean, Pea, etc.

^{/3}: Included with Cassava, Sugar Cane, etc.

Note) See Table C.5.2 and C.5.3

Table C.5.6 (3) GROSS PRODUCTION VALUE AND GROSS PRODUCTION COST
PER HA OF FARM PRODUCTS

Sub-project area: Caqueza

(Unit: 1,000 Col.\$/ha)

Farm Products	Gross Production Value	Gross Production Cost	Net Production Value
I. With Project			
Maize/Beans ^{/1} /Pumpkin	400	168	232
Onion	496	239	257
Beans ^{/2}	192	102	90
Tomato	660	321	339
Peruvian Carrot	220	110	110
II. Without Project			
Maize/Beans ^{/1}	157	106	51
Onion	434	182	252
Beans ^{/3}	163	87	76
Tomato	561	251	310

Remarks) ^{/1}: Kidny Bean is proposed.

^{/2}: Adopted to Pea, Snap Bean, etc.

^{/3}: Adopted to Pea, Sanp Bean, Kidny Bean, etc.

Note) See Table C.5.2 and C.5.3

Table C.5.6 (4) GROSS PRODUCTION VALUE AND GROSS PRODUCTION COST
PER HA OF FARM PRODUCTS

Sub-project area: Tibacuy

(Unit: 1,000 Col.\$/ha)

Farm Products	Gross Production Value	Gross Production Cost	Net Production Value
I. With Project			
Potato	323	284	39
Maize/Pumpkin	252	114	138
Onion	527	240	287
Beans ^{/1}	207	110	97
Tomato	693	330	363
Cucumber	255	221	34
Coffee	870	134	736
II. Without Project			
Potato	221	201	20
Maize/Beans ^{/2}	147	105	42
Beans ^{/3}	145	77	68
Tomato	495	246	249
Others ^{/4}	153	50	103
Coffee	669	67	602

Remarks) ^{/1}: Adopted to Kidny Bean, Snap Bean, etc.

^{/2}: Kidny Bean is proposed.

^{/3}: Adopted to Kidny Bean, Pea, Snap Bean

^{/4}: Included with Cassava, Sugar Cane, etc.

Note) See Table C.5.2 and C.5.3

Table C.5.7 AMOUNT OF MARKETED MAJOR FARM PRODUCTS FROM PROJECT AREA

I. Without Project

	(Unit: ton)														
	Production Amount (ton)					Consumed Amount in Project Area					Marketed Amount				
	Iguaque	Sofia	Caqueza	Tibacuy	Total	Iguaque	Sofia	Caqueza	Tibacuy	Total	Iguaque	Sofia	Caqueza	Tibacuy	Total
Potato	1,356	780		52	2,188	30	108		21	159	1,326	672		31	2,029
Wheat	31	13			44		9			9	31	4			35
Maize	53	67	334	11	465	10	36	45	7	98	43	31	289	4	367
Kidney Bean		65	230	18	313		4	7	1	12		61	223	17	301
Pea		79	171	26	276		4	7	2	13		75	164	24	263
Snap Bean			342	104	446			7	2	9			335	102	437
Onion			532		532			23		23			509		509
Tomato			646	135	781			14	2	16			632	133	765
Others		240		40	280		22		4	26			218	36	254
Coffee		450		135	585		L.S		L.S				450	135	585
				210	210									210	210

II. With Project

	(Unit: ton)														
	Production Amount (ton)					Consumed Amount in Project Area					Marketed Amount				
	Iguaque	Sofia	Caqueza	Tibacuy	Total	Iguaque	Sofia	Caqueza	Tibacuy	Total	Iguaque	Sofia	Caqueza	Tibacuy	Total
Potato	1,539			190	1,729	30			21	51	1,509			169	1,678
Maize	35	53	173	18	279	10	36	45	7	98	25	17	128	11	181
Broad Bean	76				76	1				1	75				75
Pea	135	297	282		714	1	4	7		12	134	293	275		702
Welsh Onion	1,230				1,230	2				2	1,228				1,228
Beet	615				615	3				3	612				612
Carrot	300				300	3				3	297				297
Wheat		63			63		9			9		54			54
Kidney Bean		143	86	27	256		4	7	1	12		128	79	26	244
Onion		2,023	2,839	323	5,185		9	23	3	35		2,014	2,816	320	5,150
Garlic		420			420		L.S			L.S		420			420
Snap Bean			1,670	319	1,989			7	2	9			1,663	317	1,980
Tomato			1,596	210	1,806			14	2	16			1,582	208	1,790
Peruvian Carrot			830		830			20		20			810		810
Cucumber				153	153				2	2				151	151
Pumpkin			863	112	975			20	3	23			843	109	952
Coffee				294	294										

Table C.5.8 AMOUNT OF SELF CONSUMPTION IN THE PROJECT AREA

	Population	Per-capita Consumption (kg/year)	Total Consumption in the Project Area (1,000 kg/year)
San Pedro de Iguaque	498		
Potato		60 ^{/1}	30
Maize		20 ^{/1}	10
Broad Bean		2 ^{/3}	1
Welsh Onion		5 ^{/5}	2
Pea		2 ^{/3}	1
Beet		6 ^{/4}	3
Carrot		6 ^{/2}	3
Santa Sofia	1,794		
Maize		20 ^{/1}	36
Kidney Bean		2 ^{/2}	4
Wheat		5 ^{/2}	9
Onion		5 ^{/2}	9
Pea		2 ^{/3}	4
Caqueza	2,274		
Maize		20 ^{/1}	45
Onion		10 ^{/2}	23
Kidney Bean		3 ^{/2}	7
Pea		3 ^{/3}	7
Snap Bean		3 ^{/3}	7
Tomato		6 ^{/2}	14
Pumpkin		9 ^{/4}	20
Peruvian Carrot		9 ^{/4}	20
Tibacuy	344		
Potato		60 ^{/1}	21
Maize		20 ^{/1}	7
Pumpkin		9 ^{/4}	3
Onion		10 ^{/5}	3
Kidney Bean		3 ^{/3}	1
Snap Bean		3 ^{/3}	1
Tomato		6 ^{/6}	2
Cucumber		6 ^{/2}	2

Remarks) /1: Farm economic survey
/2: From Ministry of Agriculture
/3: Applied figure of Kidney Bean
/4: Applied figure of Carrot
/5: Applied figure of Onion
/6: Applied figure of Tomato

Note) Amount of per-capita consumptions of farm products is various by each Department

Table C.5.9 MARKETED AMOUNT AND TOTAL AMOUNT OF TRANSACTION IN CORABASTOS

	Marketed Amount (Without Project)			Marketed Amount (With Project)			Transaction Amount in CORABASTOS(C)	Portion				
	Iguaque	Sofia	Tibacuy Total(A)	Iguaque	Sofia	Tibacuy Total(B)		(A)/(C)	(B)/(C)			
Potato	1,326	672	-	31	2,029	1,509	-	169	1,678	183,336	1.1	0.9
Maize	43	31	289	4	367	25	17	128	181	15,578	2.4	1.2
Onion	-	-	509	-	509	-	2,014	2,816	5,150	36,444	1.4	14.1
Welsh Onion	-	-	-	-	-	1,228	-	-	1,228	52,527	-	2.3
Pea	-	75	164	24	263	134	293	275	702	-	-	-
Kidney Bean	-	61	223	17	301	-	139	79	242	-	-	-
Broad Bean	-	-	-	-	-	75	-	-	75	44,530	2.2	8.9
Snap Bean	-	-	335	102	437	-	-	1,663	1,980	-	-	-
Pumpkin	-	-	-	-	-	-	-	843	952	-	-	-
Tomato	-	-	632	133	765	-	-	1,582	1,790	-	-	-
Cucumber	-	-	-	-	-	-	-	-	151	50,003	1.5	3.9
Carrot	-	-	-	-	-	297	-	-	297	68,510	-	1.3
Beet	-	-	-	-	-	612	-	-	612	-	-	-
Garlic	-	-	-	-	-	-	420	-	420	-	-	-
Peruvian	-	-	-	-	-	-	-	810	810	-	-	-
Carrot	-	218	-	36	254	-	-	-	-	15,109	-	1.7
Cassava	-	450	-	135	585	-	-	-	-	-	-	-
Sugar Cane	31	4	-	-	35	-	54	-	54	-	-	-
Wheat	-	-	-	210	210	-	-	-	273	-	-	-
Coffee	-	-	-	-	-	-	-	-	-	-	-	-

Table C.5.10 TRANSACTION AMOUNT OF MAJOR FARM PRODUCTS
IN CORABASTOS UNDER FUTURE CONDITION

	Transaction Amount Per-Capita (kg/year)	Total Transaction Amount (1,000 ton)		
		1985 ^{/1}	1995 ^{/1}	Increased
Potato				
Onion	9.18	36,444	52,381	15,937
Welsh Onion	13.24	52,527	75,547	23,020
Tomato	10.08	40,002	57,516	17,514
Pea	3.93	15,585	22,425	6,840
Kidny Bean	0.56	2,227	3,195	968
Snap Bean	5.61	22,265	32,011	9,746
Broad Bean	1.12	4,453	6,391	1,938
Garlic	0.84	3,352	4,793	1,441
Cucumber	1.26	5,000	7,190	2,190

Remarks) ^{/1}: Total population (1985, 1995) x Transaction amount
per-capita

Table C.5.11 AMOUNT OF TRANSACTION OF VEGETABLES
IN CORABASTOS, 1985

Vegetables	Volume (ton)	Percentage (%)
Carrot	58,233	18
Welsh Onion	52,527	16
Tomato	40,002	12
Onion	36,443	11
Cabbage	23,892	7
Snap Bean	22,265	8
Pea	15,585	5
Beet	10,277	3
Spinach	6,704	2
Lettuce	5,028	1
Salt-wort	5,028	1
Cucumber	5,000	1
Broad Bean	4,453	1
Cilantro	3,352	1
Garlic	3,352	1
Red Pepper	4,500	1
Kidny Bean	2,227	1
Others	31,334	10
<u>Total</u>	<u>330,202</u>	<u>100</u>

Source) CORABASTOS

Table C.5.12 POPULATION TREND IN BOGATA D.E.

Year	Urban Area (x 1,000)	Rural Area (x 1,000)	Total (x 1,000)
1964	1,662	35	1,697
1973	2,557	14	2,571
1985	3,958	10	3,968
1995 ^{/1}	5,692	14	5,706

Source) Population Census, DANE

Note) /1: Prospected by Increase Rate of 3.7%

Table C.5.13 AMOUNT OF FARM INPUT
IN THE PROJECT AREA

(Unit: ton)

	Fertilizer	Organic Fertilizer	Soil Conditioning Material
San Pedro de Iquaque			
With Project	366	122	168
Without Project	103	113	57
Balance	263	9	111
Santa Sofia			
With Project	657	179	168
Without Project	60	30	92
Balance	597	149	76
Caqueza			
With Project	753	251	309
Without Project	76	19	149
Balance	677	232	160
Tibacuy			
With Project	117	39	241
Without Project	13	2	83
Balance	104	37	158
Total			
With Project	1,893	591	886
Without Project	252	164	381
Balance	1,641	427	505

Table C.6.1 STAFFS IN EACH ICA DISTRICT

	Senior Technicians	Junior Technicians	No. of Registered Municipio
Tunja	14	36	38
Chiquinquirá	4	15	4
Caqueza	4	24	8
Fusagasuga	3	15	7
Total	25	90	57

Source) ICA

Table C.6.2 SUMMARIZED CREDIT CONDITION - CAJA AGRARIA -

	Interest ^{/1} Rate (%)	Amortization Period	Grace Period	Maximum Loan
I. Annual Crop (Food Crops, Vegetables, etc.)				
Farmer's Equity				
a. Less than Col.\$300,000	18	} /2	} 0-1 year	Col.\$1,500,000
b. Col.\$300,000 - Col.\$1,800,000	21			
c. More than Col.\$1,800,000	23			
II. Perennial Crop (Coffee, Fruits, etc.)				
Farmer's Equity				
a. Less than Col.\$100,000	18	} /2	} 1-4 year	Col.\$1,500,000
b. Col.\$100,000 - Col.\$1,200,000	21			
c. Col.\$1,200,000 - Col.\$1,800,000	23			
d. More than Col.\$1,800,000	29			

Remarks)

/1: Interest Rate for Delay

<u>Initial Rate (%)</u>	<u>Rate for Delay (%)</u>	<u>Total Rate (%)</u>
18	18	36
21	15	36
23	13	36
29	7	36

/2: 0 - 12 months depending on type of activity

Table C.6.3 SUMMARIZED CREDIT CONDITION - FEDECAFE -

	Maximum Area	Interest Rate	Maximum Loan	Repayment ^{/1} Period	Grace Period
I. Banco Cafetero Credit					
1. Short Term					
For Maintenance of Coffee Farming		22 (Less than Col.\$1,000,000)	Col.\$60,000/ha	0-1 year	During the period of selling of coffee bean
Mordern					
Traditional		24 (More than Col.\$1,000,000)	Col.\$35,000/ha	90 days	
			Col.\$8,000/125 kg		
For Harvesting of Coffee Bean				6 years	2 years
2. Long Term					
	1-3 ha	20-22	Col.\$160,000/ha		
II. FFAP Credit					
1. Short Term					
For Maintenance of Coffee Farming				0-1 year	
Mordern			Col.\$60,000/ha		
Traditional		22	Col.\$35,000/ha	6 years	2 years
			Col.\$160,000/ha		
2. Medium Term					
	1-3 ha				

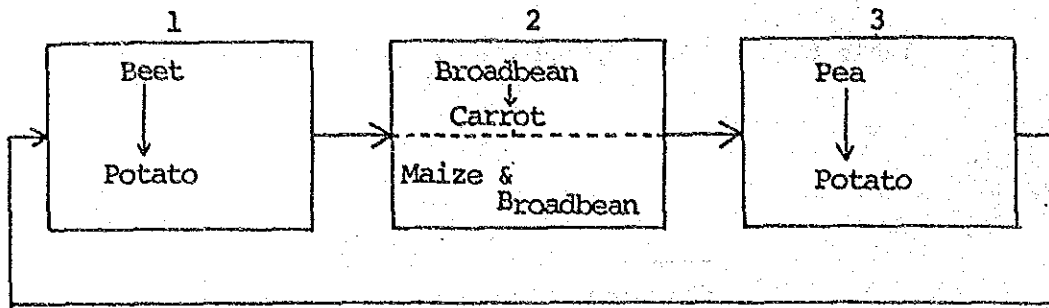
Remark) /1: Including with grace period

Table C.6.4 PARTICIPANTS OF CAJA AGRARIA IN 1983

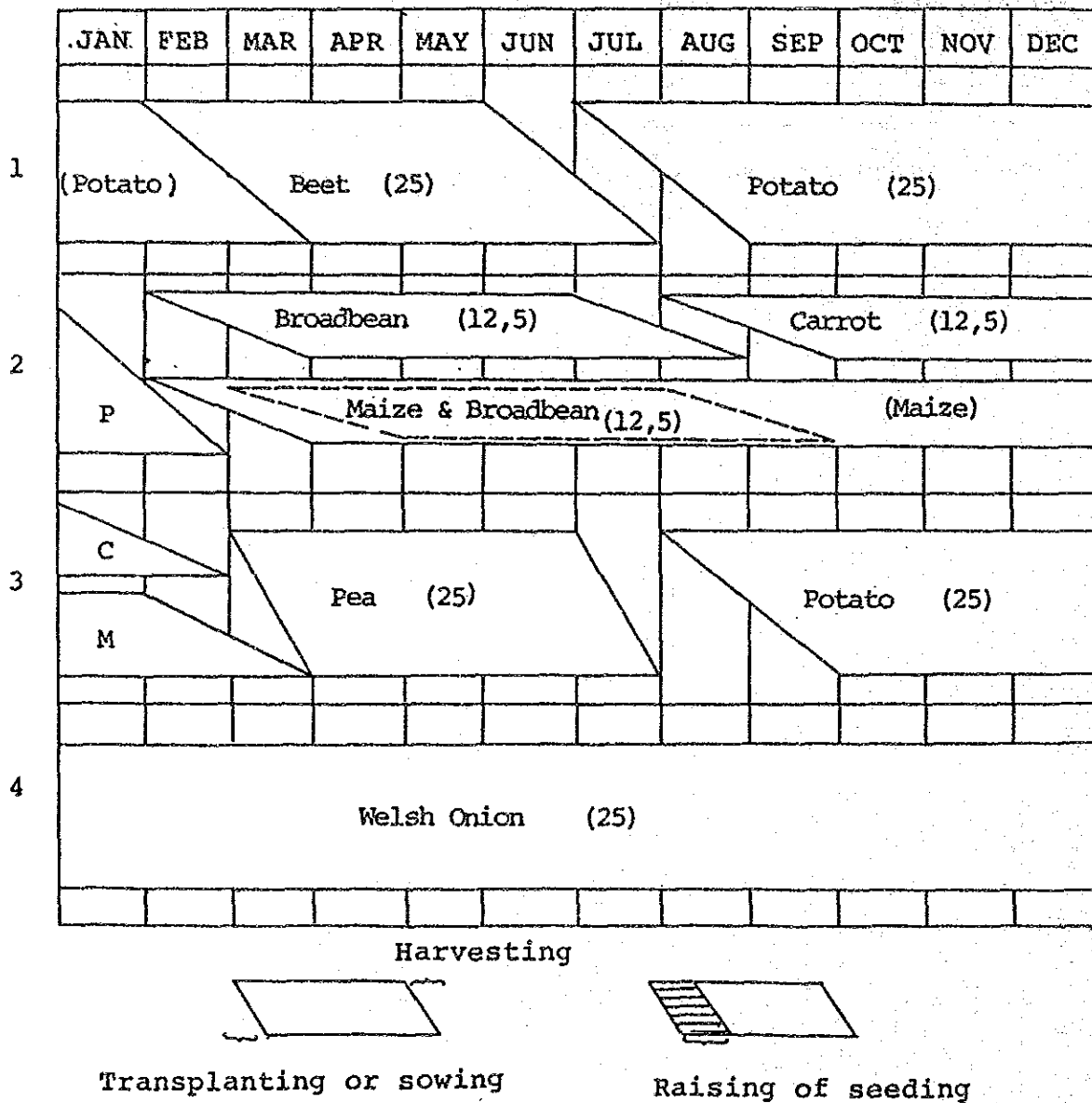
	Municipio			
	Chiquiza	Santa Sofia	Caqueza	Tibacuy
Total Farmer	635	754	2,096	792
Participants	389	501	855	367
%	61	66	41	46

Source: Inventario Sobre Aspectos, Caja Agraria, 1984

o Cropping Rotation



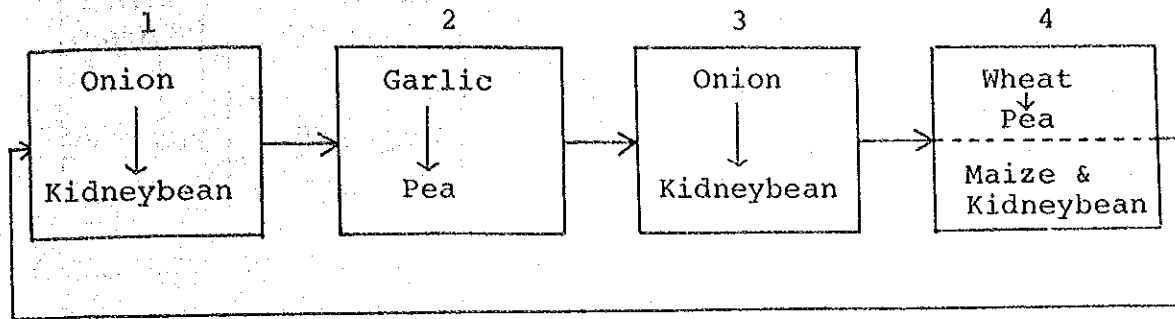
c Cropping Calendar



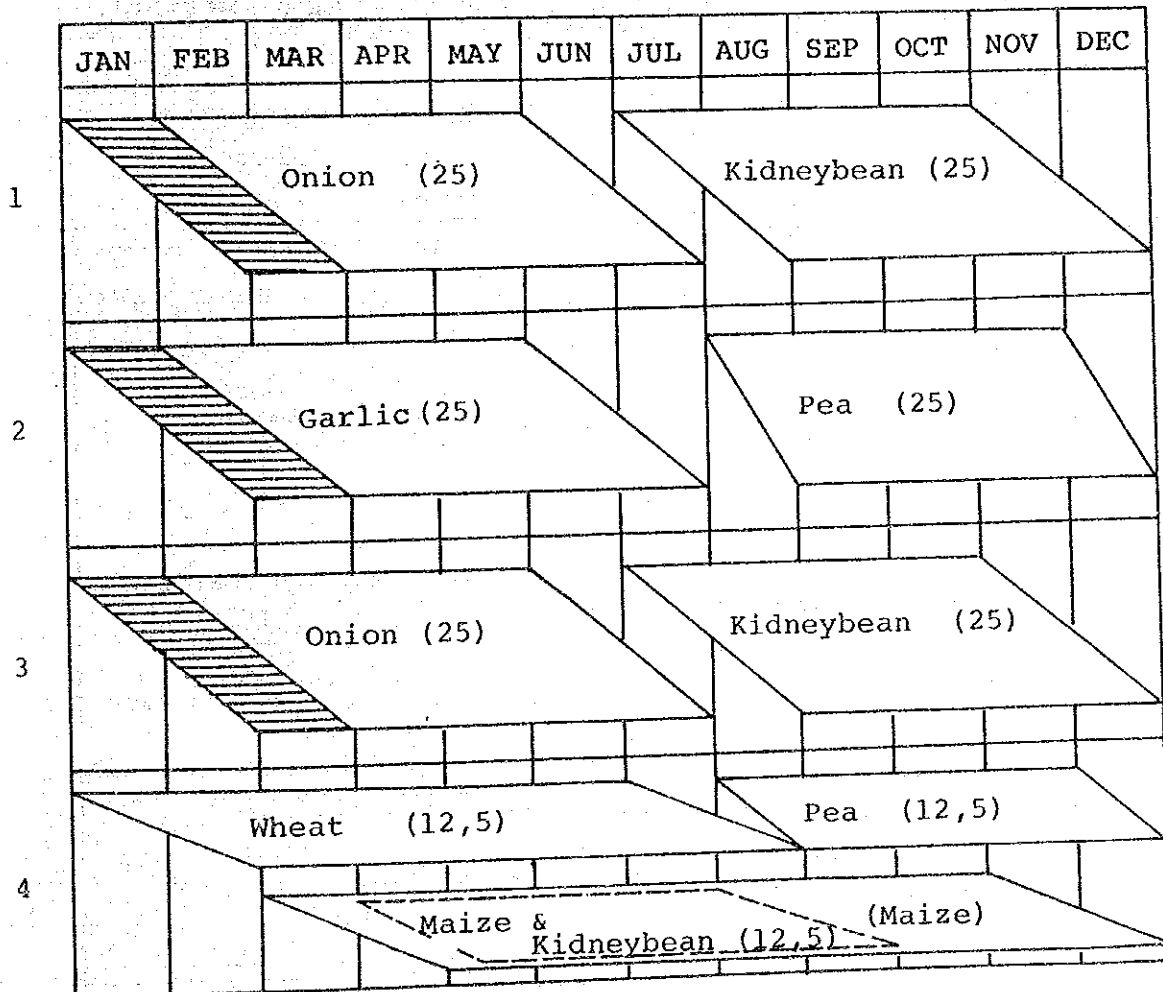
(1) San Pedro de Iguaque

Fig C.1.1 Cropping calendar - Type A

o Cropping Rotation

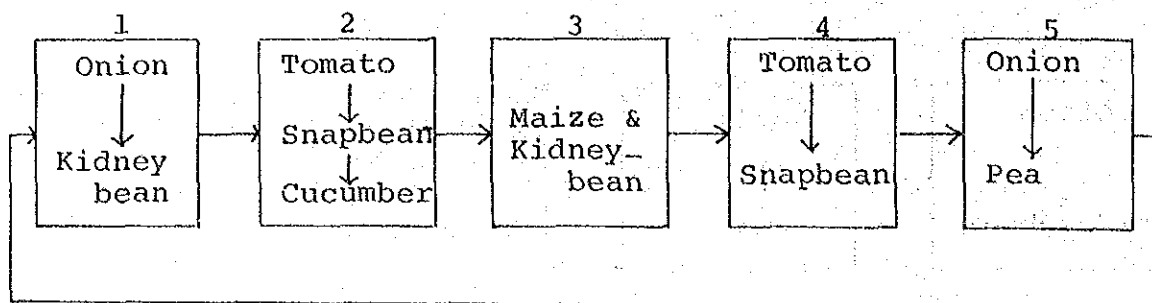


o Cropping Calendar

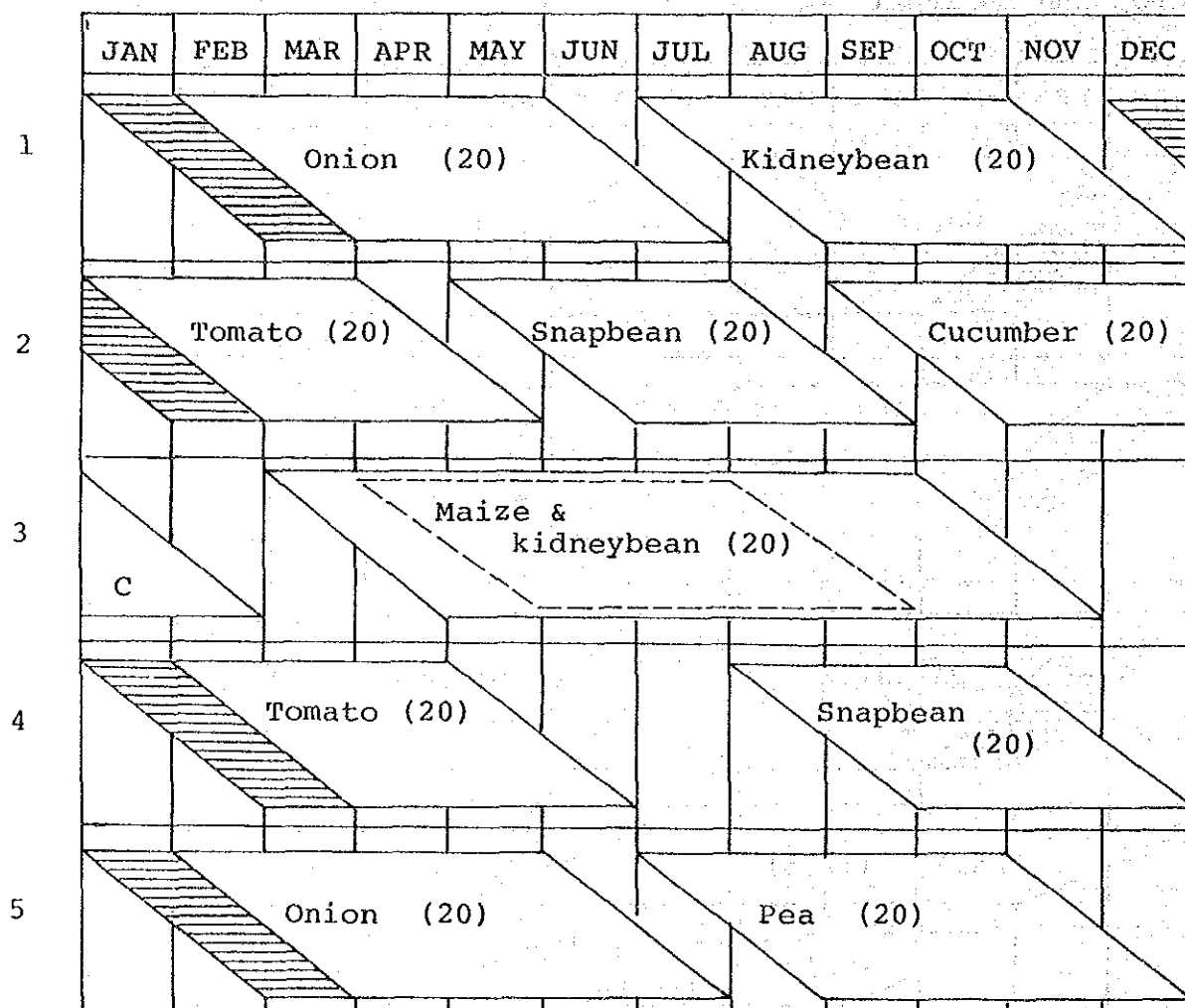


(2) Santa Sofia

o Cropping Rotation

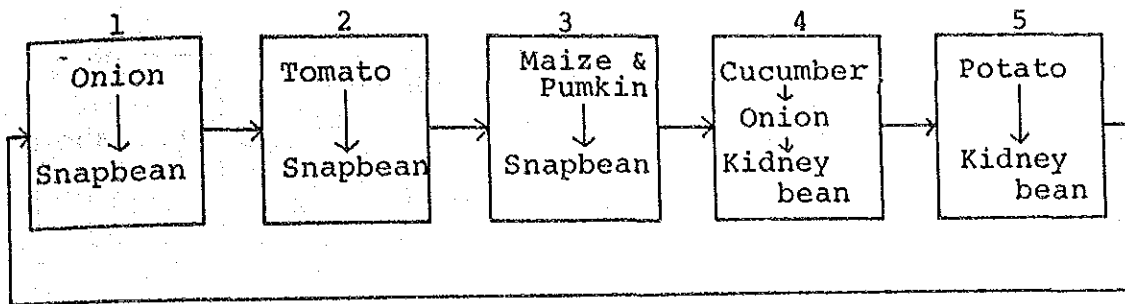


o Cropping Calendar

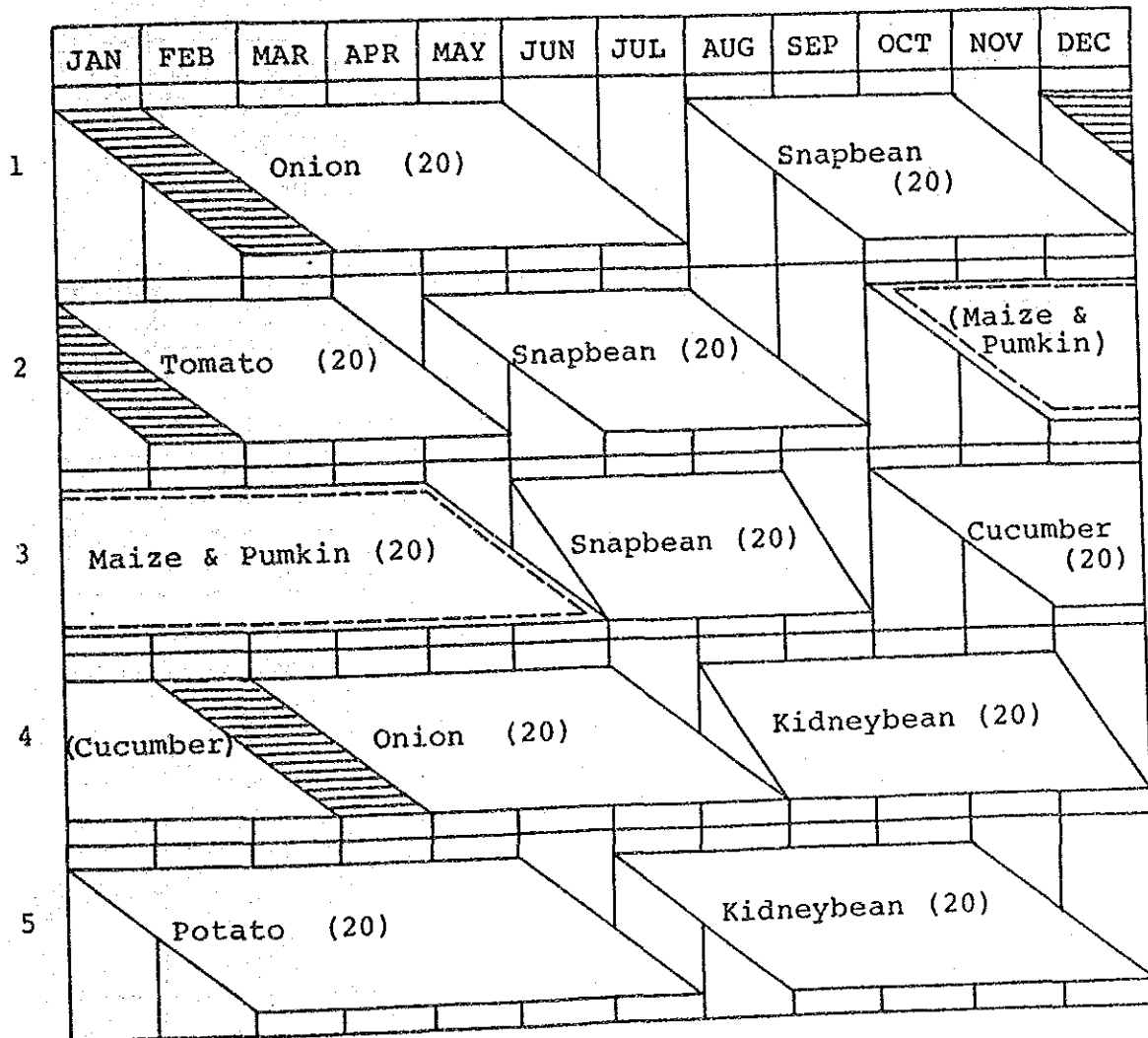


(3) Caqueza

o Cropping Rotation

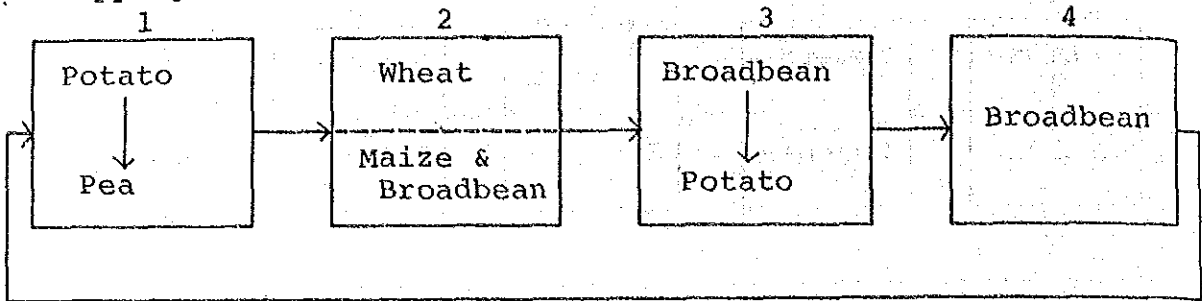


o Cropping Calendar

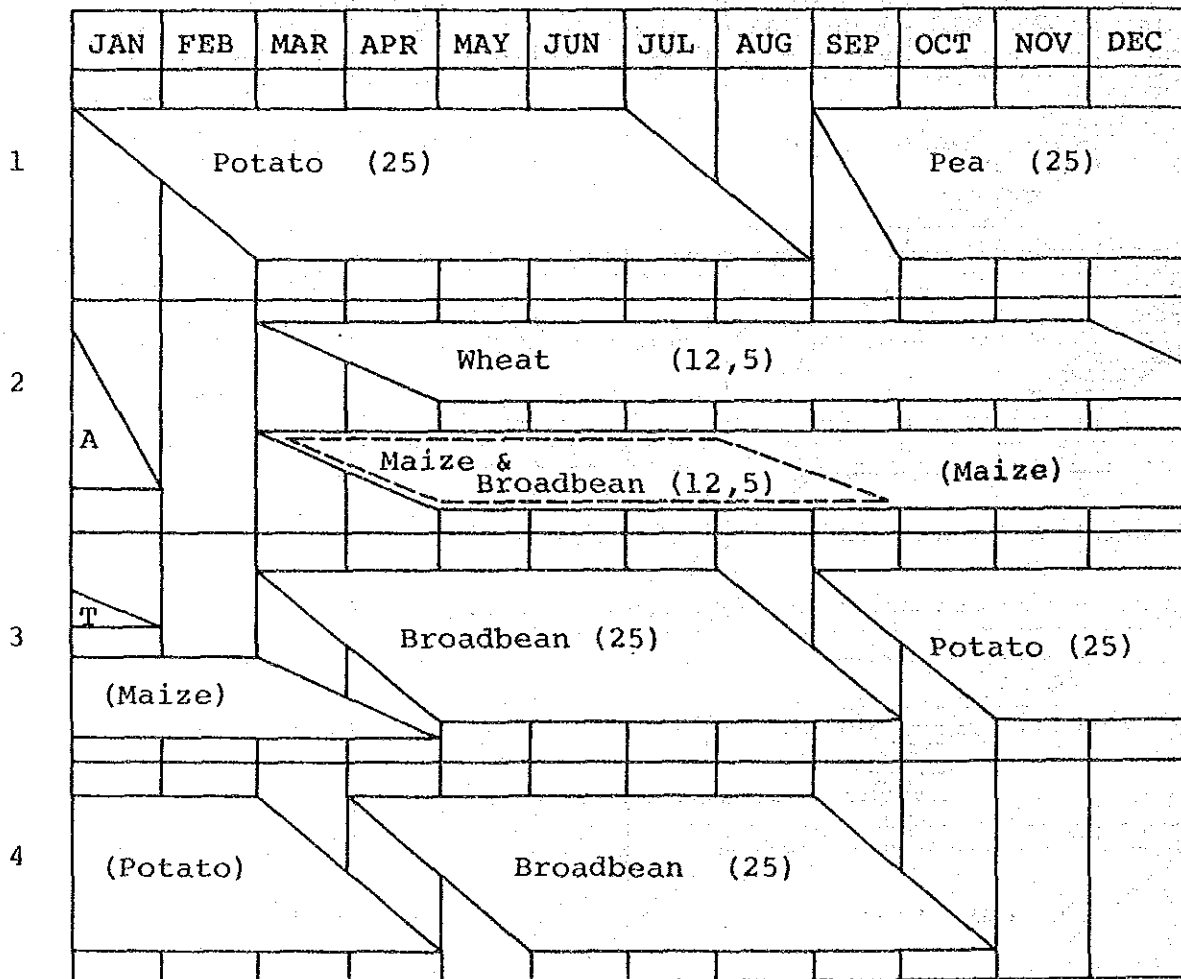


(4) Tibacuy

o Cropping Rotation



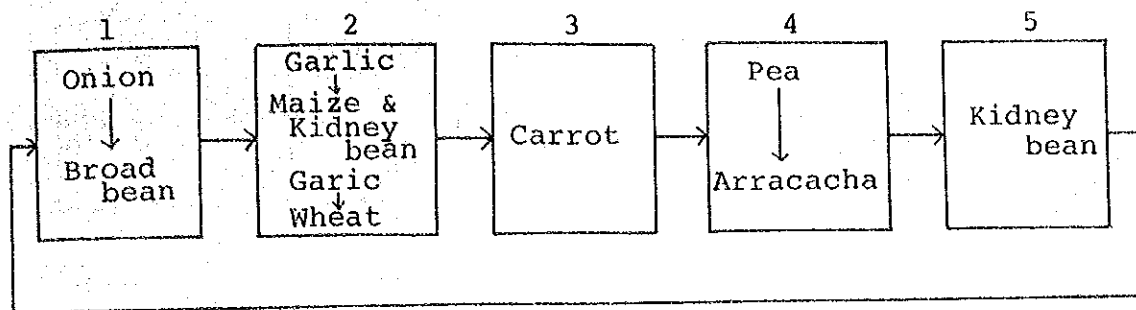
o Cropping Calendar



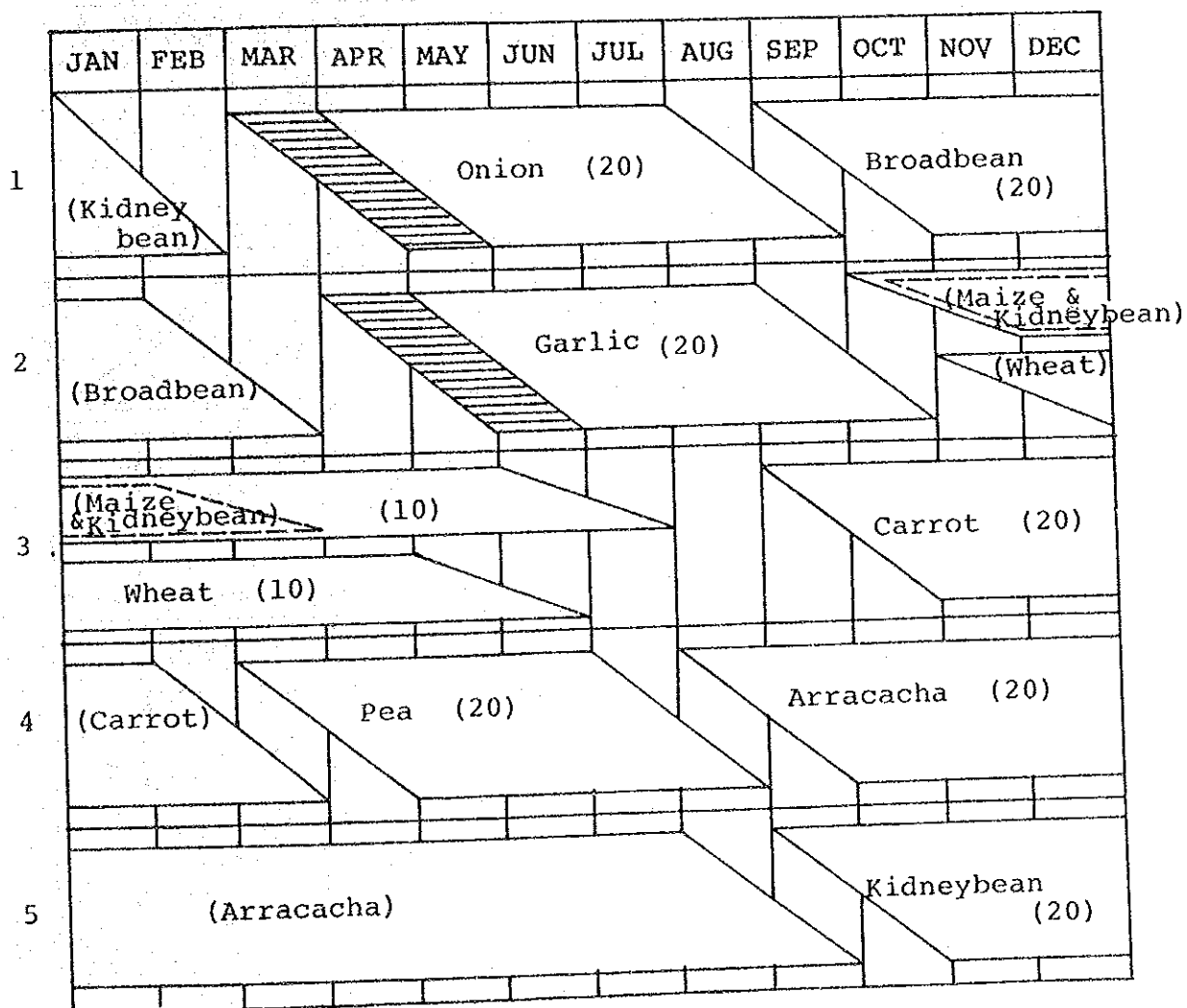
(1) San Pedro de Iguaque

Fig C.1.2 Cropping calendar - Type B

o Cropping Rotation

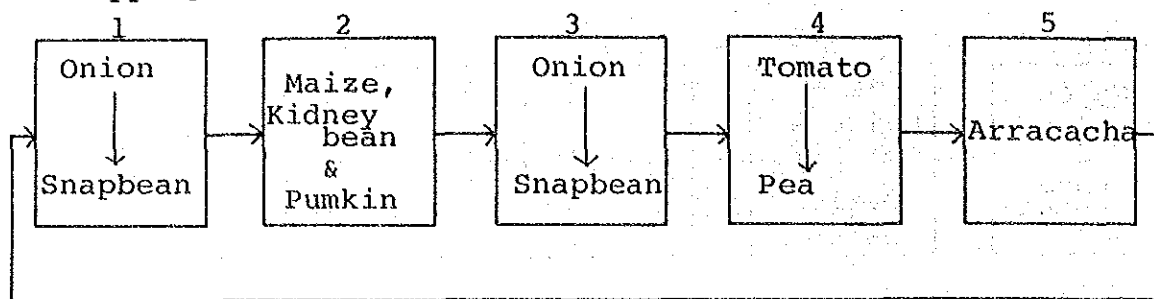


o Cropping Calendar



(2) Santa Sofia

o Cropping Rotation

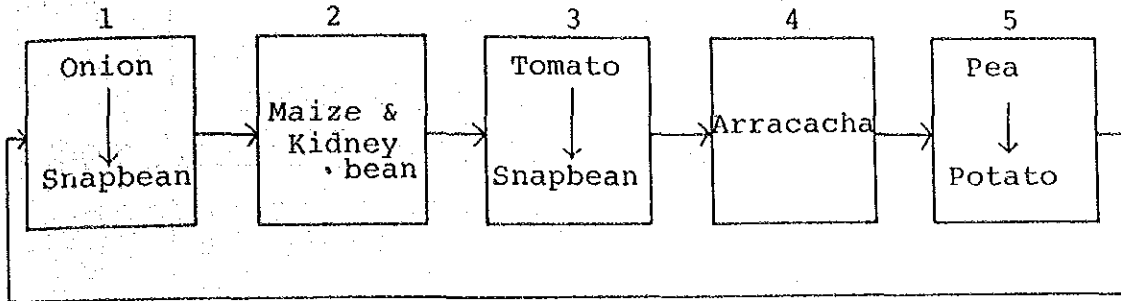


o Cropping Calendar

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	(Arracacha)		Onion (20)						Snapbean (20)			
2			Maize, Kidneybean & Pumpkin (20)									
3			Onion (20)						Snapbean (20)			
4			Tomato (20)						Pea (20)			
5	P		Arracacha (20)									

(3) Caqueza

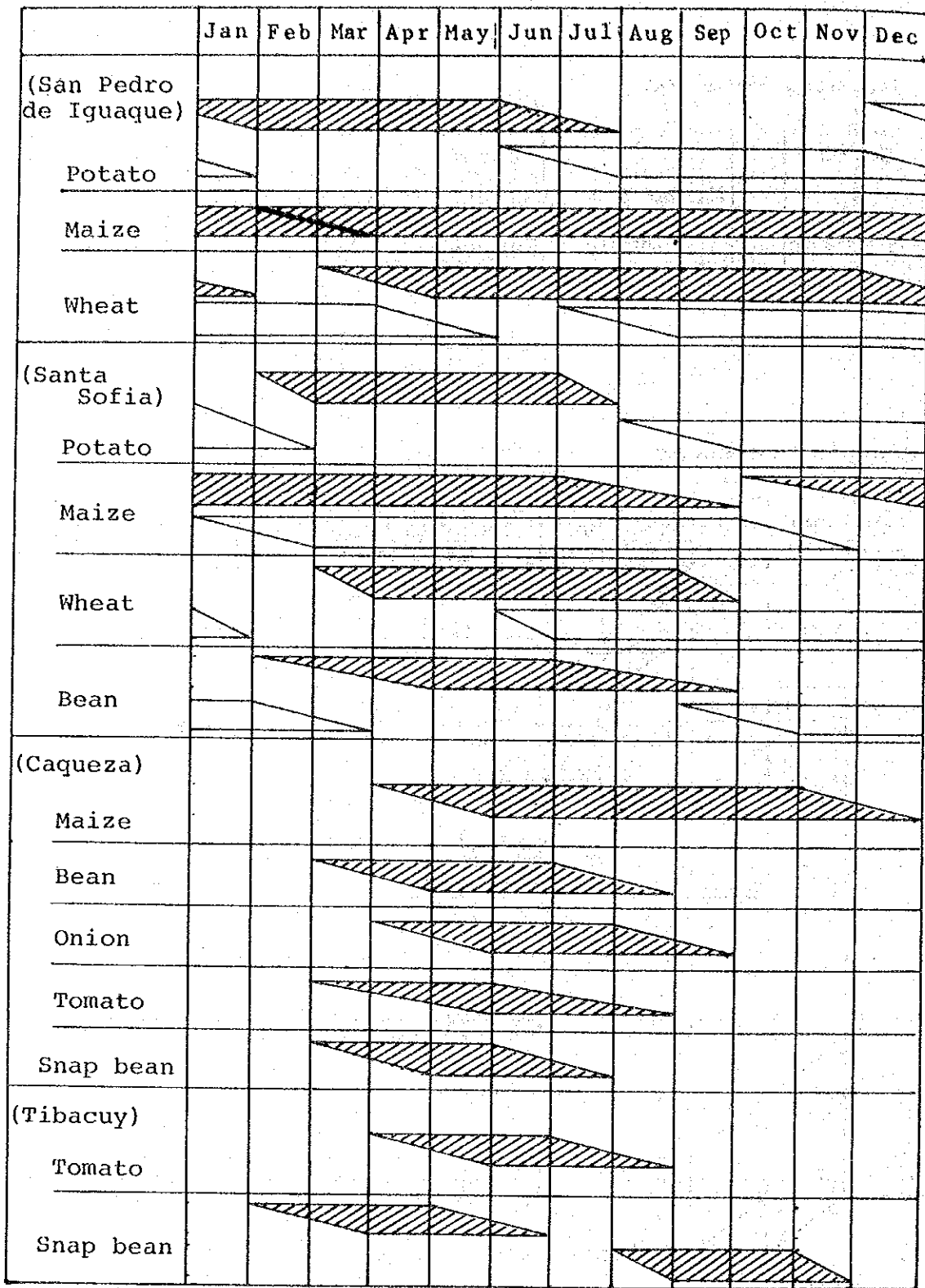
o Cropping Rotation



o Cropping Calendar

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	(Potato)		Onion (20)						Snapbean (20)			
2			Maize & Kidneybean (20)						(Maize)			
3			Tomato (20)						Snapbean (20)			
4			Arracacha (20)									
5	(Arracacha)		Pea (20)						Potato (20)			

(4) Tibacuy



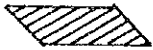
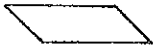
 ----- Principal Period
 ----- Occasion Period

Fig C.2.1 Present Cropping Calendar

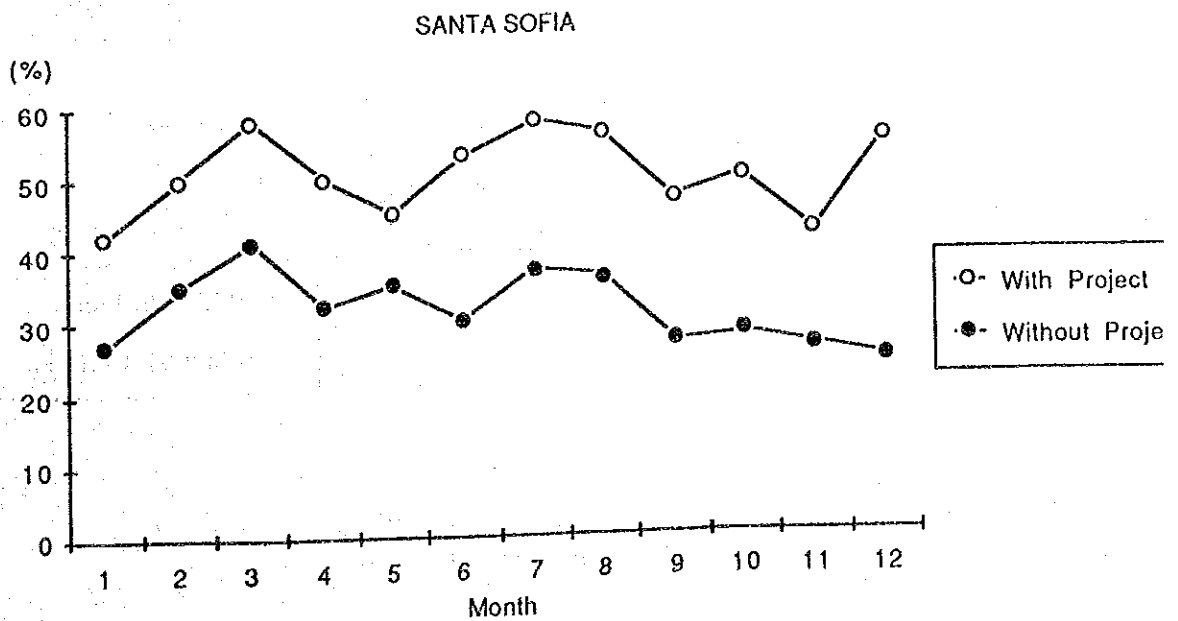
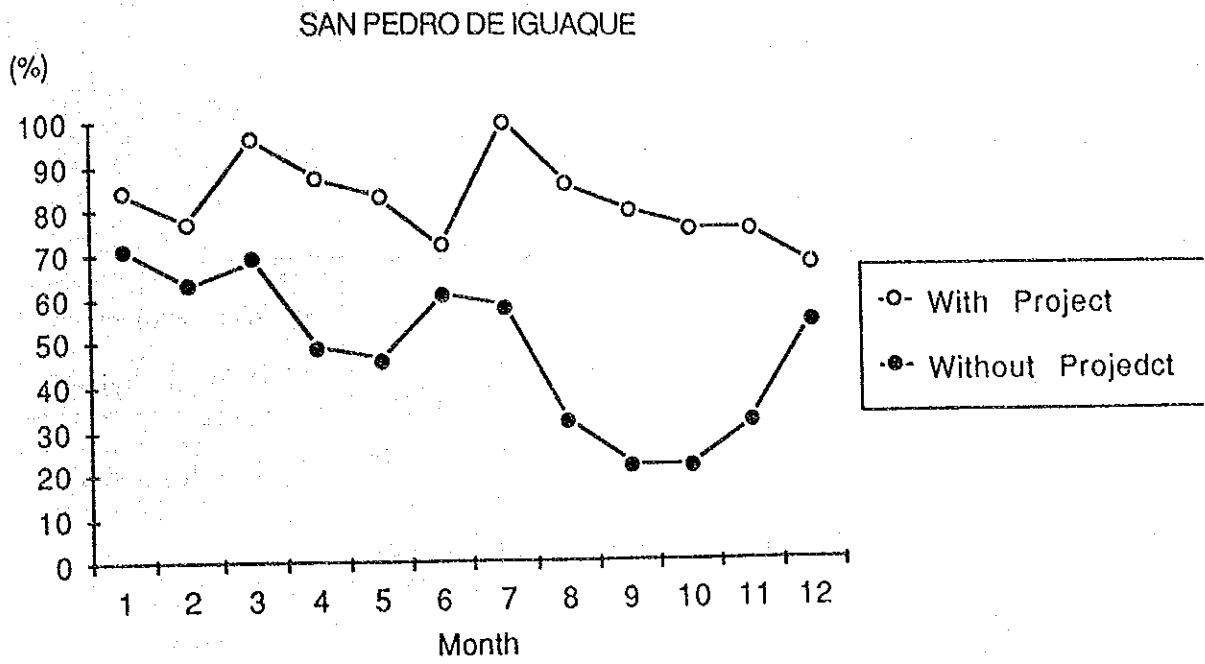


Fig. C.4.1(1) LABOR BALANCE
(MONTHLY BALANCE TO POTENTIAL LABOR FORCE)

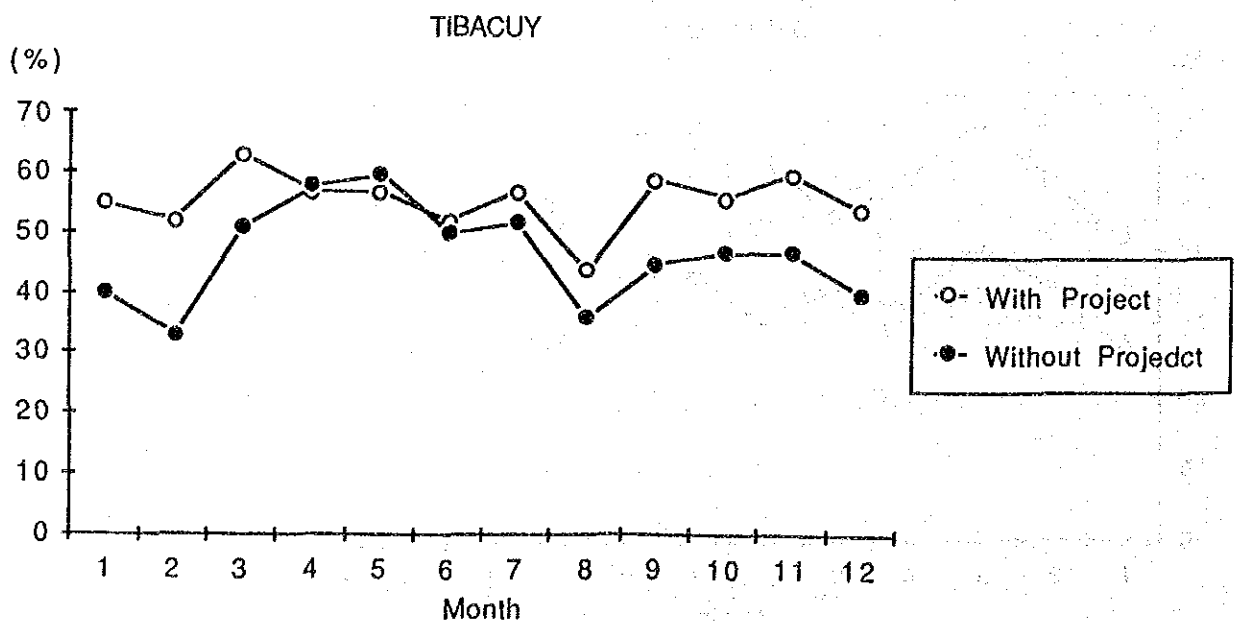
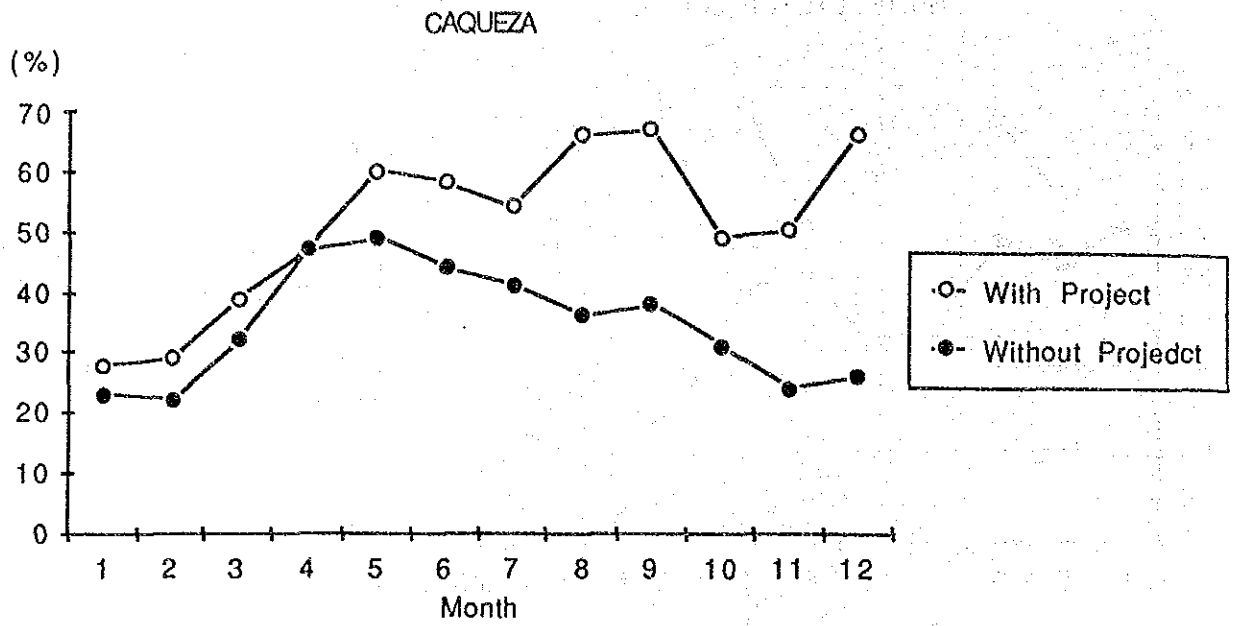


Fig. C.4.1(2) LABOR BALANCE
(MONTHLY BALANCE TO POTENTIAL LABOR FORCE)

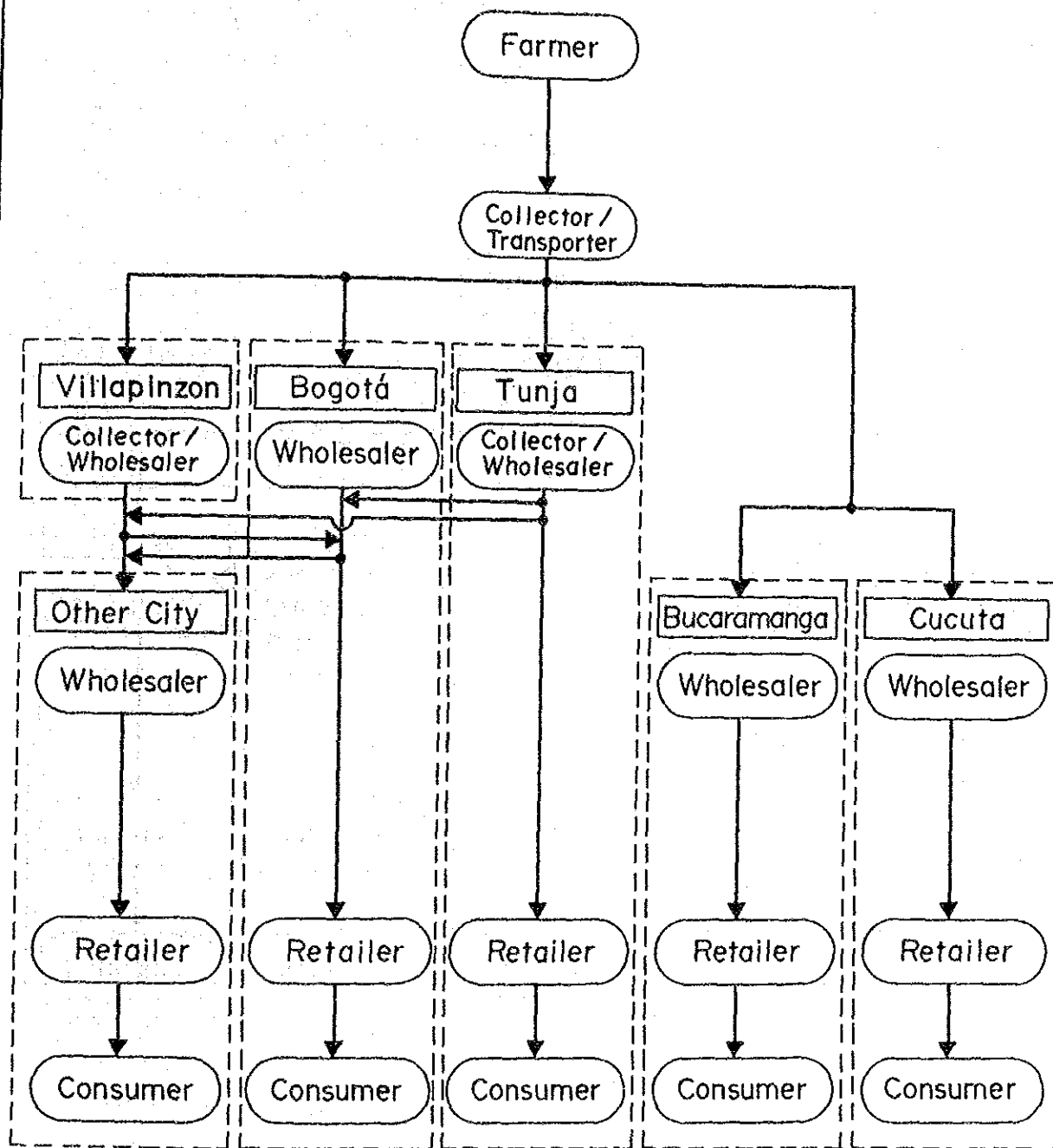


Fig. C.5.1 MARKETING FLOW IN DEPARTMENT OF BOYACA

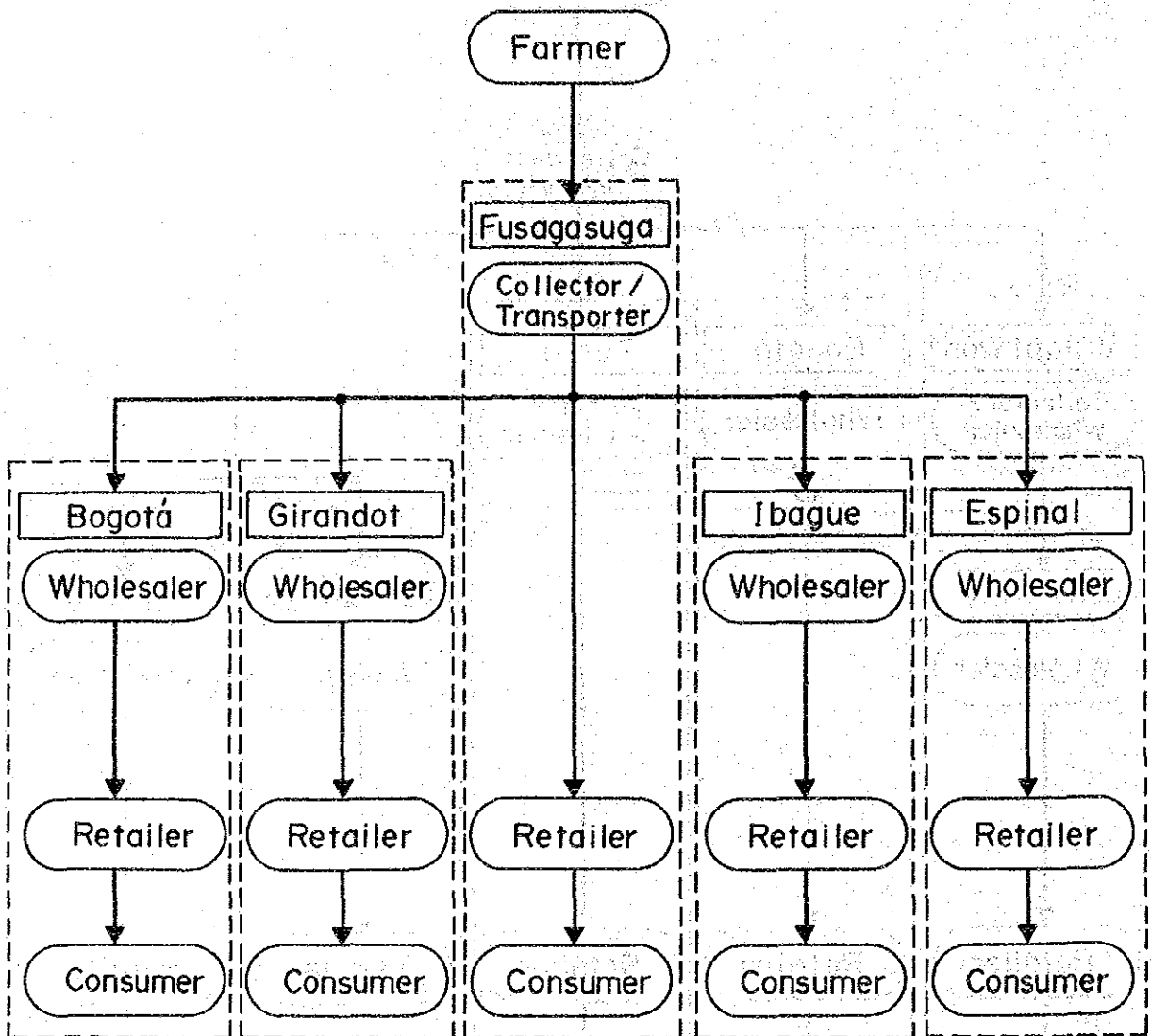


Fig. C.5.2 MARKETING FLOW IN DEPARTMENT OF CUNDINAMARCA

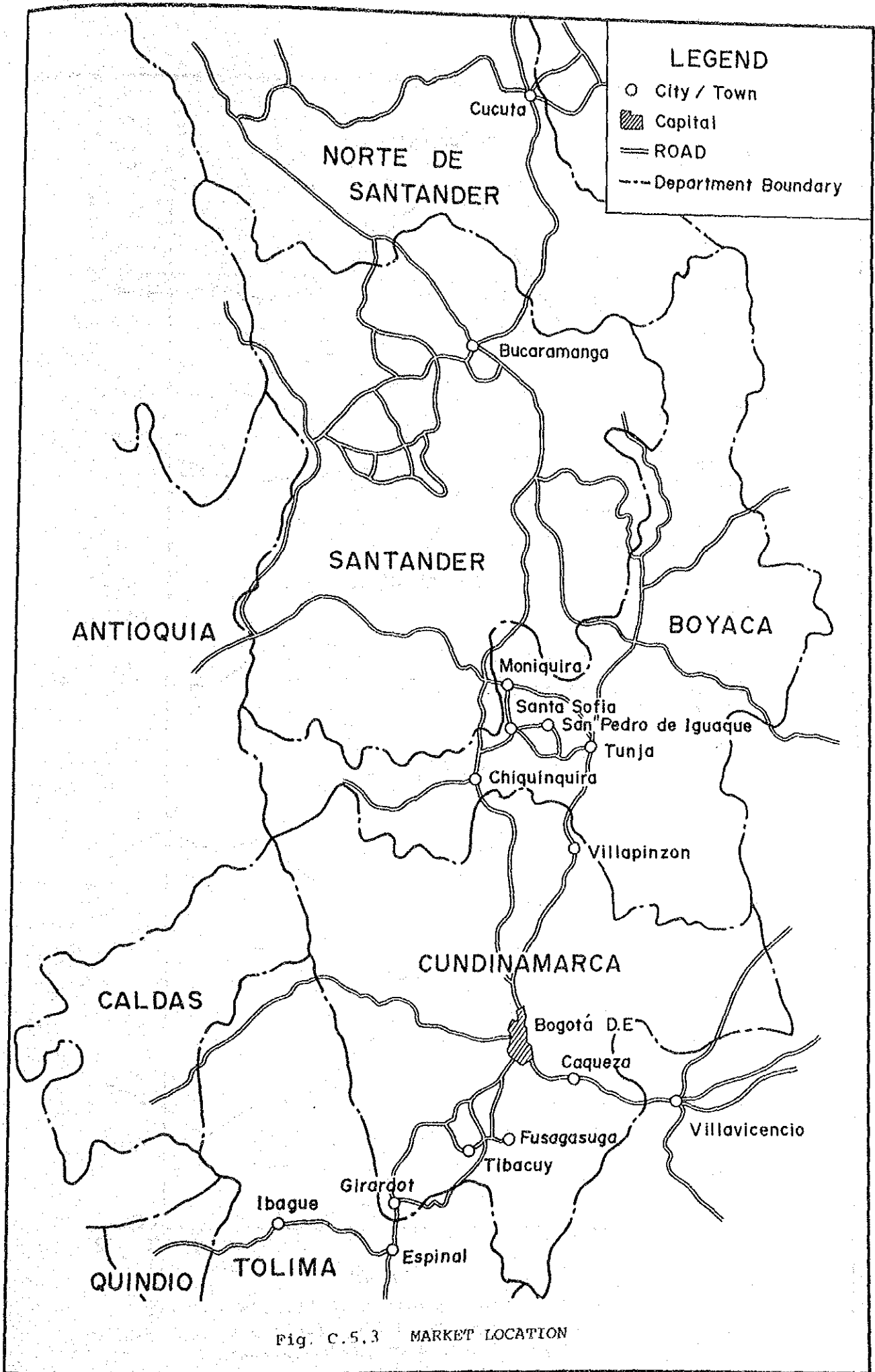


Fig. C.5.3 MARKET LOCATION

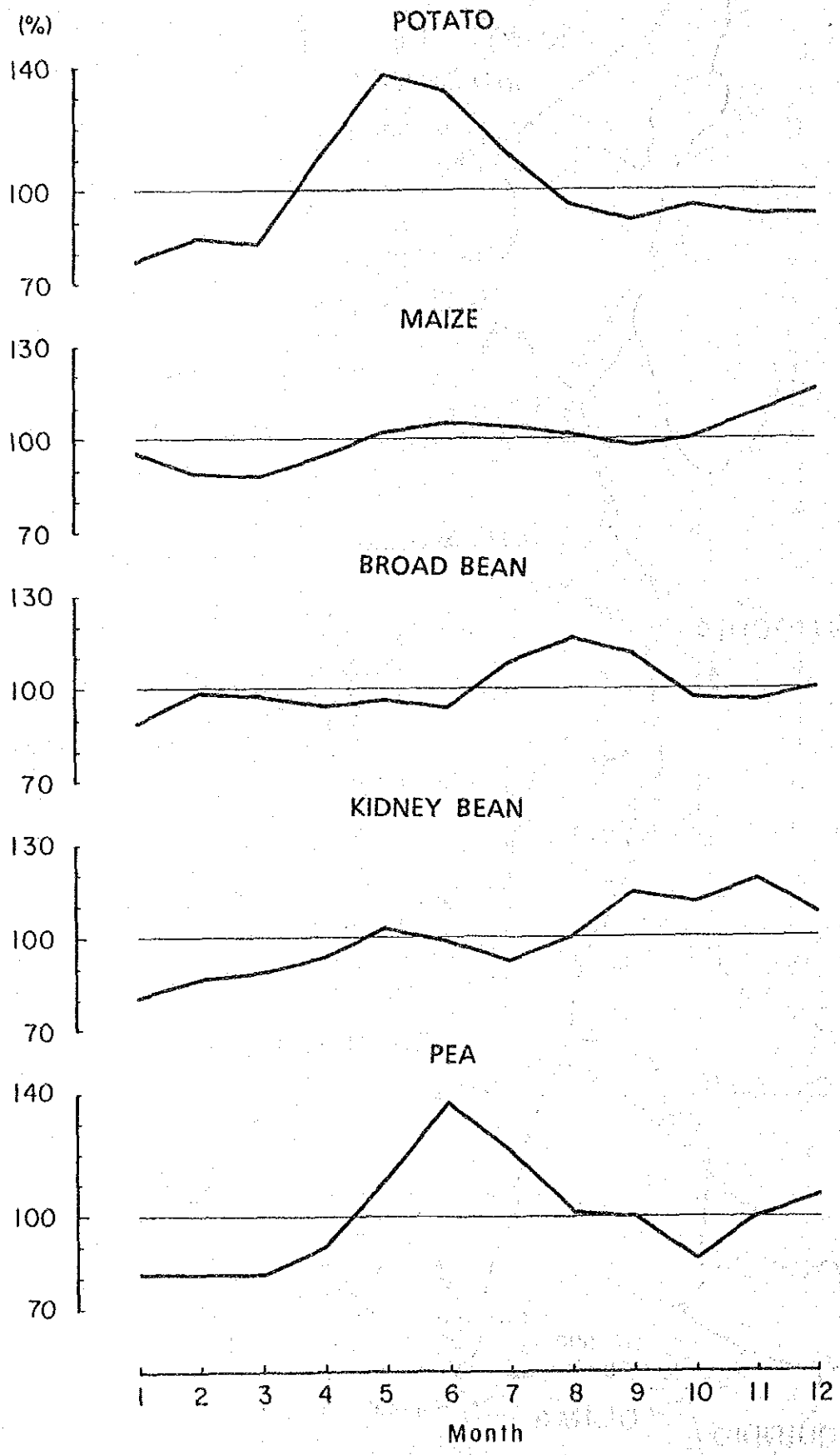


Fig. C.5.4(1) SEASONAL FLUCTUATION OF WHOLESALE PRICES OF FARM PRODUCTS IN CORABASTOS (100 = average of monthly price)

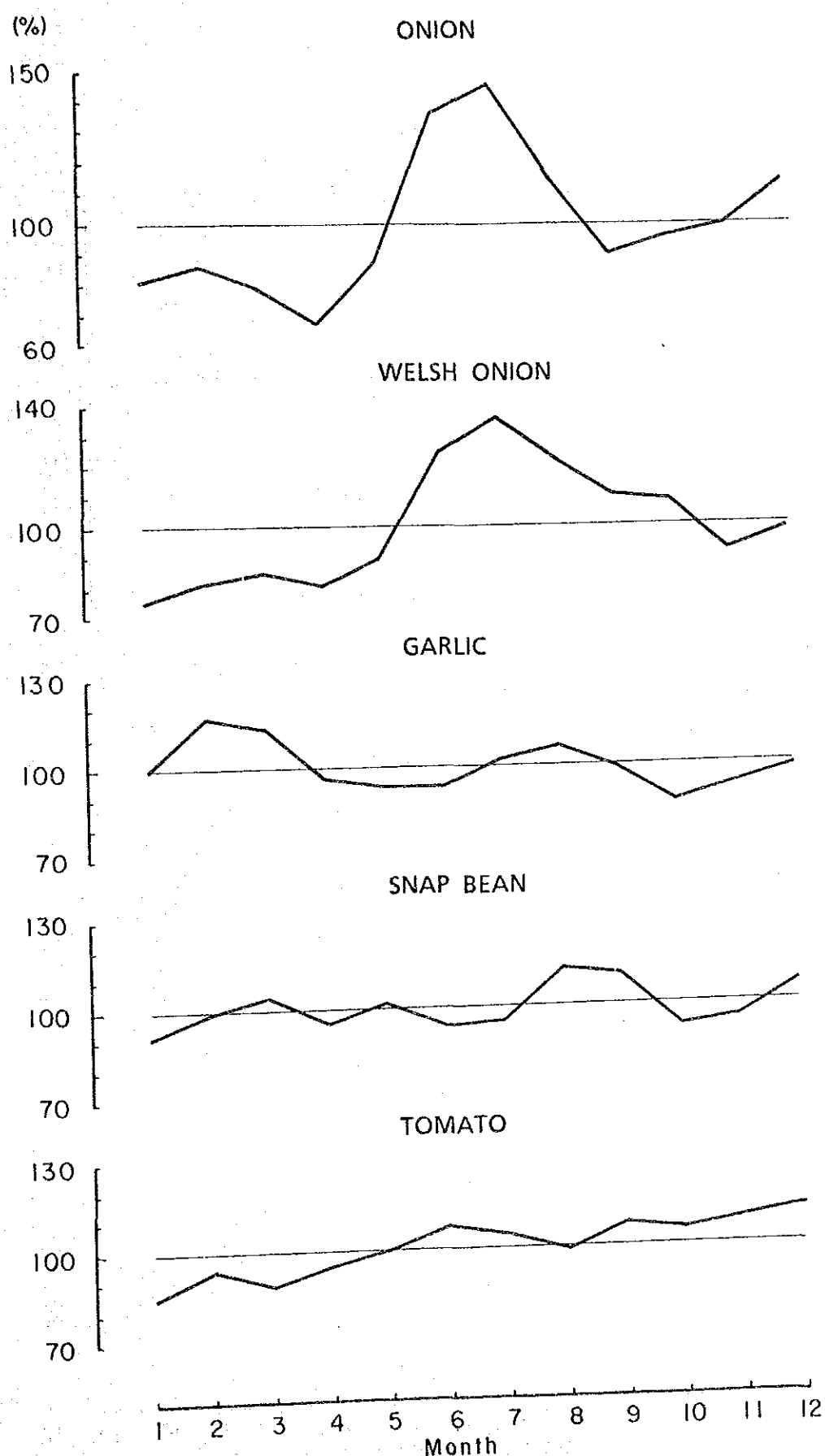


Fig. C.5.4(2) SEASONAL FLUCTUATION OF WHOLESALE PRICES OF FARM PRODUCTS IN CORABASTOS (100 = average of monthly price)

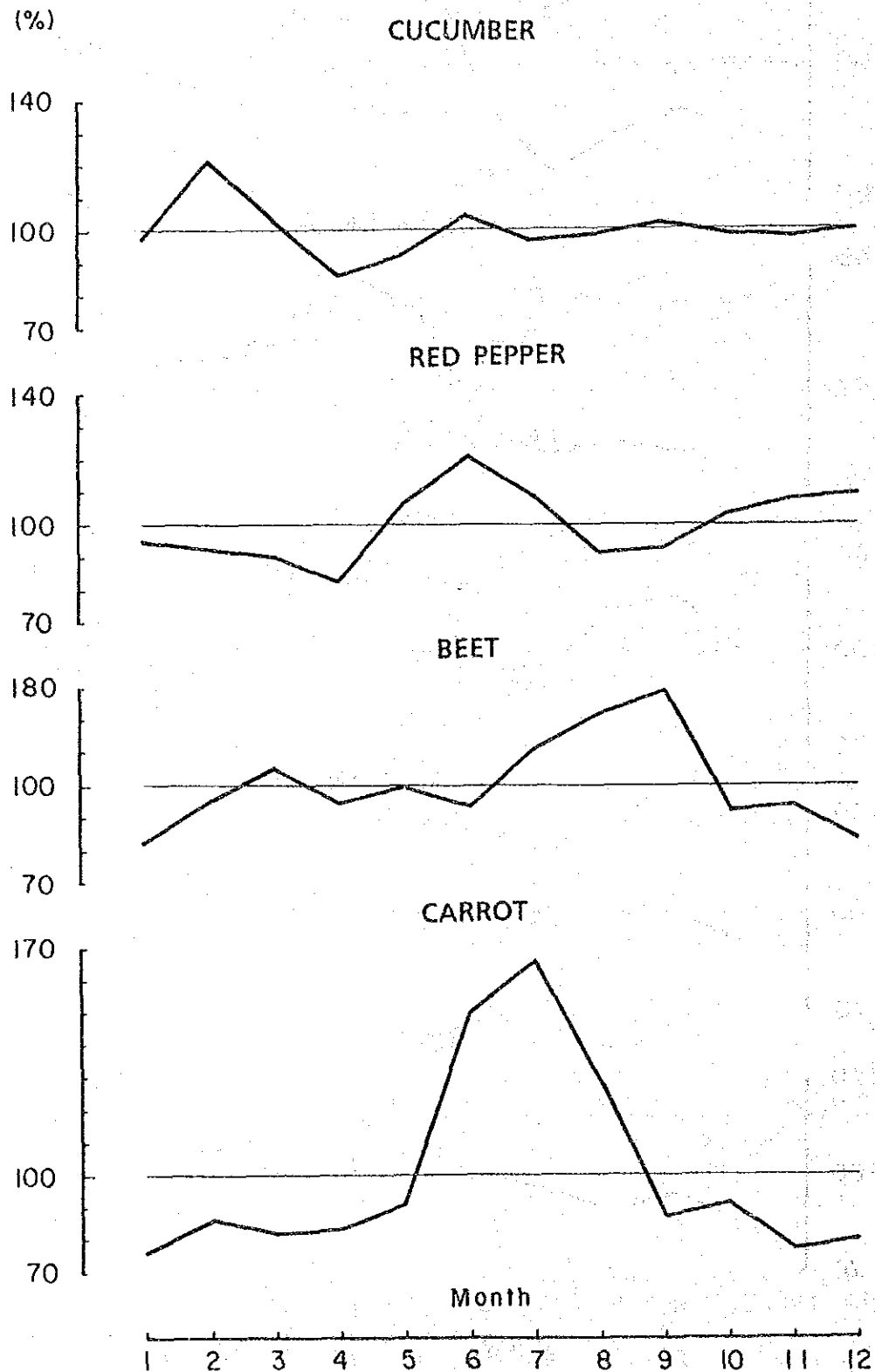


Fig. C.5.4(3) SEASONAL FLUCTUATION OF WHOLESAL E PRICES OF FARM PRODUCTS IN CORABASTOS (100 = average of monthly price)

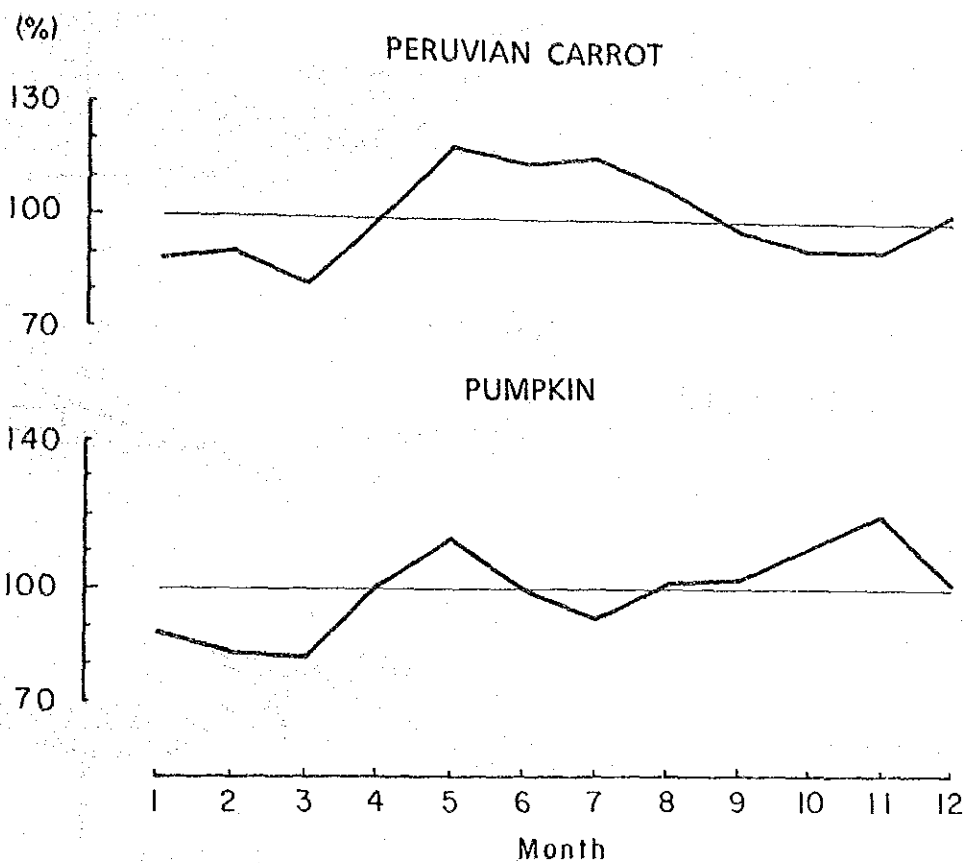


Fig. C.5.4(4) SEASONAL FLUCTUATION OF WHOLESALe PRICES OF FARM PRODUCTS IN CORABASTOS (100 = average of monthly price)

Iguaque

Harvesting Period With Project
 Harvesting Period Without Project
 High Transaction Season CORABASTOS

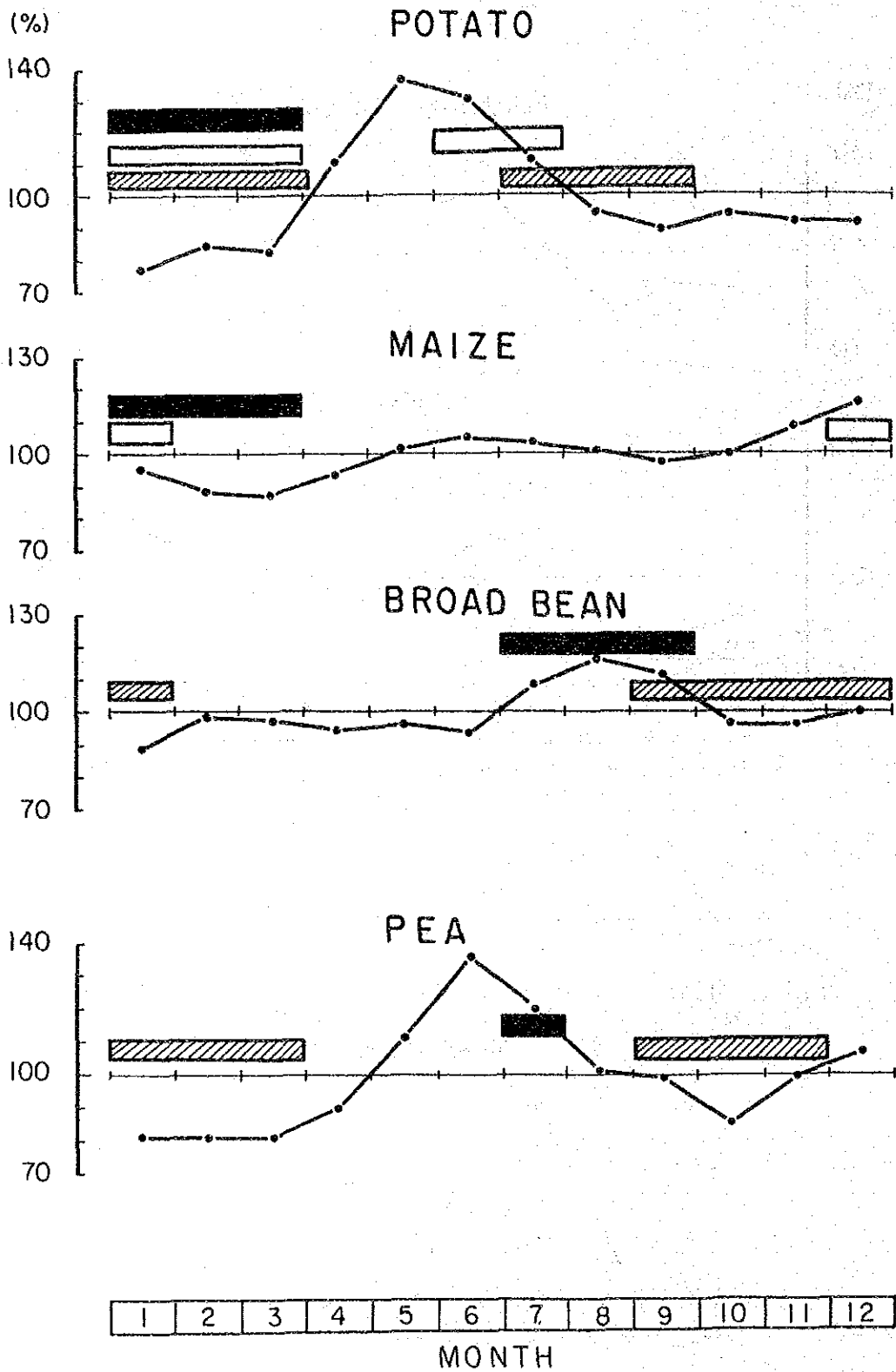


Fig. C.5.5(1) HIGH TRANSACTION SEASON IN CORABASTOS AND HARVESTING PERIOD OF FARM PRODUCTS IN THE PROJECT AREA (100 = average of monthly wholesale price)

Iguaque

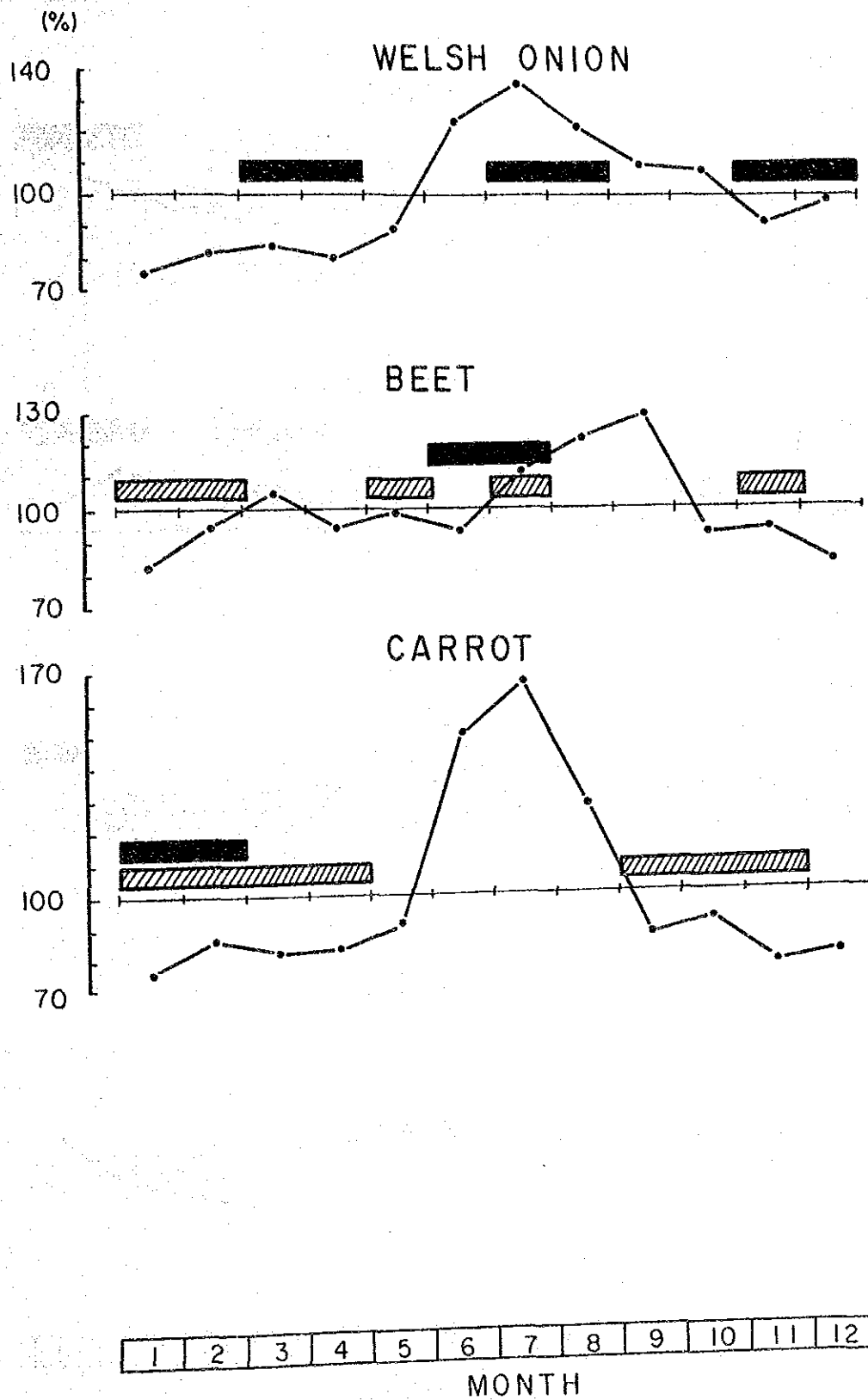


Fig. C.5.5(2) HIGH TRANSACTION SEASON IN CORABASTOS AND HARVESTING PERIOD OF FARM PRODUCTS IN THE PROJECT AREA (100 = average of monthly wholesale price)

Santa Sofia

Harvesting Period With Project
 Harvesting Period Without Project
 High Transaction Season CORABASTOS

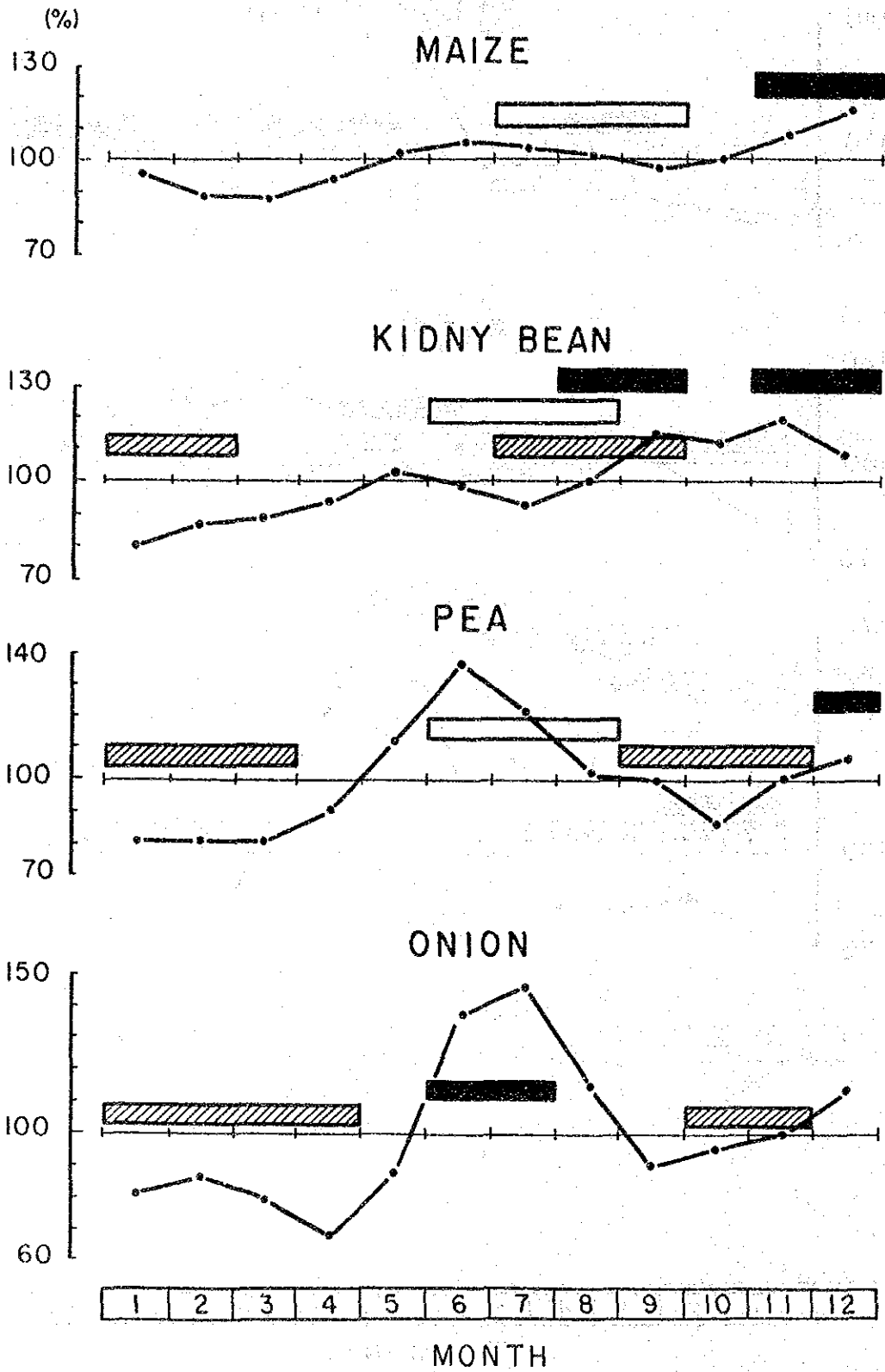


Fig. C.5.5(3) HIGH TRANSACTION SEASON IN CORABASTOS AND HARVESTING PERIOD OF FARM PRODUCTS IN THE PROJECT AREA (100 = average of monthly wholesale price)

Santa Sofia

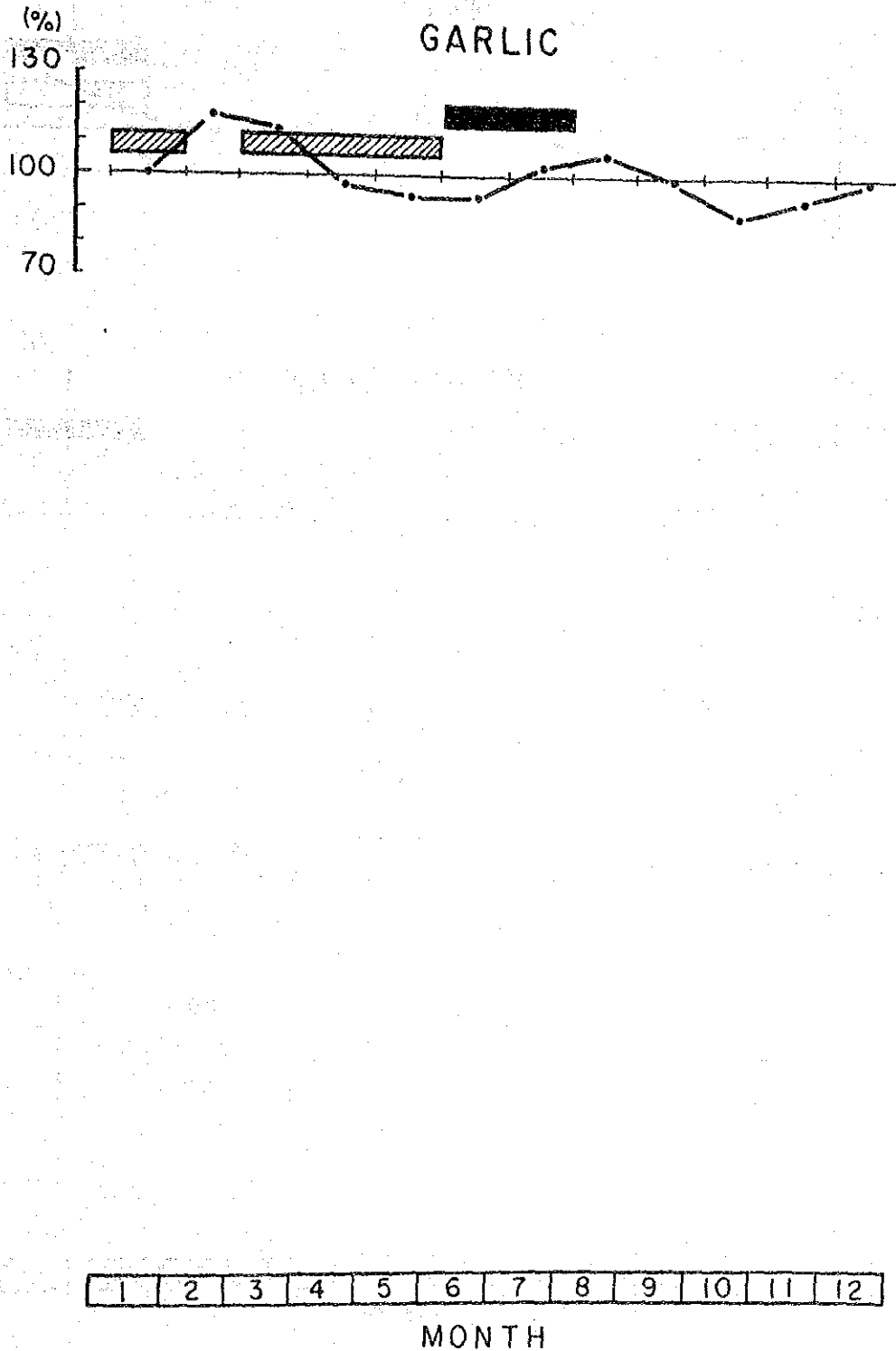


Fig. C.5.5(4) HIGH TRANSACTION SEASON IN CORABASTOS AND HARVESTING PERIOD OF FARM PRODUCTS IN THE PROJECT AREA (100 = average of monthly wholesale price)

Caqueza

Harvesting Period With Project
 Harvesting Period Without Project
 High Transaction Season CORABASTOS

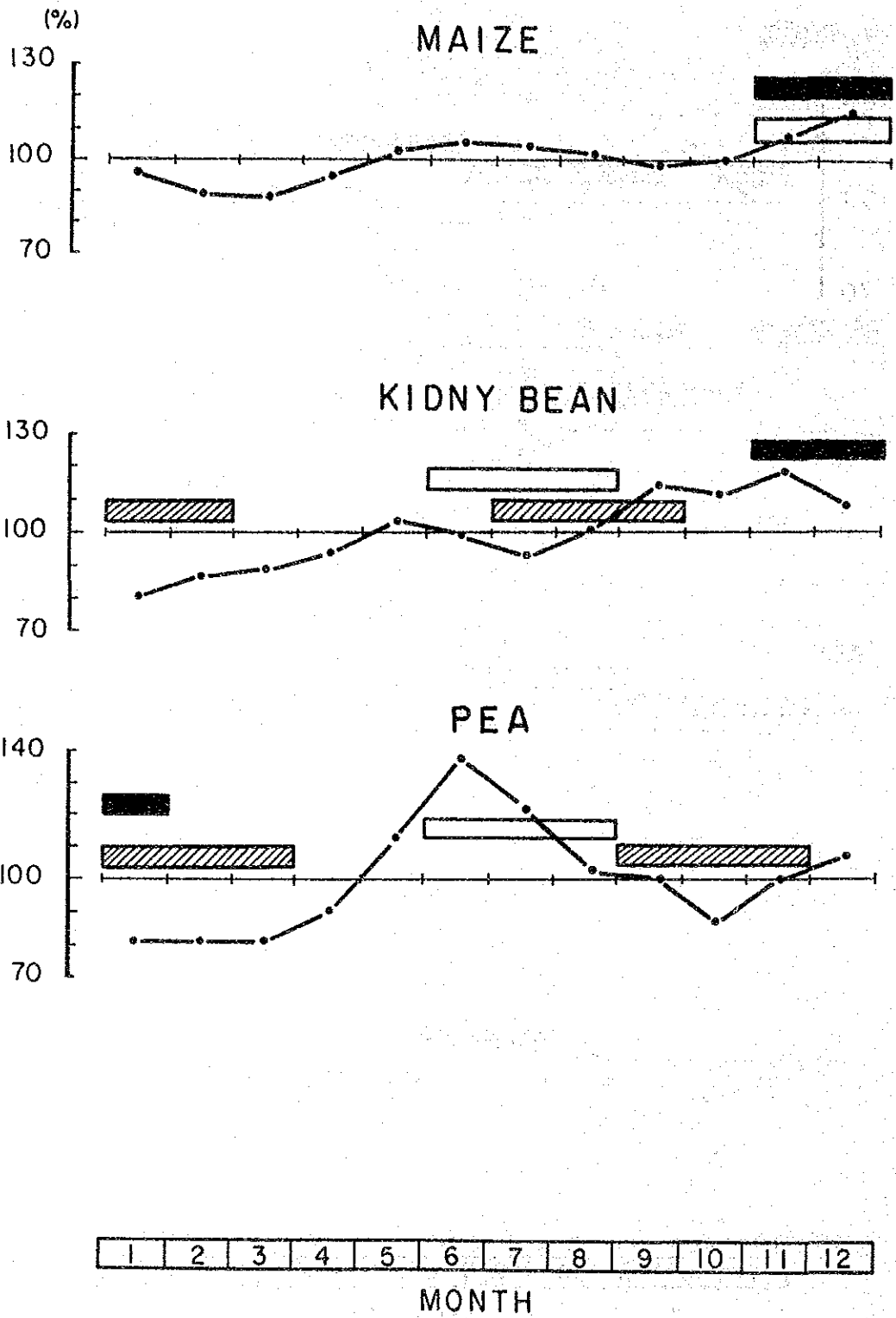


Fig. C.5.5(5) HIGH TRANSACTION SEASON IN CORABASTOS AND HARVESTING PERIOD OF FARM PRODUCTS IN THE PROJECT AREA (100 = average of monthly wholesale price)

Caqueza

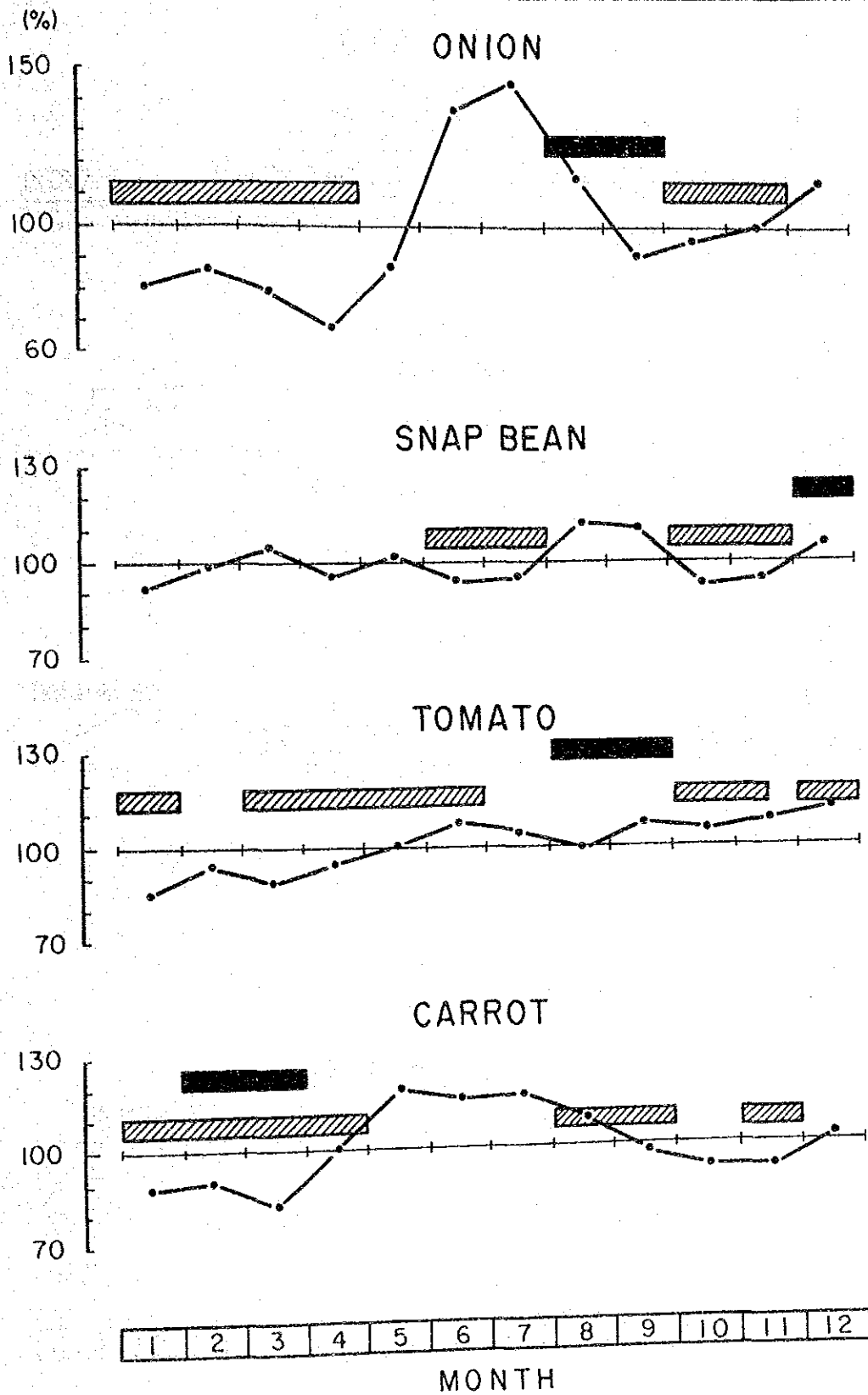


Fig. C.5.5(6) HIGH TRANSACTION SEASON IN CORABASTOS AND HARVESTING PERIOD OF FARM PRODUCTS IN THE PROJECT AREA (100 = average of monthly wholesale price)

Tibocuy

Harvesting Period With Project
 Harvesting Period Without Project
 High Transaction Season CORABASTOS

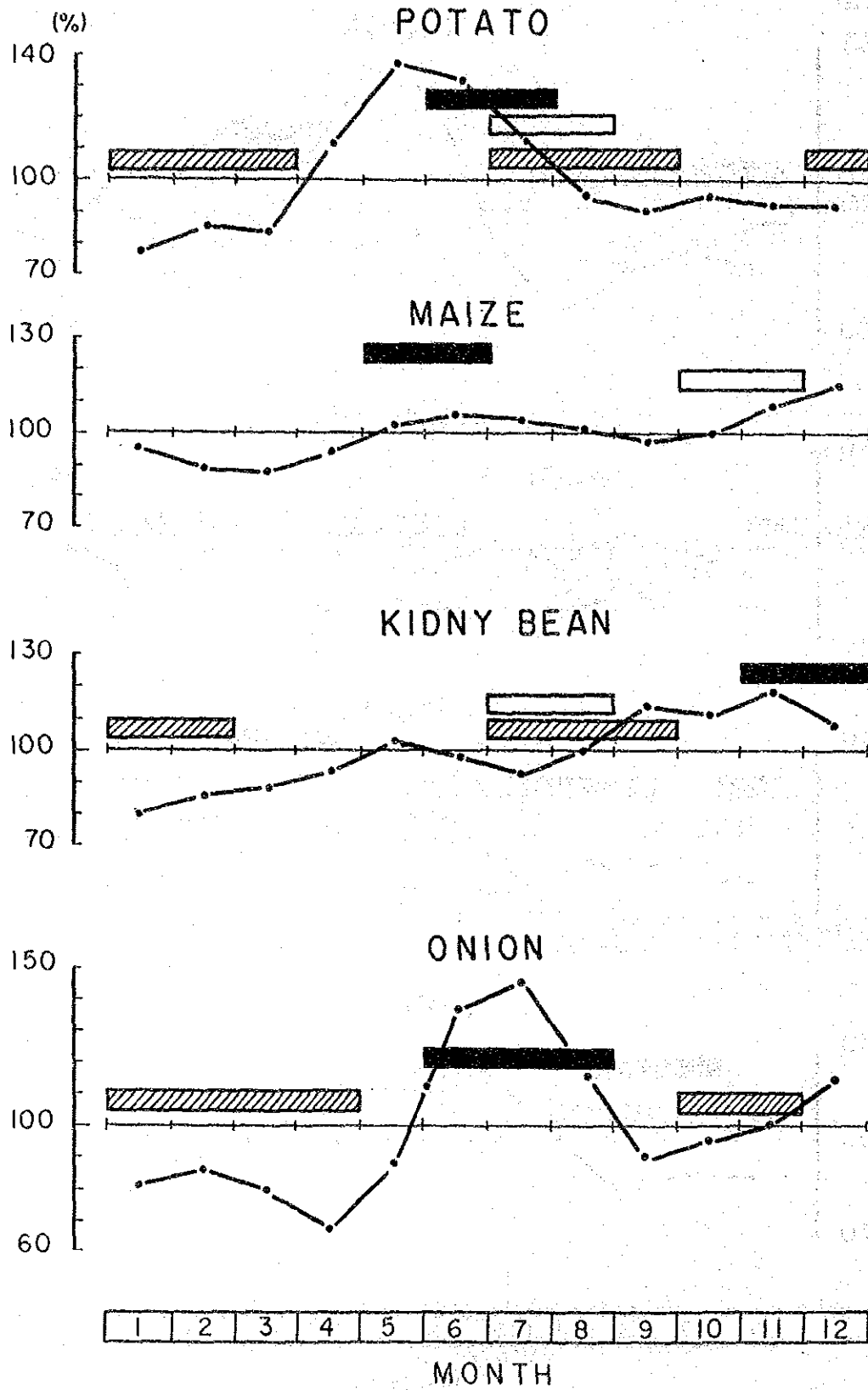


Fig. C.5.5(7) HIGH TRANSACTION SEASON IN CORABASTOS AND HARVESTING PERIOD OF FARM PRODUCTS IN THE PROJECT AREA (100 = average of monthly wholesale price)

Tibacuy

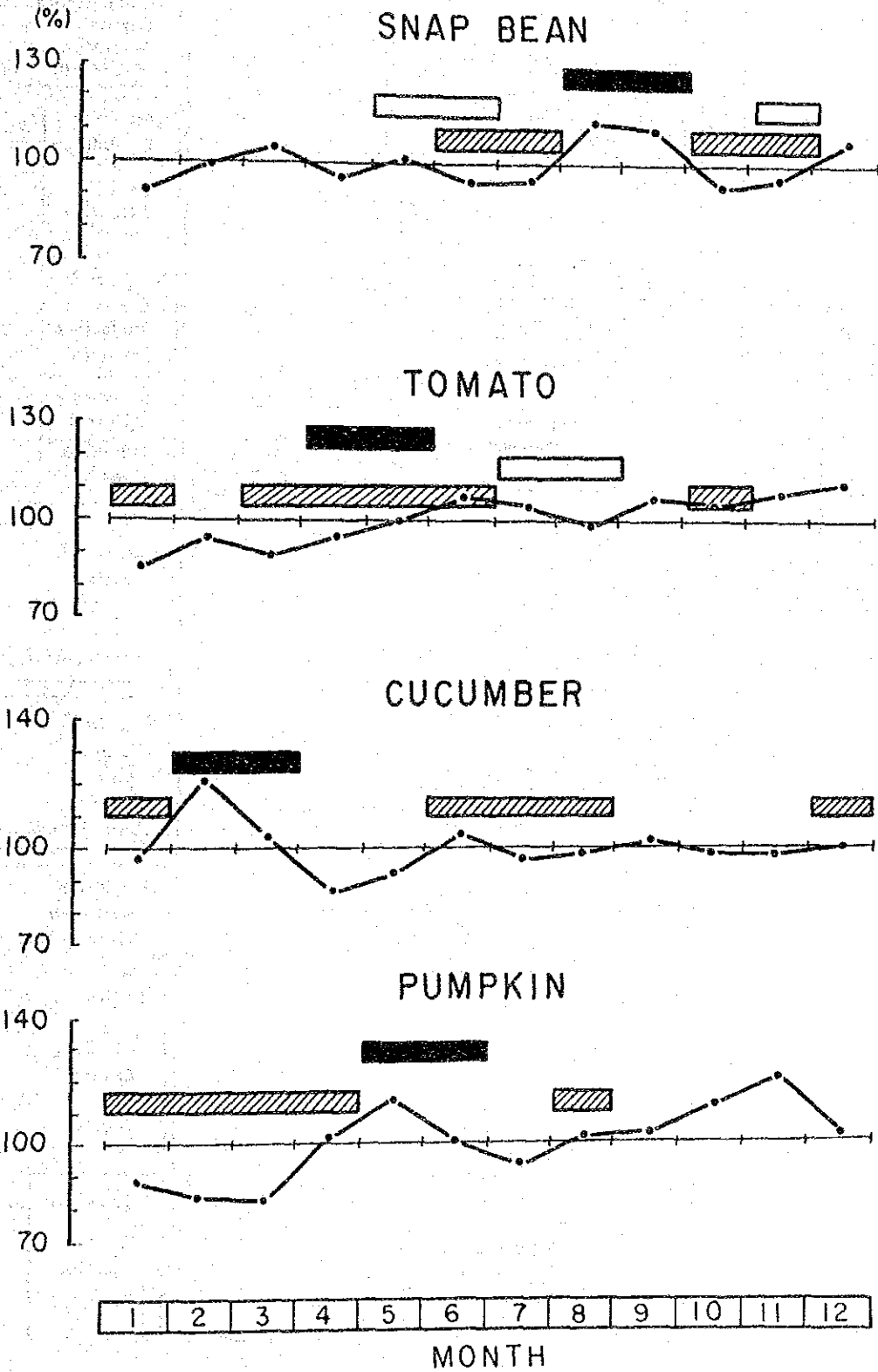


Fig. C.5.5(8) HIGH TRANSACTION SEASON IN CORABASTOS AND HARVESTING PERIOD OF FARM PRODUCTS IN THE PROJECT AREA (100 = average of monthly wholesale price)

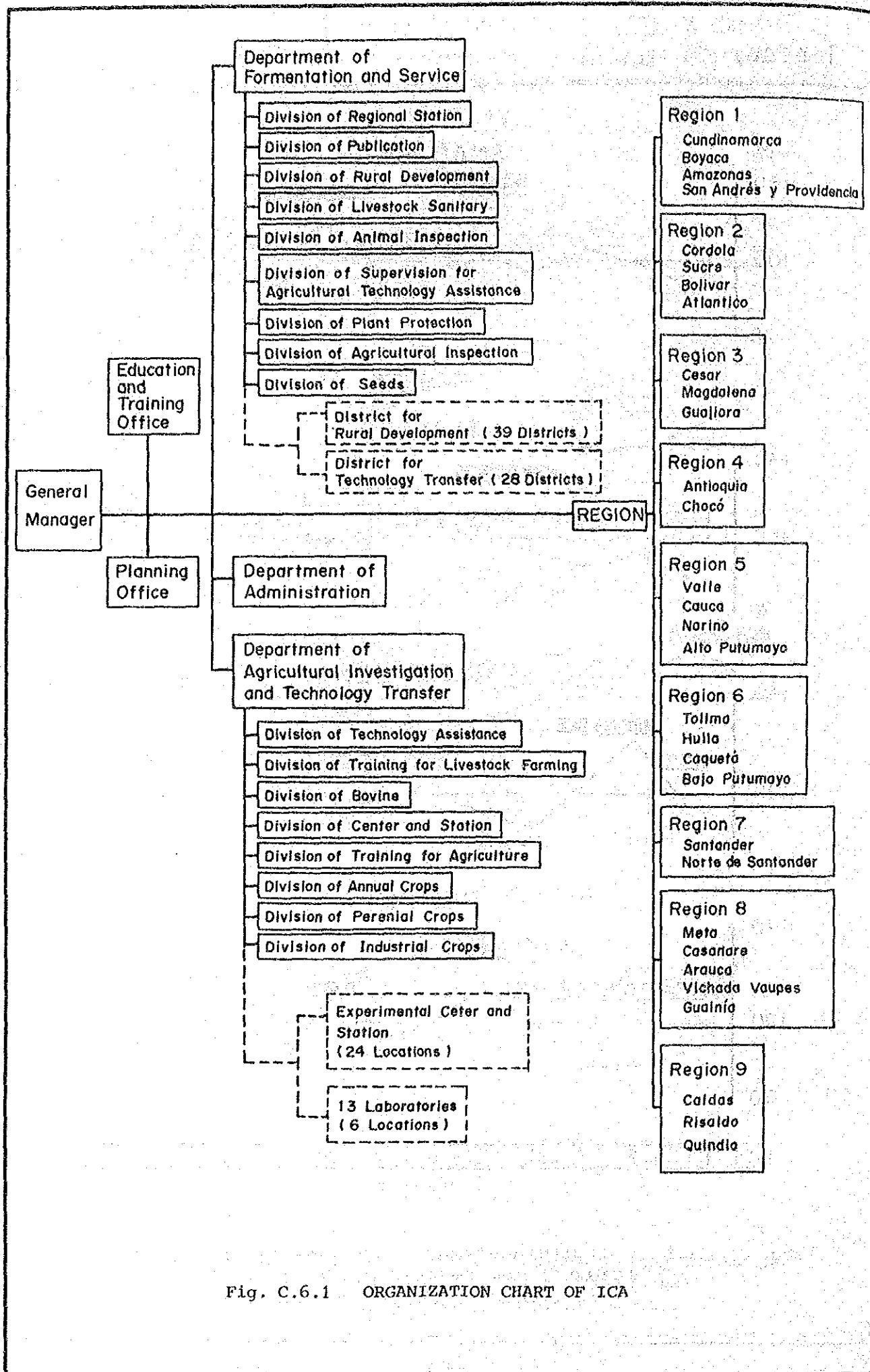


Fig. C.6.1 ORGANIZATION CHART OF ICA

ANNEX D IRRIGATION PLAN

ANNEX D IRRIGATION PLAN

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1. Consumptive Use

In accordance with the cropping pattern proposed for the respective areas, the consumptive use is estimated incorporating meteorological conditions and the evapotranspiration mentioned in the Annex A for each sub-project areas. The calculation is made in conformity with the provisions of FAO ("Crop Water Requirements and Drainage Paper No.24").

$$ET_{\text{crop}} = K_c \times E_{T_o}$$

where ET_{crop} : Consumptive Use

K_c : Crop Coefficient

E_{T_o} : Evapotranspiration

The results of above calculation are shown in the Tables D.1(1)-(4) (refer to Fig. D.1(1)-(4)).

The irrigation interval pertaining to the crop efficiency is 7 days for San Pedro de Iguaque and Santa Sofia sub-project area, and 5 days for Caqueza and Tibacuy sub-project area. (refer to 4-(4))

2. Water Requirement

In compliance with the consumptive use seeked out in 1 above, rainfall data for the respective areas and the values of TRAM (Total Readily Available Moisture) of the soil mentioned in 4-(2), calculation of net water requirements for ten years is made on the daily basis.

Table D.2 shows the results of the calculation of the net water requirements converted into monthly basis from daily basis.

As for TRAM following values are applied:

San Pedro de Iguaque	44.2 mm
Santa Sofia	29.5 mm
Caqueza	21.6 mm
Tibacuy	23.3 mm

The diversion water requirement of each irrigation system is estimated as shown in the Table D.3. But the irrigation efficiency is shown as follows.

San Pedro de Iguaque	: 80%	Extension of the main driving channel is long and major parts are open channel.
Santa Sofia, Palonegro	: 80%	Ditto but the arable land is dispersed.
Other Irrigation systems	: 85%	

3. Water Balance

Pertaining to the discharge for the respective streams mentioned in the Annex A.3 and the irrigation requirement for the proposed irrigation system, the calculation of the water balance for the year 1974 to 1983 (1972 to 1981 for Tibacuy) is made. Table D.3 (1)-(13) show the results of the water balance calculation for each irrigation system proposed on Fig. D.3.

Table D.3 (1)-(13) show the calculations for the cases that the reservoirs are not constructed. While the construction of the reservoirs will be proposed as shown below for relief the water shortage.

San Pedro de Iguaque, Carrizal	40,000 m ³
, Yerbabuena	13,500 m ³
Caqueza, No.1	10,000 m ³
No.2	4,000 m ³

4. Water Distribution Plan

4.1 Terminal Facilities

(1) Effective Root Zone

The effective root zone for the respective crops is shown in the following table. For the planning of the terminal facilities, the depth of 40 cm is applied for all the crops of the four sub-project areas.

Table D.4 Root Zone

Crops	Rooting Depth (cm)	Fraction of Available Soil Water
Beet	0.6-1.0	0.65
Potato	0.4-0.6	0.33
Broad bean	0.5-0.7	0.59
Carrot	0.5-1.0	0.46
Maize	1.0-1.7	0.78
Onion	0.3-0.5	0.33
Pear	0.6-1.0	0.46
Kidney bean	0.5-0.7	0.59
Garlic	0.3-0.5	0.33
Wheat	1.0-1.5	0.72

(2) Available moisture and total readily available moisture

Available moisture for the effective root zone of 40 cm in the project areas is sought out as indicated in the following table. The minimum value of total available moisture (TAM) representing each sub-project area among the respective sample groups is applied as conservative value. Based on TAM, TRAM (Total Readily Available Moisture) is estimated by $TRAM = TAM \times 0.6$.

Table D.5 TAM and TRAM in Each Sub-Project AREA

Sub-Project	Effective			
Area	Point	Moisture	TAM	TRAM
San Pedro de Iguaque	No.1	81.7mm	73.6mm	44.2mm
	No.2	75.9		
	No.3	73.6		
	No.4	74.8		
Santa Sofia	No.1	81.0	49.1	29.46
	No.2	68.6		
	No.3	49.1		
	No.4	81.8		
Caqueza	No.1	47.0	36.0	21.62
	No.2	36.0		
	No.3	41.0		
Tibacuy	No.1	45.8	38.7	23.25
	No.2	38.7		

(3) Maximum consumptive use per day

The maximum consumptive use per day for each sub-project area is as follows:

San Pedro de Iguaque	3.38 mm/day
Santa Sofia	3.18
Caqueza	3.18
Tibacuy	3.80

(4) Irrigation interval

For determining the irrigation interval, the estimated irrigation interval for each sub-project area is calculated incorporating the safety ratio of 15% for TRAM.

Table D.6 Irrigation Interval

Sub-Project Area	TRAM mm	(A) TRAMx0.85 mm	(B) max. Cons. Use mm/day	(A)/(B)
San Pedro de Iguaque	44.2	37.6	3.38	11.12
Santa Sofia	29.46	25.04	3.18	7.87
Caqueza	21.62	18.38	3.18	5.78
Tibacuy	23.25	19.76	3.80	5.20

Irrigation interval in each sub-project area is proposed as shown below, considering the construction costs of the facilities for irrigation.

San Pedro de Iguaque	7days
Santa Sofia	7days
Caqueza	5days
Tibacuy	5days

(5) Irrigation efficiency

Irrigation efficiency is estimated as shown below, considering the conveyance method (Structure of conduction canal) and irrigation manner.

	Pipeline system	Open canal system
Water application efficiency	90%	90%
Water conveyance efficiency	95%	90%
Irrigation efficiency	85%	80%

4.2 Scale of Terminal Facilities

(1) Regulating Tank or Pond

Water distribution system shall include the regulating tank/or ponds. It aims to coordinate the system capacity of upper main canal and that of terminal facilities, to increase a flexibility of the water use at the terminal and to reduce the management loss water.

One or more tanks or ponds will be constructed for each irrigation block in principle.

Due to ensure the natural pressure at nozzle of the sprinkler, the position of the proposed tank or pond shall be the place where the height difference of 20m-30m from the upper area of the benefited area should be kept.

In order to regulate the discharge to meet the working hours on the field, the capacity of the tank or pond will be worked out in the following formula.

$$V_f = \frac{60}{E_f} \cdot \frac{D_m}{T_m} \times A_u$$

where

V_f : Capacity of tank or pond (m^3)

D_m : Maximum consumptive use per day (mm/day)

E_f : Irrigation efficiency

T_m : Operation hour per day (hr, $T_m > 12$ hr)

A_u : Irrigable area (ha)

The capacities of the tanks or ponds per ha for each sub-project area are as shown below.

	San Pedro de Iguaque	Santa Sofia	Caqueza	Tibacuy
Dm (mm/day)	2.13	2.22	1.95	2.04
Ef	0.80	0.85	0.85	0.85
Tm (hr)	18	17.8	17.7	22.8
Vf (m3)	8.9	8.6	7.8	8.0

(Note) Above figure is applied for annual crops.

(4) Pipeline

The capacity of terminal pipeline is determined with the conditions of the maximum value of consumptive use at the time of no rainfall as well as 18-22 hours for sprinkler operation hour. Diameter of the pipe is specified in accordance with the formula of Hazen-William.

(5) Summary of the facilities for the irrigation system

In view of above, the scale of the facilities for the respective irrigation system is indicated in the Fig. D.3 (1)-(4).

Table D.1 (1) Consumptive Use - San Pedro de Iguaque -

(Cropping A type)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
ET _o (a)		83.83	81.62	100.32	90.6	94.77	92.16	100.81	98.87	93.73	88.74	76.86	75.18	
Crop Coefficient (b)	1	0.87						0.57	0.61	0.73	0.92	0.99	0.94	
	2		0.62	0.69	0.81	0.92	0.97							
	3		0.6	0.63	0.75	0.92	0.96	0.9	0.83					
	4	1.0							0.59	0.66	0.81	0.97	1.01	
	5		0.58	0.58	0.58									
	6			0.65	0.78	0.99	1.05	1.04						
	7	0.94	0.87						0.57	0.61	0.73	0.92	0.99	
	8	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
	9													
	10													
Area Factor (c)	1	0.25	0.25					0.25	0.25	0.25	0.25	0.25	0.25	
	2		0.25	0.25	0.25	0.25	0.25	0.25						
	3		0.125	0.125	0.125	0.125	0.125	0.125	0.125					
	4	0.125	0.125						0.125	0.125	0.125	0.125	0.215	
	5	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	
	6			0.25	0.25	0.25	0.25	0.25						
	7	0.25	0.25						0.25	0.25	0.25	0.25	0.25	
	8	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
	9													
	10													
Cropping Intensity (d)	1	0.25	0					0.25	0.75	1.0	1.0	1.0	0.75	
	2		0.25	0.75	1.0	0.75	0.25	0						
	3		0.25	0.75	1.0	1.0	0.9325	0.5	0.0675					
	4	0.25							0.25	0.75	1.0	1.0	0.75	
	5		0.25	0.5	0.25									
	6			0.5	1.0	1.0	0.875	0.125						
	7	0.75	0.25						0.25	0.75	1.0	1.0	1.0	
	8	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
	9													
	10													
(e)		0.469	0.375	0.656	0.844	0.750	0.585	0.344	0.477	0.719	0.813	0.813	0.786	
(f)		35.47	23.77	46.75	60.79	66.05	51.98	28.83	33.22	48.74	59.90	58.41	51.01	
(g)		75.6	63.4	71.3	72.0	88.1	88.9	83.8	69.6	67.8	73.7	71.8	64.9	

Legend ; 1 : Potato 5 : Maize & Broadbean
 2 : Beet 6 : Pea
 3 : Broadbean 7 : Potato
 4 : Carrot 8 : Welsh Onion

Table D.1 (2) Consumptive Use - Santa Sofia -

(Cropping A type)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ETo (a)		85.46	82.28	101.21	92.21	96.6	94.52	103.22	101.21	95.2	89.49	77.42	75.9
Crop Coefficient (b)	1		0.62	0.72	0.86	0.98	1.01						
	2							0.59	0.66	0.81	0.87	0.74	0.95
	3		0.67	0.77	0.88	0.93	0.90						
	4								0.62	0.75	0.96	0.97	0.88
	5	0.63	0.63	0.63									
	6			0.6	0.6	0.6							
	7												
	8												
	9												
	10												
	Area Factor (c)	1		0.50	0.50	0.50	0.50	0.50	0.50				
2								0.50	0.50	0.50	0.50	0.50	0.50
3			0.25	0.25	0.25	0.25	0.25	0.25					
4									0.375	0.375	0.375	0.375	0.375
5		0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125				
6				0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
7													
8													
9													
10													
Cropping Intensity (d)		1		0.25	0.75	1.00	0.75	0.25	0				
	2							0.25	0.75	1.00	0.9375	0.50	0.0625
	3		0.25	0.75	1.00	0.75	0.25						
	4								0.50	1.00	1.00	0.875	0.125
	5	0.25	0.50	0.25									
	6			0.25	0.50	0.25							
	7												
	8												
	9												
	10												
	Consumptive Use (e)		0.031	0.250	0.625	0.813	0.594	0.188	0.125	0.563	0.875	0.844	0.578
		1.68	13.06	45.83	63.39	54.16	17.25	7.61	36.82	65.33	68.71	38.96	5.38
mm/month (f)		54.2	52.2	73.3	78.0	91.2	92.0	60.9	65.4	74.7	81.4	67.4	69.0
mm/month (g)													

Legend ; 1 : Onion 5 : Wheat
2 : Kidneybean 6 : Maize & Kidnybean
3 : Garlic
4 : Pea

Table D.1 (3) Consumptive Use - Caqueza -

(Cropping B type)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ETo (a)		90.72	89.19	99.44	93.00	89.16	84.40	93.97	95.78	88.94	92.27	81.94	82.26
Crop Coeffilcent (b)	1				0.71	0.78	0.90	0.98	1.01				
	2									0.80	0.92	0.99	0.95
	3				0.68	0.68	0.68						
	4					0.84	0.92	0.95	0.89	0.80			
	5	0.94	0.98							0.69	0.77	0.90	0.98
	6	0.92	0.8	0.9	1.0	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.0
	7												
	8												
	9												
	10												
Area Factor (c)	1				0.4	0.4	0.4	0.4	0.4				
	2									0.4	0.4	0.4	0.4
	3				0.2	0.2	0.2						
	4					0.2	0.2	0.2	0.2	0.2			
	5	0.2	0.2							0.2	0.2	0.2	0.2
	6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	7												
	8												
	9												
	10												
Cropping Intensity (d)	1				0.25	0.75	1.0	0.75	0.25				
	2									0.5	1.0	0.875	0.125
	3				0.25	0.5	0.25						
	4					0.25	0.75	0.9375	0.5	0.0625			
	5	0.5	0.0625							0.25	0.75	1.0	0.9375
	6	0.25	0.25	0.75	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.75
	7												
	8												
	9												
	10												
Consumptive Use (e) (f) mm/month (g)		0.15	0.063	0.15	0.35	0.65	0.8	0.688	0.4	0.575	0.75	0.75	0.388
		12.7	4.55	13.42	28.37	49.03	62.29	63.72	37.93	36.51	63.62	60.02	31.36
		84.7	72.2	89.5	81.1	75.4	77.9	92.6	94.8	63.5	84.8	80.0	80.9

Legend ; 1 : Onion
 2 : Snapbean
 3 : Maize & Kidnybean
 4 : Tomato
 5 : Pea
 6 : Arracacha

Table D.1 (4) Consumptive Use - Tibacuy -

(Cropping A type)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ET _o (a)		100.63	95.71	111.83	100.93	103.38	101.67	115.56	117.56	114.04	103.16	87.06	90.55
Crop Coefficient (b)	1		0.71	0.78	0.90	0.99	1.02						
	2								0.80	0.88	0.95	0.98	0.95
	3	0.83	0.90	0.93	0.89	0.82							
	4					0.80	0.85	0.93	0.98	0.95			
	5										0.60	0.60	0.60
	6	0.86	0.82	0.79							0.69	0.75	0.83
	7			0.71	0.78	0.90	0.99	1.02					
	8								0.70	0.79	0.95	0.99	0.95
	9	0.68	0.72	0.84	0.99	1.02	0.95	0.88					
	10							0.70	0.76	0.87	0.97	0.98	0.95
Area Factor (c)	1		0.20	0.20	0.20	0.20	0.20						
	2								0.20	0.20	0.20	0.20	0.20
	3	0.20	0.20	0.20	0.20	0.20							
	4					0.20	0.40	0.40	0.40	0.40			
	5	0.20	0.20	0.20	0.20	0.20	0.20				0.20	0.20	0.20
	6	0.20	0.20	0.20							0.20	0.20	0.20
	7			0.20	0.20	0.20	0.20	0.20	0.20				
	8								0.20	0.20	0.20	0.20	0.20
	9	0.20	0.20	0.20	0.20	0.20	0.20	0.20					
	10							0.20	0.20	0.20	0.20	0.20	0.20
Cropping Intensity (d)	1		0.25	0.75	1.00	0.75	0.25	0					
	2								0.25	0.75	0.9375	0.50	0.0625
	3	0.25	0.75	0.9375	0.50	0.0625							
	4					0.25	0.625	0.969	0.6875	0.0938			
	5	0	0	0	0	0	0				0.25	0.50	0.25
	6	0.9375	0.50	0.0625							0.25	0.75	1.00
	7			0.25	0.75	1.00	0.75	0.25					
	8								0.50	1.00	1.00	0.875	0.125
	9	0.25	0.75	1.00	1.00	0.75	0.25	0					
	10							0.25	0.75	1.00	0.9375	0.50	0.125
Total (e)													
Consumptive Use (f)		0.288	0.45	0.6	0.65	0.563	0.50	0.488	0.575	0.588	0.675	0.625	0.313
mm/month (g)		23.82	34.5	56.32	58.94	54.97	46.72	51.59	58.07	56.98	63.39	47.17	23.12
		82.9	76.7	93.9	90.7	97.6	93.4	105.8	101.0	97.0	93.9	75.5	74.0

Legend ; 1 : Onion 6 : Cucumber
 2 : Snapbean 7 : Onion
 3 : Tomato 8 : Kidneybean
 4 : Snapbean 9 : Potato
 5 : Maize & Pumpkin 10 : Kidneybean

Note

Explanation of Table D.1

- ET_o : Evapotranspiration : (a) Refer to Table A.1.8
(b) : Crop Coefficient
(c) : Area Factor
(d) : Cropping Intensity
(e) = (c) (d)
(f) = (a) (b) (c) (d)
(g) = (f)/(e)

for instance;

Consumptive Use on the farm of San Pedro de Iguaque in Jan

$$(ej) = 0.25 \times 0.25 + 0.125 \times 0.25 + 0.25 \times 0.75 + 0.25 \times 0.75 = 0.469$$

$$(fj) = 83.83(0.87 \times 0.25 \times 0.25 + 1.0 \times 0.125 \times 0.25 + 0.94 \times 0.25 \times 0.75 + 0.86 \times 0.25 \times 0.75) = 35.74 \text{ mm/month}$$

$$(gj) = 35.74 / 0.469 = 75.6 \text{ mm/month}$$

Table D.2 Net Water Requirement (1) San Pedro de Iguague (Cropping Pattern Type A) (Unit mm)

YEAR	ITEM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	Wr	35.5	23.8	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	564.9
	Re	7.8	15.2	32.4	49.1	58.9	37.3	7.8	7.2	31.6	40.6	53.6	5.3	327.0
	Wt	27.3	10.8	13.5	9.4	29.4	14.5	19.0	28.9	18.5	13.5	10.1	41.3	235.3
1975	Wr	35.5	23.8	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	564.9
	Re	2.3	15.2	25.5	40.3	56.0	21.5	13.2	19.1	31.6	49.7	33.4	33.2	340.9
	Wt	33.5	9.6	23.1	20.5	10.1	30.5	12.9	17.0	14.3	15.0	19.2	19.7	225.3
1976	Wr	35.5	24.6	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	565.8
	Re	8.5	12.7	32.1	30.6	27.3	17.9	1.0	5.0	14.8	48.6	25.7	16.5	240.7
	Wt	28.3	11.3	14.6	28.1	40.3	35.8	27.1	28.3	34.6	13.4	32.4	32.4	324.6
1977	Wr	35.5	23.8	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	564.9
	Re	3.9	10.5	16.2	30.3	25.8	18.9	15.8	12.1	28.0	35.2	37.4	10.9	245.9
	Wt	31.2	14.3	30.0	34.6	37.4	30.2	12.7	21.2	25.6	21.7	18.2	40.8	318.0
1978	Wr	35.5	23.8	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	564.9
	Re	2.2	6.8	25.7	45.5	39.4	23.0	14.1	8.9	18.0	32.8	39.3	24.7	279.5
	Wt	32.6	18.0	24.0	9.2	31.5	27.0	13.3	27.3	28.6	25.5	19.8	31.2	288.3
1979	Wr	35.5	23.8	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	564.9
	Re	8.9	7.6	25.3	38.0	43.5	17.9	8.6	15.1	23.5	45.2	43.4	17.3	294.2
	Wt	24.5	16.5	19.5	28.6	22.6	28.9	23.3	18.2	20.3	18.5	11.1	35.4	267.8
1980	Wr	35.5	24.6	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	565.8
	Re	2.7	12.6	19.4	37.5	26.1	25.9	7.3	8.6	26.7	40.7	37.9	23.7	269.1
	Wt	31.5	12.2	30.1	25.5	36.5	23.6	21.8	25.4	25.3	15.2	24.3	25.4	296.9
1981	Wr	35.5	23.8	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	564.9
	Re	5.1	13.5	7.3	40.5	51.3	22.2	8.7	14.8	23.4	43.0	46.9	24.0	302.5
	Wt	29.0	11.4	39.1	25.9	15.0	27.1	18.9	20.8	22.9	22.4	9.2	26.3	266.9
1982	Wr	35.5	23.8	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	564.9
	Re	15.7	20.5	32.8	58.2	22.8	12.9	9.4	1.4	25.1	35.4	40.3	28.9	303.4
	Wt	20.2	3.3	14.1	2.6	36.8	42.3	18.5	31.3	26.4	21.1	19.7	21.2	257.6
1983	Wr	35.5	23.8	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	564.9
	Re	1.4	5.6	18.1	32.9	34.3	23.7	11.0	7.7	19.5	39.0	35.3	38.2	286.8
	Wt	33.6	19.5	28.8	11.7	27.6	31.7	15.6	26.7	30.3	23.8	22.2	9.5	278.7
MEAN	Wr	35.5	23.9	46.8	60.8	66.1	52.0	28.8	33.2	48.7	59.9	58.4	51.0	565.1
	Re	5.9	12.0	23.5	42.3	36.5	22.1	9.8	10.0	24.2	41.0	39.4	22.3	289.0
	Wt	29.2	12.7	23.4	19.6	28.7	29.0	18.3	24.5	24.7	19.0	18.6	28.3	276.0

(Unit mm)

(2) Santa Sofia (Cropping Pattern Type A)

YEAR	ITEM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.1
	Re	.5	9.0	31.9	50.9	31.8	12.3	2.3	8.2	41.7	46.2	36.2	.5	271.3
	Wt	1.2	5.2	12.7	10.1	24.3	4.9	4.9	30.9	25.2	15.9	7.1	2.6	144.9
1975	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.1
	Re	.1	9.6	24.3	41.6	45.8	7.0	3.7	21.6	41.2	56.5	22.7	2.5	275.7
	Wt	1.5	4.8	22.7	21.8	8.4	10.2	3.2	17.5	20.1	17.7	12.3	1.1	141.4
1976	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.6
	Re	.5	7.3	31.1	31.4	22.1	5.9	.4	5.7	19.4	54.8	17.6	1.3	197.4
	Wt	1.2	6.2	13.4	30.7	33.4	11.3	7.3	30.2	45.9	16.1	21.7	1.9	219.2
1977	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.1
	Re	.2	6.1	15.9	30.7	20.9	6.2	5.2	13.6	36.9	29.5	25.3	.8	201.2
	Wt	1.4	7.4	28.7	36.9	30.8	10.1	3.0	22.5	34.0	25.7	12.1	2.7	215.4
1978	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.1
	Re	.1	3.9	24.7	47.4	32.1	7.5	4.0	9.8	23.3	40.5	26.0	1.7	221.2
	Wt	1.5	9.6	23.3	9.7	26.2	9.1	3.4	29.2	38.9	26.4	13.4	2.0	192.7
1979	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.1
	Re	.5	4.4	24.2	38.0	35.6	5.9	2.3	17.0	30.7	51.1	30.3	1.3	242.4
	Wt	1.1	8.7	19.3	28.3	19.8	9.6	6.5	19.8	28.1	22.0	6.5	2.3	172.1
1980	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.6
	Re	.2	6.6	18.7	38.0	21.1	8.5	2.0	6.2	34.6	46.6	25.9	1.7	210.4
	Wt	1.4	6.6	28.8	27.7	30.2	7.9	6.0	30.4	34.4	17.5	16.3	1.5	208.7
1981	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.1
	Re	.3	7.7	7.2	42.0	41.8	7.2	2.7	16.8	30.6	48.1	22.9	1.8	239.3
	Wt	1.3	5.6	36.7	26.8	12.6	9.1	4.8	21.7	30.7	26.9	5.9	1.4	183.6
1982	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.1
	Re	.9	11.5	32.0	60.6	19.0	4.2	2.8	1.7	32.7	40.3	27.1	2.0	235.0
	Wt	.9	1.6	13.9	2.7	28.8	14.1	4.6	33.9	35.1	24.7	13.3	1.1	175.2
1983	Mr	1.7	13.1	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.1
	Re	.1	3.4	17.6	54.8	38.0	7.8	3.5	8.7	24.2	43.7	21.6	2.5	215.8
	Wt	1.6	10.1	26.1	12.3	22.8	10.2	3.8	28.4	41.5	28.1	17.0	.6	202.7
MEAN	Mr	1.7	13.2	45.8	63.4	54.2	17.3	7.6	36.8	65.3	68.7	39.0	3.3	416.2
	Re	.3	6.9	22.7	43.6	28.8	7.3	2.9	10.9	31.5	46.7	26.6	1.6	231.0
	Wt	1.3	6.6	22.6	20.7	23.8	9.7	4.7	26.5	33.4	22.1	12.6	1.7	185.7

(3) Caqueza (Cropping Pattern Type B) (Unit mm)

YEAR	ITEM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.5
	Re	3.2	2.0	2.8	17.0	39.8	41.2	47.3	18.0	18.8	39.3	29.9	5	259.8
	Wi	9.5	2.7	10.5	12.0	8.5	22.1	17.6	18.3		18.2	26.7	30.8	203.0
1975	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.5
	Re	6	1.2	3.5	13.8	34.2	49.3	43.1	27.3	19.4	34.1	29.0	15.0	270.6
	Wi	12.0	3.5	10.1	15.2	13.6	13.0	21.8	10.6		14.8	27.3	16.4	191.7
1976	Wr	12.7	4.7	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.7
	Re	8	3	5.5	19.7	38.3	49.7	42.7	18.3	17.2	23.9	28.1	4.9	249.4
	Wi	12.1	4.3	7.9	10.5	10.7	10.5	18.7	20.2		20.4	32.7	26.3	211.5
1977	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.5
	Re	0.0	1.2	1.8	15.3	25.6	45.6	41.2	21.2	14.5	26.7	27.2	2.0	222.2
	Wi	12.6	3.4	11.7	13.3	24.6	16.7	20.0	17.6		22.0	32.6	29.6	259.9
1978	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.5
	Re	5	6	2.6	11.6	35.2	51.0	37.6	27.4	25.3	20.3	15.2	7.7	236.0
	Wi	12.3	3.9	11.1	17.9	12.8	11.1	25.4	10.3		11.7	44.9	23.7	225.1
1979	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.5
	Re	1.4	0.0	5.0	17.1	21.3	42.8	32.9	22.3	18.7	46.9	30.8	6.5	245.8
	Wi	11.2	4.6	8.3	12.8	26.8	19.0	29.6	16.5		18.5	30.9	22.9	217.2
1980	Wr	12.7	4.7	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.7
	Re	2.6	1.0	2.0	13.2	27.0	51.7	30.5	21.2	19.0	24.2	11.6	5.9	219.9
	Wi	10.0	3.7	11.9	14.0	23.7	11.5	31.4	16.7		18.5	48.6	25.4	242.6
1981	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.5
	Re	0.0	9	2	16.3	31.8	41.2	38.5	18.0	23.8	24.5	23.3	3.9	242.3
	Wi	12.7	3.7	13.0	12.8	19.7	17.5	25.5	20.1		14.2	27.9	27.9	220.6
1982	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.5
	Re	3.4	1.0	4.9	19.0	33.0	32.2	48.5	27.1	16.8	31.2	17.3	5.2	240.6
	Wi	9.9	3.6	8.7	10.6	15.7	28.9	12.6	13.5		19.6	29.8	26.5	219.7
1983	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.5
	Re	1.0	1.7	2.1	16.9	28.1	13.7	47.9	22.2	14.9	37.2	20.9	8.5	218.9
	Wi	11.4	5.0	10.8	10.6	20.3	47.9	17.5	13.7		23.9	37.5	21.8	243.2
MEAN	Wr	12.7	4.6	13.4	28.4	49.0	62.3	63.7	37.9	36.5	63.6	60.0	31.4	463.6
	Re	1.4	1.0	3.0	16.2	31.6	41.6	41.1	22.3	18.8	32.8	24.3	6.1	240.6
	Wi	11.3	3.6	10.4	13.0	17.6	19.6	22.0	15.7	16.2	29.5	35.1	25.1	221.4

(4) Tibacuy (Cropping Pattern Type A)

(Unit mm)

YEAR	ITEM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1972	Wr	23.8	35.7	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	576.8
	Re	11.1	16.1	27.9	40.2	33.3	18.6	5.5	14.0	18.0	23.9	30.0	8.0	246.7
	Wi	12.7	21.0	26.3	20.6	19.4	28.2	45.9	46.2	37.9	42.5	17.2	13.6	331.6
1973	Wr	23.8	34.5	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	575.6
	Re	2.7	5.8	11.2	14.4	25.8	15.4	18.3	31.0	31.6	38.9	28.2	13.9	238.3
	Wi	21.0	28.6	44.7	44.5	32.4	28.3	34.4	28.6	22.6	24.8	21.3	8.9	339.7
1974	Wr	23.8	34.5	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	575.6
	Re	13.3	23.8	42.0	38.5	20.9	10.5	6.0	12.9	20.3	40.1	27.5	3.6	259.4
	Wi	11.3	8.3	14.3	24.0	33.6	34.5	44.5	47.4	34.4	27.6	17.6	19.1	316.6
1975	Wr	23.8	34.5	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	575.6
	Re	1.6	18.1	29.8	23.5	26.0	19.1	24.0	20.9	24.1	40.6	30.3	14.7	272.6
	Wi	22.1	17.8	27.8	35.5	26.5	28.6	26.4	39.9	29.1	27.2	16.9	7.2	304.9
1976	Wr	23.8	35.7	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	576.8
	Re	4.0	13.1	46.6	31.6	18.2	17.3	2.0	9.9	23.7	42.1	22.3	9.1	238.3
	Wi	19.6	22.4	10.7	28.5	36.6	30.5	47.7	48.1	37.1	17.8	25.0	14.1	328.2
1977	Wr	23.8	34.5	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	575.6
	Re	3.8	4.5	29.6	28.7	15.9	14.5	13.3	10.3	27.1	27.0	29.7	7.5	211.9
	Wi	20.0	29.6	29.7	30.6	35.9	32.1	38.7	46.9	30.3	40.3	14.3	15.6	354.9
1978	Wr	23.8	34.5	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	575.6
	Re	2.8	7.6	32.1	32.6	21.0	21.7	10.6	7.2	23.5	34.3	27.4	12.5	233.3
	Wi	20.1	28.7	25.0	22.5	37.3	24.7	38.1	51.5	33.2	29.5	23.3	9.1	342.8
1979	Wr	23.8	34.5	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	575.6
	Re	5.4	7.1	30.5	26.8	19.7	21.9	13.9	21.8	18.7	34.8	35.9	5.8	242.3
	Wi	18.4	29.6	22.2	28.0	32.6	24.7	40.1	36.3	34.5	30.1	12.6	18.5	333.6
1980	Wr	23.8	35.7	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	576.8
	Re	6.3	23.9	17.0	31.0	13.7	24.9	7.9	25.9	22.0	28.7	21.9	12.7	235.9
	Wi	17.1	12.2	39.2	29.1	39.1	24.2	41.5	35.4	33.8	32.2	26.0	12.0	342.3
1981	Wr	23.8	34.5	56.3	58.9	55.0	45.7	51.6	58.1	57.0	63.4	47.2	23.1	575.6
	Re	3.2	14.2	11.9	40.6	47.5	23.0	9.2	24.8	11.3	56.2	31.3	7.2	260.4
	Wi	20.5	18.0	44.1	22.1	8.1	22.1	41.8	35.3	45.8	29.2	13.8	17.0	316.0
-MEAN	Wr	23.8	34.9	56.3	58.9	55.0	46.7	51.6	58.1	57.0	63.4	47.2	23.1	576.0
	Re	5.4	13.4	27.5	20.8	24.0	18.7	11.1	17.9	22.0	34.7	28.5	9.5	243.9
	Wi	18.5	21.6	28.4	29.4	30.0	27.8	39.9	41.6	33.9	30.1	18.8	13.4	333.1

Explanation of Table D.2

Note: W_r : Consumptive Use, Value of (f) in Table D.2

R_e : Effective Rainfall

As shown in the below figure, moisture holding in the root zone effectively out of rainfall is summed up in monthly basis and multiplied by factor to calculate R_e .

$$\text{Sum up value} \times \text{factor (e)} = R_e$$

(e) : factor shown in Table D.1

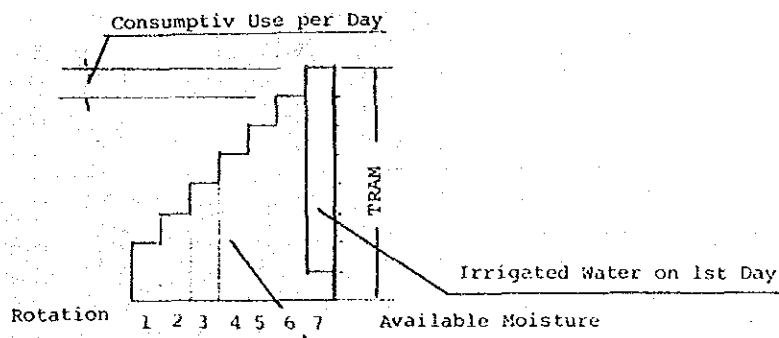
W_i : Net Water Requirement

Irrigation water amount calculated as shown in the below figure is summed up in monthly basis and multiplied by (e).

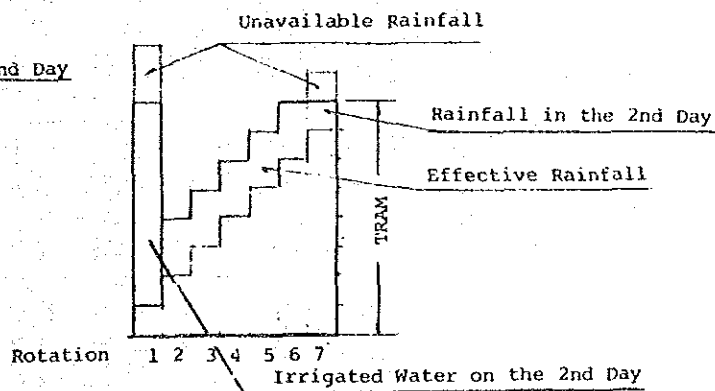
$$\text{Sum up value} \times \text{factor (e)} = W_i$$

For instance in case of 7 days interval

1st Day



2nd Day



3rd Day

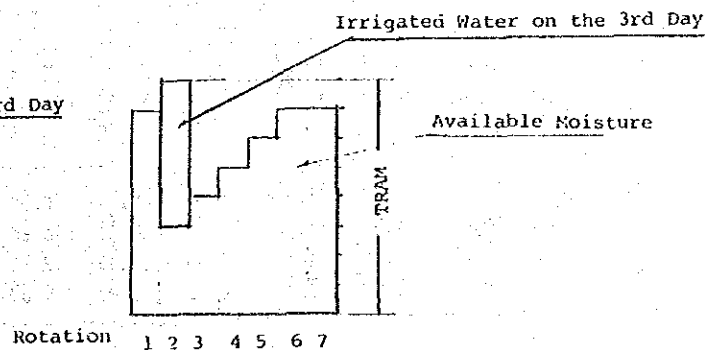


Table D.3 Water Balance

(1) Carrizal System in San Pedro de Iguaque

C.A. (km²) = 5.60

F.A. (ha) = 120.00

Irrigation Coefficient = 0.80

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m ³ /y)
	Dq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1974	Qi	12.88	16.24	20.16	21.84	18.48	20.16	14.56	12.88	20.16	25.20	23.52	12.88	574850.
	Aw	12.88	16.24	20.16	21.84	18.48	20.16	14.56	12.88	20.16	25.20	23.52	12.88	574850.
	Dw	15.29	6.70	7.56	5.44	16.47	8.39	10.64	16.19	10.71	7.56	5.84	23.13	354300.
	Ba	-2.41	0.00	0.00	0.00	0.00	0.00	0.00	-3.31	0.00	0.00	0.00	-10.25	42757.
1975	Qi	11.20	16.24	16.24	18.48	25.20	16.24	20.16	16.24	18.48	25.20	18.48	20.16	585059.
	Aw	11.20	16.24	16.24	18.48	25.20	16.24	20.16	16.24	18.48	25.20	18.48	20.16	585059.
	Dw	18.76	5.95	12.94	11.86	5.66	17.65	7.22	9.52	8.28	8.40	11.11	11.03	338100.
	Ba	-7.56	0.00	0.00	0.00	0.00	-1.41	0.00	0.00	0.00	0.00	0.00	0.00	23908.
1976	Qi	12.88	16.24	18.48	25.20	14.56	14.56	11.20	12.88	14.56	25.20	18.48	16.24	527869.
	Aw	12.88	16.24	18.48	25.20	14.56	14.56	11.20	12.88	14.56	25.20	18.48	16.24	527869.
	Dw	15.85	6.76	8.18	16.26	22.57	19.56	15.18	15.85	20.02	7.50	18.75	18.15	486900.
	Ba	-2.97	0.00	0.00	0.00	-8.01	-5.00	-3.98	-2.97	-5.46	0.00	-0.27	-1.91	80932.
1977	Qi	11.20	14.56	16.24	14.56	16.24	14.56	18.48	14.56	18.48	20.16	20.16	12.88	504839.
	Aw	11.20	14.56	16.24	14.56	16.24	14.56	18.48	14.56	18.48	20.16	20.16	12.88	504839.
	Dw	17.47	8.87	16.80	20.02	20.95	17.48	7.11	11.87	14.81	12.15	10.53	22.85	476850.
	Ba	-6.27	0.00	-0.56	-5.46	-4.71	-2.92	0.00	0.00	0.00	0.00	0.00	-9.97	79331.
1978	Qi	11.20	14.56	20.16	28.56	16.24	20.16	16.24	12.88	16.24	25.20	18.48	14.56	563480.
	Aw	11.20	14.56	20.16	28.56	16.24	20.16	16.24	12.88	16.24	25.20	18.48	14.56	563480.
	Dw	18.37	11.16	13.44	5.32	17.64	15.62	7.45	15.29	16.55	14.28	11.46	17.47	432300.
	Ba	-7.17	0.00	0.00	0.00	-1.40	0.00	0.00	-2.41	-0.31	0.00	0.00	-2.91	38015.
1979	Qi	12.88	18.48	18.48	20.16	26.88	20.16	16.24	18.48	20.16	25.20	32.48	12.88	636637.
	Aw	12.88	18.48	18.48	20.16	26.88	20.16	16.24	18.48	20.16	25.20	32.48	12.88	636637.
	Dw	13.72	10.23	11.14	16.55	12.66	16.72	13.05	10.19	11.75	10.36	6.42	19.83	401700.
	Ba	-0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-6.95	20854.
1980	Qi	11.20	18.48	14.56	16.24	18.48	18.48	12.88	12.88	16.24	28.56	20.16	16.24	538127.
	Aw	11.20	18.48	14.56	16.24	18.48	18.48	12.88	12.88	16.24	28.56	20.16	16.24	538127.
	Dw	17.64	7.30	16.86	14.76	20.44	13.66	12.21	14.22	14.64	8.51	14.06	14.22	445200.
	Ba	-6.44	0.00	-2.30	0.00	-1.96	0.00	0.00	-1.34	0.00	0.00	0.00	0.00	32260.
1981	Qi	12.88	16.24	12.88	25.20	28.56	18.48	14.56	14.56	16.24	21.84	21.84	14.56	572189.
	Aw	12.88	16.24	12.88	25.20	28.56	18.48	14.56	14.56	16.24	21.84	21.84	14.56	572189.
	Dw	16.24	7.07	21.34	14.99	8.40	15.68	10.58	11.65	13.25	12.54	5.32	14.73	400500.
	Ba	-3.36	0.00	-8.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.17	32107.
1982	Qi	16.24	23.52	23.52	30.24	21.84	12.88	14.56	12.88	18.48	30.24	21.84	16.24	636153.
	Aw	16.24	23.52	23.52	30.24	21.84	12.88	14.56	12.88	18.48	30.24	21.84	16.24	636153.
	Dw	11.31	2.05	7.90	1.50	20.61	24.48	10.36	17.53	15.28	11.82	11.40	11.87	386250.
	Ba	0.00	0.00	0.00	0.00	0.00	-11.60	0.00	-4.65	0.00	0.00	0.00	0.00	42517.
1983	Qi	11.20	12.88	14.56	25.20	23.52	16.24	14.56	11.20	12.88	20.16	18.48	23.52	537836.
	Aw	11.20	12.88	14.56	25.20	23.52	16.24	14.56	11.20	12.88	20.16	18.48	23.52	537836.
	Dw	18.82	12.09	15.01	6.77	15.46	18.34	8.74	14.95	17.53	13.33	12.85	5.32	418500.
	Ba	-7.62	0.00	-0.45	0.00	0.00	-2.10	0.00	-3.75	-4.65	0.00	0.00	0.00	49177.

Legend

Wr : Water Right (l/s)

Qi : Discharge at Diversion

Site (l/s)

Aw : Available Water (l/s)

Dw : Diversion Water Requirement (l/s)

Ba : Water Shortage (l/s)

(2) Yerbabuena No.1 System in San Pedro de Iguaque

C.A. (km²) = 2.34

F.A. (ha) = 26.00

Irrigation Coefficient = 0.80

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
	Dq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TOTAL (m ³ /y)
1974	Qi	5.38	6.79	8.42	9.13	7.72	8.42	6.08	5.38	8.42	10.53	9.83	5.38	240205.
	Av	5.38	6.79	8.42	9.13	7.72	8.42	6.08	5.38	8.42	10.53	9.83	5.38	240205.
	Dv	3.31	1.45	1.64	1.18	3.57	1.82	2.31	3.51	2.32	1.64	1.27	5.01	76765.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1975	Qi	4.68	6.79	6.79	7.72	10.53	6.79	8.42	6.79	7.72	10.53	7.72	8.42	244471.
	Av	4.68	6.79	6.79	7.72	10.53	6.79	8.42	6.79	7.72	10.53	7.72	8.42	244471.
	Dv	4.06	1.29	2.80	2.57	1.23	3.82	1.57	2.06	1.79	1.82	2.41	2.39	73255.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1976	Qi	5.38	6.79	7.72	10.53	6.08	6.08	4.68	5.38	6.08	10.53	7.72	6.79	220574.
	Av	5.38	6.79	7.72	10.53	6.08	6.08	4.68	5.38	6.08	10.53	7.72	6.79	220574.
	Dv	3.43	1.47	1.77	3.52	4.89	4.24	3.29	3.43	4.34	1.63	4.06	3.93	105495.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1977	Qi	4.68	6.08	6.79	6.08	6.79	6.08	7.72	6.08	7.72	8.42	8.42	5.38	210950.
	Av	4.68	6.08	6.79	6.08	6.79	6.08	7.72	6.08	7.72	8.42	8.42	5.38	210950.
	Dv	3.79	1.92	3.64	4.34	4.54	3.79	1.54	2.57	3.21	2.63	2.28	4.95	103317.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1978	Qi	4.68	6.08	8.42	11.93	6.79	8.42	6.79	5.38	6.79	10.53	7.72	6.08	235454.
	Av	4.68	6.08	8.42	11.93	6.79	8.42	6.79	5.38	6.79	10.53	7.72	6.08	235454.
	Dv	3.98	2.42	2.91	1.15	3.82	3.39	1.61	3.31	3.59	3.09	2.48	3.79	93665.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1979	Qi	5.38	7.72	7.72	8.42	11.23	8.42	6.79	7.72	8.42	10.53	13.57	5.38	266023.
	Av	5.38	7.72	7.72	8.42	11.23	8.42	6.79	7.72	8.42	10.53	13.57	5.38	266023.
	Dv	2.97	2.22	2.41	3.59	2.74	3.62	2.83	2.21	2.55	2.24	1.39	4.30	87035.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1980	Qi	4.68	7.72	6.08	6.79	7.72	7.72	5.38	5.38	6.79	11.93	8.42	6.79	224860.
	Av	4.68	7.72	6.08	6.79	7.72	7.72	5.38	5.38	6.79	11.93	8.42	6.79	224860.
	Dv	3.82	1.58	3.65	3.20	4.43	2.96	2.65	3.08	3.17	1.84	3.05	3.08	96460.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1981	Qi	5.38	6.79	5.38	10.53	11.93	7.72	6.08	6.08	6.79	9.13	9.13	6.08	239093.
	Av	5.38	6.79	5.38	10.53	11.93	7.72	6.08	6.08	6.79	9.13	9.13	6.08	239093.
	Dv	3.52	1.53	4.62	3.25	1.82	3.40	2.29	2.52	2.87	2.72	1.15	3.19	86775.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1982	Qi	6.79	9.83	9.83	12.64	9.13	5.38	6.08	5.38	7.72	12.64	9.13	6.79	265821.
	Av	6.79	9.83	9.83	12.64	9.13	5.38	6.08	5.38	7.72	12.64	9.13	6.79	265821.
	Dv	2.45	0.44	1.71	0.33	4.47	5.30	2.24	3.80	3.31	2.56	2.47	2.57	83687.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1983	Qi	4.68	5.38	6.08	10.53	9.83	6.79	6.08	4.68	5.38	8.42	7.72	9.83	224739.
	Av	4.68	5.38	6.08	10.53	9.83	6.79	6.08	4.68	5.38	8.42	7.72	9.83	224739.
	Dv	4.08	2.62	3.25	1.47	3.35	3.97	1.89	3.24	3.80	2.89	2.78	1.15	90675.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.

(3) Yerbabuena No.2 in San Pedro de Iguaque
 C.A. (km²) = 0.60 F.A. (ha) = 16.00 Irrigation Coefficient = 0.80

Year	Dq	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m ³ /y)
		Wr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1974	Qi	1.38	1.74	2.16	2.34	1.98	2.16	1.56	1.38	2.16	2.70	2.52	1.38	61591.
	Aw	1.38	1.74	2.16	2.34	1.98	2.16	1.56	1.38	2.16	2.70	2.52	1.38	61591.
	Dv	2.04	0.89	1.01	0.73	2.20	1.12	1.42	2.16	1.43	1.01	0.78	3.08	47240.
	Ba	-0.66	0.00	0.00	0.00	-0.22	0.00	0.00	-0.78	0.00	0.00	0.00	-1.70	8988.
1975	Qi	1.20	1.74	1.74	1.98	2.70	1.74	2.16	1.74	1.98	2.70	1.98	2.16	62685.
	Aw	1.20	1.74	1.74	1.98	2.70	1.74	2.16	1.74	1.98	2.70	1.98	2.16	62685.
	Dv	2.50	0.79	1.72	1.58	0.75	2.35	0.96	1.27	1.10	1.12	1.48	1.47	45080.
	Ba	-1.30	0.00	0.00	0.00	0.00	-0.61	0.00	0.00	0.00	0.00	0.00	0.00	5076.
1976	Qi	1.38	1.74	1.98	2.70	1.56	1.56	1.20	1.38	1.56	2.70	1.98	1.74	56557.
	Aw	1.38	1.74	1.98	2.70	1.56	1.56	1.20	1.38	1.56	2.70	1.98	1.74	56557.
	Dv	2.11	0.90	1.09	2.17	3.01	2.61	2.02	2.11	2.67	1.00	2.50	2.42	64920.
	Ba	-0.73	0.00	0.00	0.00	-1.45	-1.05	-0.82	-0.73	-1.11	0.00	-0.52	-0.68	18776.
1977	Qi	1.20	1.56	1.74	1.56	1.74	1.56	1.98	1.56	1.98	2.16	2.16	1.38	54090.
	Aw	1.20	1.56	1.74	1.56	1.74	1.56	1.98	1.56	1.98	2.16	2.16	1.38	54090.
	Dv	2.33	1.18	2.24	2.67	2.79	2.33	0.95	1.58	1.98	1.62	1.40	3.05	63580.
	Ba	-1.13	0.00	-0.50	-1.11	-1.05	-0.77	0.00	-0.02	0.00	0.00	0.00	-1.67	16584.
1978	Qi	1.20	1.56	2.16	3.06	1.74	2.16	1.74	1.38	1.74	2.70	1.98	1.56	60373.
	Aw	1.20	1.56	2.16	3.06	1.74	2.16	1.74	1.38	1.74	2.70	1.98	1.56	60373.
	Dv	2.45	1.49	1.79	0.71	2.35	2.08	0.99	2.04	2.21	1.90	1.53	2.33	57640.
	Ba	-1.25	0.00	0.00	0.00	-0.61	0.00	0.00	-0.66	-0.47	0.00	0.00	-0.77	10021.
1979	Qi	1.38	1.98	1.98	2.16	2.88	2.16	1.74	1.98	2.16	2.70	3.48	1.38	68211.
	Aw	1.38	1.98	1.98	2.16	2.88	2.16	1.74	1.98	2.16	2.70	3.48	1.38	68211.
	Dv	1.83	1.36	1.49	2.21	1.69	2.23	1.74	1.36	1.57	1.38	0.86	2.64	53560.
	Ba	-0.45	0.00	0.00	-0.05	0.00	-0.07	0.00	0.00	0.00	0.00	0.00	-1.26	4890.
1980	Qi	1.20	1.98	1.56	1.74	1.98	1.98	1.38	1.38	1.74	3.06	2.16	1.74	57656.
	Aw	1.20	1.98	1.56	1.74	1.98	1.98	1.38	1.38	1.74	3.06	2.16	1.74	57656.
	Dv	2.35	0.97	2.25	1.97	2.73	1.82	1.63	1.90	1.95	1.14	1.87	1.90	59360.
	Ba	-1.15	0.00	-0.69	-0.23	-0.75	0.00	-0.25	-0.52	-0.21	0.00	0.00	-0.16	10531.
1981	Qi	1.38	1.74	1.38	2.70	3.06	1.98	1.56	1.56	1.74	2.34	2.34	1.56	61306.
	Aw	1.38	1.74	1.38	2.70	3.06	1.98	1.56	1.56	1.74	2.34	2.34	1.56	61306.
	Dv	2.17	0.94	2.84	2.00	1.12	2.09	1.41	1.55	1.77	1.67	0.71	1.96	53400.
	Ba	-0.79	0.00	-1.46	0.00	0.00	-0.11	0.00	0.00	-0.03	0.00	0.00	-0.40	7467.
1982	Qi	1.74	2.52	2.52	3.24	2.34	1.38	1.56	1.38	1.98	3.24	2.34	1.74	68159.
	Aw	1.74	2.52	2.52	3.24	2.34	1.38	1.56	1.38	1.98	3.24	2.34	1.74	68159.
	Dv	1.51	0.27	1.05	0.20	2.75	3.26	1.38	2.34	2.04	1.58	1.52	1.58	51500.
	Ba	0.00	0.00	0.00	0.00	-0.41	-1.88	0.00	-0.96	-0.06	0.00	0.00	0.00	8687.
1983	Qi	1.20	1.38	1.56	2.70	2.52	1.74	1.56	1.20	1.38	2.16	1.98	2.52	57625.
	Aw	1.20	1.38	1.56	2.70	2.52	1.74	1.56	1.20	1.38	2.16	1.98	2.52	57625.
	Dv	2.51	1.61	2.00	0.90	2.06	2.45	1.16	1.99	2.34	1.78	1.71	0.71	55800.
	Ba	-1.31	-0.23	-0.44	0.00	0.00	-0.71	0.00	-0.79	-0.96	0.00	0.00	0.00	11688.

(4) Piedras in Santa Sofia

C.A.(km2) = 2.97

F.A.(ha) = 55.00

Irrigation Coefficient = 0.85

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
	Dq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TOTAL(m3/y)
1974	Qi	16.04	27.92	36.83	45.74	33.86	39.80	19.01	10.10	39.80	63.56	51.68	13.07	1041828.
	Aw	16.04	27.92	36.83	45.74	33.86	39.80	19.01	10.10	39.80	63.56	51.68	13.07	1041828.
	Dw	0.29	1.39	3.07	2.52	5.87	1.22	1.18	7.46	6.29	3.84	1.77	0.63	93824.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1975	Qi	7.13	27.92	27.92	30.89	57.62	30.89	39.80	24.95	33.86	54.65	36.83	39.80	1085452.
	Aw	7.13	27.92	27.92	30.89	57.62	30.89	39.80	24.95	33.86	54.65	36.83	39.80	1085452.
	Dw	0.36	1.28	5.48	5.44	2.03	2.55	0.77	4.23	5.02	4.28	3.07	0.27	91429.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1976	Qi	13.07	27.92	36.83	57.62	21.98	19.01	10.10	10.10	16.04	57.62	33.86	24.95	865641.
	Aw	13.07	27.92	36.83	57.62	21.98	19.01	10.10	10.10	16.04	57.62	33.86	24.95	865641.
	Dw	0.29	1.60	3.24	7.66	8.07	2.82	1.76	7.30	11.46	3.89	5.42	0.46	141900.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1977	Qi	10.10	21.98	21.98	21.98	30.89	21.98	30.89	21.98	27.92	39.80	42.77	16.04	810111.
	Aw	10.10	21.98	21.98	21.98	30.89	21.98	30.89	21.98	27.92	39.80	42.77	16.04	810111.
	Dw	0.34	1.98	6.93	9.21	7.44	2.52	0.72	5.44	8.49	6.21	3.02	0.65	139312.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1978	Qi	7.13	21.98	33.86	75.44	27.92	42.77	27.92	13.07	27.92	60.59	33.86	21.98	1035157.
	Aw	7.13	21.98	33.86	75.44	27.92	42.77	27.92	13.07	27.92	60.59	33.86	21.98	1035157.
	Dw	0.36	2.57	5.63	2.42	6.33	2.27	0.82	7.05	9.71	6.38	3.35	0.48	124688.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1979	Qi	13.07	36.83	33.86	36.83	66.53	39.80	21.98	27.92	42.77	51.68	93.26	19.01	1267130.
	Aw	13.07	36.83	33.86	36.83	66.53	39.80	21.98	27.92	42.77	51.68	93.26	19.01	1267130.
	Dw	0.27	2.33	4.66	7.06	4.81	2.40	1.57	4.78	7.01	5.31	1.62	0.56	111359.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1980	Qi	10.10	30.89	16.04	24.95	30.89	33.86	16.04	16.04	24.95	72.47	36.83	24.95	889506.
	Aw	10.10	30.89	16.04	24.95	30.89	33.86	16.04	16.04	24.95	72.47	36.83	24.95	889506.
	Dw	0.34	1.70	6.96	6.91	7.30	1.97	1.45	7.34	8.59	4.23	4.07	0.36	135041.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1981	Qi	16.04	21.98	13.07	57.62	75.44	33.86	21.98	21.98	30.89	39.80	45.74	21.98	1052093.
	Aw	16.04	21.98	13.07	57.62	75.44	33.86	21.98	21.98	30.89	39.80	45.74	21.98	1052093.
	Dw	0.31	1.50	8.87	6.69	3.04	2.27	1.16	5.24	7.66	6.50	1.47	0.34	118735.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1982	Qi	33.86	48.71	48.71	78.41	45.74	13.07	16.04	10.10	27.92	81.38	45.74	24.95	1244292.
	Aw	33.86	48.71	48.71	78.41	45.74	13.07	16.04	10.10	27.92	81.38	45.74	24.95	1244292.
	Dw	0.22	0.43	3.36	0.67	7.22	3.52	1.11	8.19	8.76	5.97	3.32	0.34	113947.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1983	Qi	10.10	10.10	19.01	57.62	51.68	30.89	21.98	13.07	16.04	39.80	33.86	54.65	946370.
	Aw	10.10	10.10	19.01	57.62	51.68	30.89	21.98	13.07	16.04	39.80	33.86	54.65	946370.
	Dw	0.39	2.70	6.31	3.07	5.51	2.55	0.92	6.86	10.36	6.79	4.24	0.14	131029.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.

(5) La Laja System in Santa Sofia

C.A. (km²) = 3.03

F.A. (ha) = 72.00

Irrigation Coefficient = 0.85

Year	Dq Wr	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m ³ /y)
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1974	Qi	16.36	28.48	37.57	46.66	34.54	40.60	19.39	10.30	40.60	64.84	52.72	13.33	1062875.
	Aw	14.10	26.22	35.31	44.40	32.28	38.34	17.13	8.04	38.34	62.58	50.46	11.07	991604.
	Dw	0.38	1.82	4.02	3.30	7.69	1.60	1.55	9.77	8.24	5.03	2.32	0.82	122824.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.73	0.00	0.00	0.00	0.00	4634.
1975	Qi	7.27	28.48	28.48	31.51	58.78	31.51	40.60	25.45	34.54	55.75	37.57	40.60	1107380.
	Aw	5.01	26.22	26.22	29.25	56.52	29.25	38.34	23.19	32.28	53.49	35.31	38.34	1036109.
	Dw	0.47	1.68	7.18	7.12	2.66	3.33	1.01	5.53	6.57	5.60	4.02	0.35	119689.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1976	Qi	13.33	28.48	37.57	58.78	22.42	19.39	10.30	10.30	16.36	58.78	34.54	25.45	883129.
	Aw	11.07	26.22	35.31	56.52	20.16	17.13	8.04	8.04	14.10	56.52	32.28	23.19	811662.
	Dw	0.38	2.10	4.24	10.03	10.56	3.69	2.31	9.55	15.00	5.09	7.09	0.60	185760.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.51	-0.90	0.00	0.00	0.00	6369.
1977	Qi	10.30	22.42	22.42	22.42	31.51	22.42	31.51	22.42	28.48	40.60	43.63	16.36	826477.
	Aw	8.04	20.16	20.16	20.16	29.25	20.16	29.25	20.16	26.22	38.34	41.37	14.10	755206.
	Dw	0.44	2.59	9.08	12.06	9.74	3.30	0.95	7.12	11.11	8.13	3.95	0.85	182372.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1978	Qi	7.27	22.42	34.54	76.96	28.48	43.63	28.48	13.33	28.48	61.81	34.54	22.42	1056069.
	Aw	5.01	20.16	32.28	74.70	26.22	41.37	26.22	11.07	26.22	59.55	32.28	20.16	984797.
	Dw	0.47	3.36	7.37	3.17	8.29	2.97	1.08	9.23	12.71	8.35	4.38	0.63	163228.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1979	Qi	13.33	37.57	34.54	37.57	67.87	40.60	22.42	28.48	43.63	52.72	95.14	19.39	1292729.
	Aw	11.07	35.31	32.28	35.31	65.61	38.34	20.16	26.22	41.37	50.46	92.88	17.13	1221457.
	Dw	0.35	3.05	6.10	9.25	6.29	3.14	2.06	6.26	9.18	6.96	2.12	0.73	145779.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1980	Qi	10.30	31.51	16.36	25.45	31.51	34.54	16.36	16.36	25.45	73.93	37.57	25.45	907476.
	Aw	8.04	29.25	14.10	23.19	29.25	32.28	14.10	14.10	23.19	71.67	35.31	23.19	836009.
	Dw	0.44	2.23	9.11	9.05	9.55	2.58	1.90	9.61	11.24	5.53	5.33	0.47	176781.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1981	Qi	16.36	22.42	13.33	58.78	76.96	34.54	22.42	22.42	31.51	40.60	46.66	22.42	1073347.
	Aw	14.10	20.16	11.07	56.52	74.70	32.28	20.16	20.16	29.25	38.34	44.40	20.16	1002076.
	Dw	0.41	1.96	11.61	8.76	3.98	2.97	1.52	6.86	10.03	8.51	1.93	0.44	155435.
	Ba	0.00	0.00	-0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1432.
1982	Qi	34.54	49.69	49.69	79.99	46.66	13.33	16.36	10.30	28.48	83.02	46.66	25.45	1269429.
	Aw	32.28	47.43	47.43	77.73	44.40	11.07	14.10	8.04	26.22	80.76	44.40	23.19	1198158.
	Dw	0.28	0.56	4.40	0.88	9.46	4.61	1.45	10.72	11.47	7.81	4.35	0.44	149167.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2.68	0.00	0.00	0.00	0.00	7176.
1983	Qi	10.30	10.30	19.39	58.78	52.72	31.51	22.42	13.33	16.36	40.60	34.54	55.75	965489.
	Aw	8.04	8.04	17.13	56.52	50.46	29.25	20.16	11.07	14.10	38.34	32.28	53.49	894217.
	Dw	0.51	3.54	8.25	4.02	7.21	3.33	1.20	8.98	13.56	8.89	5.56	0.19	171529.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.

(6) Camelo System in Santa Sofia

C.A.(km²) = 3.74

F.A.(ha) = 74.00

Irrigation Coefficient = 0.85

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL(m ³ /y)	
		Dq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
		Wr	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88	6.88		
1974	Qi	20.20	35.16	46.38	57.60	42.64	50.12	23.94	12.72	50.12	80.04	65.08	16.46	1311932.	
	Aw	13.32	28.28	39.50	50.72	35.76	43.24	17.06	5.84	43.24	73.16	58.20	9.58	1094964.	
	Dw	0.39	1.87	4.13	3.39	7.90	1.65	1.59	10.04	8.46	5.17	2.38	0.85	126235.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-4.21	0.00	0.00	0.00	0.00	11270.	
1975	Qi	8.98	35.16	35.16	38.90	72.56	38.90	50.12	31.42	42.64	68.82	46.38	50.12	1366865.	
	Aw	2.10	28.28	28.28	32.02	65.68	32.02	43.24	24.54	35.76	61.94	39.50	43.24	1149897.	
	Dw	0.49	1.73	7.38	7.32	2.73	3.43	1.04	5.69	6.75	5.75	4.13	0.36	123014.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.	
1976	Qi	16.46	35.16	46.38	72.56	27.68	23.94	12.72	12.72	20.20	72.56	42.64	31.42	1090067.	
	Aw	9.58	28.28	39.50	65.68	20.80	17.06	5.84	5.84	13.32	65.68	35.76	24.54	872505.	
	Dw	0.39	2.15	4.36	10.31	10.86	3.80	2.37	9.82	15.42	5.23	7.29	0.62	190920.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-3.98	-2.10	0.00	0.00	0.00	16106.	
1977	Qi	12.72	27.68	27.68	27.68	38.90	27.68	38.90	27.68	35.16	50.12	53.86	20.20	1020140.	
	Aw	5.84	20.80	20.80	20.80	32.02	20.80	32.02	20.80	28.28	43.24	46.98	13.32	803173.	
	Dw	0.46	2.66	9.33	12.39	10.01	3.39	0.98	7.31	11.42	8.35	4.06	0.88	187438.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.	
1978	Qi	8.98	27.68	42.64	95.00	35.16	53.86	35.16	16.46	35.16	76.30	42.64	27.68	1303531.	
	Aw	2.10	20.80	35.76	88.12	28.28	46.98	28.28	9.58	28.28	69.42	35.76	20.80	1086563.	
	Dw	0.49	3.45	7.57	3.26	8.52	3.06	1.11	9.49	13.07	8.58	4.50	0.65	167762.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.	
1979	Qi	16.46	46.38	42.64	46.38	83.78	50.12	27.68	35.16	53.86	65.08	117.44	23.94	1595645.	
	Aw	9.58	39.50	35.76	39.50	76.90	43.24	20.80	28.28	46.98	58.20	110.56	17.06	1378678.	
	Dw	0.36	3.13	6.27	9.51	6.47	3.22	2.11	6.44	9.44	7.15	2.18	0.75	149828.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.	
1980	Qi	12.72	38.90	20.20	31.42	38.90	42.64	20.20	20.20	31.42	91.26	46.38	31.42	1120119.	
	Aw	5.84	32.02	13.32	24.54	32.02	35.76	13.32	13.32	24.54	84.38	39.50	24.54	902556.	
	Dw	0.46	2.29	9.36	9.30	9.82	2.65	1.95	9.88	11.55	5.69	5.47	0.49	181692.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.	
1981	Qi	20.20	27.68	16.46	72.56	95.00	42.64	27.68	27.68	38.90	50.12	57.60	27.68	1324857.	
	Aw	13.32	20.80	9.58	65.68	88.12	35.76	20.80	20.80	32.02	43.24	50.72	20.80	1107890.	
	Dw	0.42	2.02	11.93	9.00	4.10	3.06	1.56	7.05	10.31	8.74	1.98	0.46	159753.	
	Ba	0.00	0.00	-2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6302.	
1982	Qi	42.64	61.34	61.34	98.74	57.60	16.46	20.20	12.72	35.16	102.48	57.60	31.42	1566887.	
	Aw	35.76	54.46	54.46	91.86	50.72	9.58	13.32	5.84	28.28	95.60	50.72	24.54	1349919.	
	Dw	0.29	0.58	4.52	0.91	9.72	4.74	1.50	11.02	11.79	8.03	4.47	0.46	153311.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-5.18	0.00	0.00	0.00	0.00	13882.	
1983	Qi	12.72	12.72	23.94	72.56	65.08	38.90	27.68	16.46	20.20	50.12	42.64	68.82	1191725.	
	Aw	5.84	5.84	17.06	65.68	58.20	32.02	20.80	9.58	13.32	43.24	35.76	61.94	974758.	
	Dw	0.52	3.63	8.48	4.13	7.41	3.43	1.24	9.23	13.94	9.13	5.71	0.20	176294.	
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.62	0.00	0.00	0.00	1614.	

(7) Palonegro System in Santa Sofia
C.A. (km²) = 2.44

F.A. (ha) = 38.00

Irrigation Coefficient = 0.80

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m ³ /y)
	Dq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wr	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	
1974	Qi	13.18	22.94	30.26	37.58	27.82	32.70	15.62	8.30	32.70	52.22	42.46	10.74	855913.
	Aw	9.78	19.54	26.86	34.18	24.42	29.30	12.22	4.90	29.30	48.82	39.06	7.34	748690.
	Dw	0.21	1.02	2.25	1.85	4.31	0.90	0.87	5.48	4.62	2.82	1.30	0.46	68875.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.58	0.00	0.00	0.00	0.00	1564.
1975	Qi	5.86	22.94	22.94	25.38	47.34	25.38	32.70	20.50	27.82	44.90	30.26	32.70	891752.
	Aw	2.46	19.54	19.54	21.98	43.94	21.98	29.30	17.10	24.42	41.50	26.86	29.30	784529.
	Dw	0.27	0.94	4.03	3.99	1.49	1.87	0.57	3.10	3.68	3.14	2.25	0.20	67117.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1976	Qi	10.74	22.94	30.26	47.34	18.06	15.62	8.30	8.30	13.18	47.34	27.82	20.50	711167.
	Aw	7.34	19.54	26.86	43.94	14.66	12.22	4.90	4.90	9.78	43.94	24.42	17.10	603651.
	Dw	0.21	1.18	2.38	5.63	5.92	2.07	1.29	5.36	8.41	2.86	3.98	0.34	104167.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.46	0.00	0.00	0.00	0.00	1232.
1977	Qi	8.30	18.06	18.06	18.06	25.38	18.06	25.38	18.06	22.94	32.70	35.14	13.18	665546.
	Aw	4.90	14.66	14.66	14.66	21.98	14.66	21.98	14.66	19.54	29.30	31.74	9.78	558324.
	Dw	0.25	1.45	5.09	6.76	5.46	1.85	0.53	3.99	6.23	4.56	2.22	0.48	102267.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1978	Qi	5.86	18.06	27.82	61.98	22.94	35.14	22.94	10.74	22.94	49.78	27.82	18.06	850432.
	Aw	2.46	14.66	24.42	58.58	19.54	31.74	19.54	7.34	19.54	46.38	24.42	14.66	743209.
	Dw	0.27	1.88	4.13	1.78	4.65	1.67	0.60	5.18	7.13	4.68	2.46	0.35	91532.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1979	Qi	10.74	30.26	27.82	30.26	54.66	32.70	18.06	22.94	35.14	42.46	76.62	15.62	1041009.
	Aw	7.34	26.86	24.42	26.86	51.26	29.30	14.66	19.54	31.74	39.06	73.22	12.22	933787.
	Dw	0.20	1.71	3.42	5.19	3.53	1.76	1.15	3.51	5.15	3.90	1.19	0.41	81747.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1980	Qi	8.30	25.38	13.18	20.50	25.38	27.82	13.18	13.18	20.50	59.54	30.26	20.50	730773.
	Aw	4.90	21.98	9.78	17.10	21.98	24.42	9.78	9.78	17.10	56.14	26.86	17.10	623256.
	Dw	0.25	1.25	5.11	5.08	5.36	1.45	1.06	5.39	6.30	3.10	2.99	0.27	99132.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1981	Qi	13.18	18.06	10.74	47.34	61.98	27.82	18.06	18.06	25.38	32.70	37.58	18.06	864346.
	Aw	9.78	14.66	7.34	43.94	58.58	24.42	14.66	14.66	21.98	29.30	34.18	14.66	757123.
	Dw	0.23	1.10	6.51	4.91	2.23	1.67	0.85	3.85	5.63	4.77	1.08	0.25	87162.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1982	Qi	27.82	40.02	40.02	64.42	37.58	10.74	13.18	8.30	22.94	66.86	37.58	20.50	1022247.
	Aw	24.42	36.62	36.62	61.02	34.18	7.34	9.78	4.90	19.54	63.46	34.18	17.10	915024.
	Dw	0.16	0.31	2.47	0.49	5.30	2.58	0.82	6.01	6.43	4.38	2.44	0.25	83647.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.12	0.00	0.00	0.00	0.00	2989.
1983	Qi	8.30	8.30	15.62	47.34	42.46	25.38	18.06	10.74	13.18	32.70	27.82	44.90	777489.
	Aw	4.90	4.90	12.22	43.94	39.06	21.98	14.66	7.34	9.78	29.30	24.42	41.50	670267.
	Dw	0.28	1.98	4.63	2.25	4.04	1.87	0.67	5.04	7.61	4.98	3.12	0.11	96187.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.

(8) Caqueza System in Caqueza

C.A. (km²) = 6.15

F.A. (ha) = 403.00

Irrigation Coefficient = 0.85

Year	Dq Wr	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m ³ /y)
		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
1974	Q1	16.61	19.07	22.76	52.89	132.84	86.10	121.16	95.94	49.82	51.66	91.02	26.45	2023313.
	Aw	16.16	18.61	22.31	52.44	132.39	85.65	120.71	95.49	49.37	51.21	90.57	26.00	2009121.
	Dw	16.82	5.29	18.59	21.95	15.05	40.42	31.15	32.39	33.29	47.26	47.74	54.52	962459.
	Ba	-0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-28.53	78175.
1975	Q1	12.91	13.53	30.14	24.60	119.93	187.57	177.12	222.01	143.91	135.92	146.37	148.83	3603311.
	Aw	12.46	13.08	29.69	24.15	119.47	187.12	176.67	221.56	143.46	135.47	145.92	148.38	3589120.
	Dw	21.24	6.86	17.88	27.80	24.07	23.78	38.59	18.76	27.07	58.95	49.94	29.03	908409.
	Ba	-8.78	0.00	0.00	-3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32977.
1976	Q1	26.45	23.37	30.14	51.05	94.71	199.26	202.34	115.01	95.33	41.20	55.97	27.68	2539157.
	Aw	26.00	22.92	29.69	50.60	94.26	198.81	201.89	114.56	94.87	40.76	55.52	27.23	2524927.
	Dw	21.42	8.14	13.98	19.21	18.94	19.21	33.10	35.76	37.31	65.85	59.81	46.56	1002759.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-25.09	-4.30	-19.33	130129.
1977	Q1	12.30	11.07	12.91	23.37	31.36	61.50	111.32	56.58	60.27	44.28	116.85	27.06	1498169.
	Aw	11.85	10.62	12.46	22.92	30.91	61.05	110.87	56.13	59.82	43.83	116.40	26.61	1483978.
	Dw	22.30	6.66	20.71	24.33	43.55	30.55	35.40	31.15	40.24	63.19	59.63	52.40	1136934.
	Ba	-10.45	0.00	-8.25	-1.41	-12.63	0.00	0.00	0.00	0.00	-19.36	0.00	-25.79	208497.
1978	Q1	23.99	26.45	35.67	74.42	105.78	165.43	79.33	86.72	56.58	49.82	26.45	14.76	1961675.
	Aw	23.54	26.00	35.22	73.97	105.33	164.99	78.89	86.27	56.13	49.37	26.00	14.31	1947484.
	Dw	21.77	7.64	19.65	32.74	22.66	20.30	44.96	18.23	21.40	70.63	82.13	41.95	1066765.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-21.26	-56.13	-27.64	276491.
1979	Q1	3.69	3.69	5.53	56.58	63.96	133.46	66.42	86.10	50.43	101.47	136.53	71.96	2055141.
	Aw	3.24	3.24	5.09	56.13	63.51	133.01	65.97	85.65	49.98	101.03	136.08	71.50	2040950.
	Dw	19.83	9.02	14.69	23.41	47.44	34.75	52.40	29.21	33.84	28.32	56.52	40.54	1029309.
	Ba	-16.59	-5.78	-9.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84126.
1980	Q1	27.68	21.52	20.30	148.83	182.04	285.98	90.40	82.41	108.86	136.53	49.82	25.83	3106012.
	Aw	27.23	21.08	19.84	148.38	181.59	285.52	89.96	81.96	108.41	136.08	49.37	25.38	3091782.
	Dw	17.70	7.00	21.06	25.61	41.95	21.04	55.58	29.56	33.84	47.79	88.90	44.96	1149261.
	Ba	0.00	0.00	-1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-39.53	-19.58	158182.
1981	Q1	16.61	15.37	139.61	154.98	205.41	195.57	161.13	111.32	130.99	161.13	79.95	26.45	3693271.
	Aw	16.16	14.93	139.16	154.53	204.96	195.12	160.68	110.87	130.54	160.68	79.50	26.00	3679079.
	Dw	22.48	7.25	23.01	23.41	34.87	32.01	45.14	35.58	25.97	45.67	51.03	49.39	1046852.
	Ba	-6.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-23.39	79597.
1982	Q1	28.29	20.30	32.60	138.37	110.08	107.62	204.79	210.94	93.48	85.49	56.58	42.44	2989750.
	Aw	27.84	19.84	32.15	137.93	109.64	107.18	204.35	210.49	93.03	85.03	56.13	41.99	2975559.
	Dw	15.75	7.06	15.40	19.75	27.79	52.86	22.30	22.13	35.85	52.75	77.01	46.91	1041636.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-20.88	-4.92	67303.
1983	Q1	36.28	42.44	42.44	92.87	118.69	132.84	189.42	140.84	125.46	86.10	38.13	49.82	2889057.
	Aw	35.84	41.99	41.99	92.42	118.24	132.39	188.97	140.38	125.01	85.65	37.68	49.37	2874866.
	Dw	20.18	5.88	19.12	19.75	35.93	87.62	30.98	24.25	43.72	43.55	68.59	38.59	1153054.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-30.91	0.00	80128.

(9) Caqueza Reservoir No.1 System in Caqueza

C.A. (km²) = 0.05

F.A. (ha) = 8.00

Irrigation Coefficient = 0.85

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m ³ /y)
		Dq	Wr	Qi	Aw	Dw	Ba							
1974	Qi	0.14	0.16	0.19	0.43	1.08	0.70	0.99	0.78	0.41	0.42	0.74	0.22	16450.
	Aw	0.14	0.16	0.19	0.43	1.08	0.70	0.99	0.78	0.41	0.42	0.74	0.22	16450.
	Dw	0.33	0.11	0.37	0.44	0.30	0.80	0.62	0.64	0.66	0.94	0.95	1.08	19106.
	Ba	-0.20	0.00	-0.18	-0.01	0.00	-0.10	0.00	0.00	-0.26	-0.52	-0.21	-0.87	6218.
1975	Qi	0.10	0.11	0.25	0.20	0.98	1.52	1.44	1.80	1.17	1.11	1.19	1.21	29295.
	Aw	0.10	0.11	0.25	0.20	0.98	1.52	1.44	1.80	1.17	1.11	1.19	1.21	29295.
	Dw	0.42	0.14	0.35	0.55	0.48	0.47	0.77	0.37	0.54	1.17	0.99	0.58	18033.
	Ba	-0.32	-0.03	-0.11	-0.35	0.00	0.00	0.00	0.00	0.00	-0.07	0.00	0.00	2293.
1976	Qi	0.22	0.19	0.25	0.42	0.77	1.62	1.65	0.94	0.78	0.34	0.46	0.23	20644.
	Aw	0.22	0.19	0.25	0.42	0.77	1.62	1.65	0.94	0.78	0.34	0.46	0.23	20644.
	Dw	0.43	0.16	0.28	0.38	0.38	0.38	0.66	0.71	0.74	1.31	1.19	0.92	19906.
	Ba	-0.21	0.00	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	-0.97	-0.73	-0.70	7025.
1977	Qi	0.10	0.09	0.10	0.19	0.25	0.50	0.91	0.46	0.49	0.36	0.95	0.22	12180.
	Aw	0.10	0.09	0.10	0.19	0.25	0.50	0.91	0.46	0.49	0.36	0.95	0.22	12180.
	Dw	0.44	0.13	0.41	0.48	0.86	0.61	0.70	0.62	0.80	1.25	1.18	1.04	22569.
	Ba	-0.34	-0.04	-0.31	-0.29	-0.61	-0.11	0.00	-0.16	-0.31	-0.89	-0.23	-0.82	10931.
1978	Qi	0.20	0.22	0.29	0.61	0.86	1.35	0.64	0.71	0.46	0.41	0.22	0.12	15949.
	Aw	0.20	0.22	0.29	0.61	0.86	1.35	0.64	0.71	0.46	0.41	0.22	0.12	15949.
	Dw	0.43	0.15	0.39	0.65	0.45	0.40	0.89	0.36	0.42	1.40	1.63	0.83	21176.
	Ba	-0.24	0.00	-0.10	-0.04	0.00	0.00	-0.25	0.00	0.00	-1.00	-1.42	-0.71	9931.
1979	Qi	0.03	0.03	0.04	0.46	0.52	1.09	0.54	0.70	0.41	0.82	1.11	0.58	16708.
	Aw	0.03	0.03	0.04	0.46	0.52	1.09	0.54	0.70	0.41	0.82	1.11	0.58	16708.
	Dw	0.39	0.18	0.29	0.46	0.94	0.69	1.04	0.58	0.67	0.56	1.12	0.80	20433.
	Ba	-0.36	-0.15	-0.25	0.00	-0.42	0.00	-0.50	0.00	-0.26	0.00	-0.01	-0.22	5774.
1980	Qi	0.23	0.17	0.17	1.21	1.48	2.33	0.74	0.67	0.89	1.11	0.41	0.21	25252.
	Aw	0.23	0.17	0.17	1.21	1.48	2.33	0.74	0.67	0.89	1.11	0.41	0.21	25252.
	Dw	0.35	0.14	0.42	0.51	0.83	0.42	1.10	0.59	0.67	0.95	1.76	0.89	22814.
	Ba	-0.13	0.00	-0.25	0.00	0.00	0.00	-0.37	0.00	0.00	0.00	-1.36	-0.68	7356.
1981	Qi	0.14	0.12	1.14	1.26	1.67	1.59	1.31	0.91	1.06	1.31	0.65	0.22	30027.
	Aw	0.14	0.12	1.14	1.26	1.67	1.59	1.31	0.91	1.06	1.31	0.65	0.22	30027.
	Dw	0.45	0.14	0.46	0.46	0.69	0.64	0.90	0.71	0.52	0.91	1.01	0.98	20781.
	Ba	-0.31	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.36	-0.77	3871.
1982	Qi	0.23	0.17	0.27	1.12	0.89	0.87	1.66	1.72	0.76	0.69	0.46	0.34	24307.
	Aw	0.23	0.17	0.27	1.12	0.89	0.87	1.66	1.72	0.76	0.69	0.46	0.34	24307.
	Dw	0.31	0.14	0.31	0.39	0.55	1.05	0.44	0.44	0.71	1.05	1.53	0.93	20678.
	Ba	-0.08	0.00	-0.04	0.00	0.00	-0.17	0.00	0.00	0.00	-0.35	-1.07	-0.59	6066.
1983	Qi	0.30	0.34	0.34	0.76	0.96	1.08	1.54	1.14	1.02	0.70	0.31	0.41	23488.
	Aw	0.30	0.34	0.34	0.76	0.96	1.08	1.54	1.14	1.02	0.70	0.31	0.41	23488.
	Dw	0.40	0.12	0.38	0.39	0.71	1.74	0.61	0.48	0.87	0.86	1.36	0.77	22889.
	Ba	-0.11	0.00	-0.03	0.00	0.00	-0.66	0.00	0.00	0.00	-0.16	-1.05	-0.36	6217.

(10) Caqueza Reservoir No.2 & No.3 System in Caqueza

C.A. (km²) = 0.05

F.A. (ha) = 4.00

Irrigation Coefficient = 0.85

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m ³ /y)
	Dq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1974	Qi	0.14	0.16	0.19	0.43	1.08	0.70	0.99	0.78	0.41	0.42	0.74	0.22	16450.
	Av	0.14	0.16	0.19	0.43	1.08	0.70	0.99	0.78	0.41	0.42	0.74	0.22	16450.
	Dw	0.17	0.05	0.18	0.22	0.15	0.40	0.31	0.32	0.33	0.47	0.47	0.54	9553.
	Ba	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	0.00	-0.33	1091.
1975	Qi	0.10	0.11	0.25	0.20	0.98	1.52	1.44	1.80	1.17	1.11	1.19	1.21	29295.
	Av	0.10	0.11	0.25	0.20	0.98	1.52	1.44	1.80	1.17	1.11	1.19	1.21	29295.
	Dw	0.21	0.07	0.18	0.28	0.24	0.24	0.38	0.19	0.27	0.59	0.50	0.29	9016.
	Ba	-0.11	0.00	0.00	-0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	480.
1976	Qi	0.22	0.19	0.25	0.42	0.77	1.62	1.65	0.94	0.78	0.34	0.46	0.23	20644.
	Av	0.22	0.19	0.25	0.42	0.77	1.62	1.65	0.94	0.78	0.34	0.46	0.23	20644.
	Dw	0.21	0.08	0.14	0.19	0.19	0.19	0.33	0.35	0.37	0.65	0.59	0.46	9953.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.32	-0.14	-0.24	1848.
1977	Qi	0.10	0.09	0.10	0.19	0.25	0.50	0.91	0.46	0.49	0.36	0.95	0.22	12180.
	Av	0.10	0.09	0.10	0.19	0.25	0.50	0.91	0.46	0.49	0.36	0.95	0.22	12180.
	Dw	0.22	0.07	0.21	0.24	0.43	0.30	0.35	0.31	0.40	0.63	0.59	0.52	11285.
	Ba	-0.12	0.00	-0.10	-0.05	-0.18	0.00	0.00	0.00	0.00	-0.27	0.00	-0.30	2722.
1978	Qi	0.20	0.22	0.29	0.61	0.86	1.35	0.64	0.71	0.46	0.41	0.22	0.12	15949.
	Av	0.20	0.22	0.29	0.61	0.86	1.35	0.64	0.71	0.46	0.41	0.22	0.12	15949.
	Dw	0.22	0.08	0.20	0.32	0.22	0.20	0.45	0.18	0.21	0.70	0.82	0.42	10588.
	Ba	-0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.30	-0.60	-0.30	3199.
1979	Qi	0.03	0.03	0.04	0.46	0.52	1.09	0.54	0.70	0.41	0.82	1.11	0.58	16708.
	Av	0.03	0.03	0.04	0.46	0.52	1.09	0.54	0.70	0.41	0.82	1.11	0.58	16708.
	Dw	0.20	0.09	0.15	0.23	0.47	0.34	0.52	0.29	0.34	0.28	0.56	0.40	10216.
	Ba	-0.17	-0.06	-0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	861.
1980	Qi	0.23	0.17	0.17	1.21	1.48	2.33	0.74	0.67	0.89	1.11	0.41	0.21	25252.
	Av	0.23	0.17	0.17	1.21	1.48	2.33	0.74	0.67	0.89	1.11	0.41	0.21	25252.
	Dw	0.18	0.07	0.21	0.25	0.42	0.21	0.55	0.29	0.34	0.47	0.88	0.45	11407.
	Ba	0.00	0.00	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.48	-0.24	1988.
1981	Qi	0.14	0.12	1.14	1.26	1.67	1.59	1.31	0.91	1.06	1.31	0.65	0.22	30027.
	Av	0.14	0.12	1.14	1.26	1.67	1.59	1.31	0.91	1.06	1.31	0.65	0.22	30027.
	Dw	0.22	0.07	0.23	0.23	0.35	0.32	0.45	0.35	0.26	0.45	0.51	0.49	10391.
	Ba	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.28	973.
1982	Qi	0.23	0.17	0.27	1.12	0.89	0.87	1.66	1.72	0.76	0.69	0.46	0.34	24307.
	Av	0.23	0.17	0.27	1.12	0.89	0.87	1.66	1.72	0.76	0.69	0.46	0.34	24307.
	Dw	0.16	0.07	0.15	0.20	0.28	0.52	0.22	0.22	0.36	0.52	0.76	0.47	10339.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.30	-0.12	1112.
1983	Qi	0.30	0.34	0.34	0.76	0.96	1.08	1.54	1.14	1.02	0.70	0.31	0.41	23488.
	Av	0.30	0.34	0.34	0.76	0.96	1.08	1.54	1.14	1.02	0.70	0.31	0.41	23488.
	Dw	0.20	0.06	0.19	0.20	0.36	0.87	0.31	0.24	0.43	0.43	0.68	0.38	11445.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.37	0.00	961.

(11) Caqueza Reservoir No.4 System in Caqueza

C.A.(km2) = 0.05

F.A.(ha) = 2.00

Irrigation Coefficient = 0.85

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m3/y)
	Dq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1974	Qi	0.14	0.16	0.19	0.43	1.08	0.70	0.99	0.78	0.41	0.42	0.74	0.22	16450.
	Aw	0.14	0.16	0.19	0.43	1.08	0.70	0.99	0.78	0.41	0.42	0.74	0.22	16450.
	Dw	0.08	0.03	0.09	0.11	0.07	0.20	0.15	0.16	0.17	0.23	0.24	0.27	4776.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.06	149.
1975	Qi	0.10	0.11	0.25	0.20	0.98	1.52	1.44	1.80	1.17	1.11	1.19	1.21	29295.
	Aw	0.10	0.11	0.25	0.20	0.98	1.52	1.44	1.80	1.17	1.11	1.19	1.21	29295.
	Dw	0.11	0.03	0.09	0.14	0.12	0.12	0.19	0.09	0.13	0.29	0.25	0.14	4508.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.
1976	Qi	0.22	0.19	0.25	0.42	0.77	1.62	1.65	0.94	0.78	0.34	0.46	0.23	20644.
	Aw	0.22	0.19	0.25	0.42	0.77	1.62	1.65	0.94	0.78	0.34	0.46	0.23	20644.
	Dw	0.11	0.04	0.07	0.10	0.09	0.10	0.16	0.18	0.19	0.33	0.30	0.23	4976.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	16.
1977	Qi	0.10	0.09	0.10	0.19	0.25	0.50	0.91	0.46	0.49	0.36	0.95	0.22	12180.
	Aw	0.10	0.09	0.10	0.19	0.25	0.50	0.91	0.46	0.49	0.36	0.95	0.22	12180.
	Dw	0.11	0.03	0.10	0.12	0.22	0.15	0.18	0.15	0.20	0.31	0.30	0.26	5642.
	Ba	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	136.
1978	Qi	0.20	0.22	0.29	0.61	0.86	1.35	0.64	0.71	0.46	0.41	0.22	0.12	15949.
	Aw	0.20	0.22	0.29	0.61	0.86	1.35	0.64	0.71	0.46	0.41	0.22	0.12	15949.
	Dw	0.11	0.04	0.10	0.16	0.11	0.10	0.22	0.09	0.11	0.35	0.41	0.21	5294.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.19	-0.09	735.
1979	Qi	0.03	0.03	0.04	0.46	0.52	1.09	0.54	0.70	0.41	0.82	1.11	0.58	16708.
	Aw	0.03	0.03	0.04	0.46	0.52	1.09	0.54	0.70	0.41	0.82	1.11	0.58	16708.
	Dw	0.10	0.04	0.07	0.12	0.24	0.17	0.26	0.14	0.17	0.14	0.28	0.20	5108.
	Ba	-0.07	-0.01	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	294.
1980	Qi	0.23	0.17	0.17	1.21	1.48	2.33	0.74	0.67	0.89	1.11	0.41	0.21	25252.
	Aw	0.23	0.17	0.17	1.21	1.48	2.33	0.74	0.67	0.89	1.11	0.41	0.21	25252.
	Dw	0.09	0.03	0.10	0.13	0.21	0.10	0.28	0.15	0.17	0.24	0.44	0.22	5704.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	-0.01	129.
1981	Qi	0.14	0.12	1.14	1.26	1.67	1.59	1.31	0.91	1.06	1.31	0.65	0.22	30027.
	Aw	0.14	0.12	1.14	1.26	1.67	1.59	1.31	0.91	1.06	1.31	0.65	0.22	30027.
	Dw	0.11	0.04	0.11	0.12	0.17	0.16	0.22	0.18	0.13	0.23	0.25	0.25	5195.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.03	81.
1982	Qi	0.23	0.17	0.27	1.12	0.89	0.87	1.66	1.72	0.76	0.69	0.46	0.34	24307.
	Aw	0.23	0.17	0.27	1.12	0.89	0.87	1.66	1.72	0.76	0.69	0.46	0.34	24307.
	Dw	0.08	0.04	0.08	0.10	0.14	0.26	0.11	0.11	0.18	0.26	0.38	0.23	5169.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1983	Qi	0.30	0.34	0.34	0.76	0.96	1.08	1.54	1.14	1.02	0.70	0.31	0.41	23488.
	Aw	0.30	0.34	0.34	0.76	0.96	1.08	1.54	1.14	1.02	0.70	0.31	0.41	23488.
	Dw	0.10	0.03	0.09	0.10	0.18	0.43	0.15	0.12	0.22	0.22	0.34	0.19	5722.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.03	0.00	79.

(12) San Jose No.1 System in Tibacuy
C.A. (km2) = 3.60

F.a (ha) = Annual Crops, 43.00
Coffee, 200.0

Irrigation Coefficient = 0.85

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m3/y)
	Dq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Wr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1972	Qi	133.92	115.20	74.88	122.76	222.84	80.28	26.64	6.12	4.68	29.16	105.48	110.52	2718427.
	Aw	133.92	115.20	74.88	122.76	222.84	80.28	26.64	6.12	4.68	29.16	105.48	110.52	2718427.
	Dw	2.40	4.24	4.97	46.23	44.51	5.50	8.67	8.73	7.40	48.88	38.76	2.57	587700.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2.61	-2.72	-19.72	0.00	0.00	66832.
1973	Qi	27.36	14.04	24.84	41.40	21.96	20.88	9.36	25.56	141.84	129.24	145.44	190.80	2089380.
	Aw	27.36	14.04	24.84	41.40	21.96	20.88	9.36	25.56	141.84	129.24	145.44	190.80	2089380.
	Dw	3.97	5.98	8.44	50.90	46.97	5.52	6.50	5.40	4.41	45.53	39.56	1.61	591848.
	Ba	0.00	0.00	0.00	-9.50	-25.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91599.
1974	Qi	149.04	224.28	174.96	118.08	129.60	38.16	24.84	5.76	2.16	23.04	103.32	46.80	2704897.
	Aw	149.04	224.28	174.96	118.08	129.60	38.16	24.84	5.76	2.16	23.04	103.32	46.80	2704897.
	Dw	2.13	1.74	2.70	46.90	47.20	6.73	8.40	8.95	6.71	46.06	38.84	3.61	580162.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-3.19	-4.55	-23.02	0.00	0.00	82019.
1975	Qi	25.56	54.36	92.52	60.12	113.04	37.44	53.64	31.32	62.64	74.16	82.80	149.40	2206735.
	Aw	25.56	54.36	92.52	60.12	113.04	37.44	53.64	31.32	62.64	74.16	82.80	149.40	2206735.
	Dw	4.17	3.72	5.25	49.14	45.85	5.58	4.99	7.54	5.68	45.99	38.70	1.36	574294.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1976	Qi	40.68	97.56	142.20	146.88	136.44	44.64	25.20	11.52	43.20	228.24	141.12	50.40	2918550.
	Aw	40.68	97.56	142.20	146.88	136.44	44.64	25.20	11.52	43.20	228.24	141.12	50.40	2918550.
	Dw	3.70	4.52	2.02	47.77	47.76	5.95	9.01	9.08	7.24	44.21	40.28	2.66	591039.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1977	Qi	9.72	7.20	10.44	34.92	30.24	36.00	15.12	14.40	39.60	82.08	81.00	42.48	1061517.
	Aw	9.72	7.20	10.44	34.92	30.24	36.00	15.12	14.40	39.60	82.08	81.00	42.48	1061517.
	Dw	3.78	6.19	5.61	48.18	47.63	6.26	7.31	8.86	5.91	48.46	38.19	3.14	604647.
	Ba	0.00	0.00	0.00	-13.26	-17.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80957.
1978	Qi	13.68	9.00	17.64	70.92	39.96	33.84	23.76	10.80	15.84	32.76	43.56	88.56	1055701.
	Aw	13.68	9.00	17.64	70.92	39.96	33.84	23.76	10.80	15.84	32.76	43.56	88.56	1055701.
	Dw	3.80	6.00	4.72	46.60	47.89	4.82	7.20	9.73	6.48	46.38	39.95	1.72	593416.
	Ba	0.00	0.00	0.00	0.00	-7.93	0.00	0.00	0.00	0.00	-13.62	0.00	0.00	57742.
1979	Qi	28.80	15.12	48.24	88.92	69.48	73.80	36.00	27.72	77.04	129.24	210.96	68.40	2297310.
	Aw	28.80	15.12	48.24	88.92	69.48	73.80	36.00	27.72	77.04	129.24	210.96	68.40	2297310.
	Dw	3.48	6.19	4.19	49.24	47.01	4.82	7.57	6.86	6.73	46.53	37.86	3.12	588762.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1980	Qi	48.60	96.48	42.12	82.44	66.60	89.64	36.36	43.92	29.52	76.32	74.88	82.44	2019987.
	Aw	48.60	96.48	42.12	82.44	66.60	89.64	36.36	43.92	29.52	76.32	74.88	82.44	2019987.
	Dw	3.29	2.46	7.40	47.95	48.23	4.72	7.84	6.69	6.60	46.93	40.48	2.27	593214.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1981	Qi	43.56	36.72	32.76	96.48	158.04	98.28	64.08	38.52	32.04	102.24	108.00	63.00	2301727.
	Aw	43.56	36.72	32.76	96.48	158.04	98.28	64.08	38.52	32.04	102.24	108.00	63.00	2301727.
	Dw	3.87	3.76	8.33	46.52	42.00	4.31	7.89	6.67	8.94	46.36	38.10	3.21	579758.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.

(13) San Jose No.2 System in Tibacuy
C.A.(km2) = 1.85

F.A(ha) = Annual Crops, 5.00
Coffee, 10.00

Irrigation Coefficient = 0.85

Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL (m3/y)
		Dq Wr	0.00 3.10	0.00 3.10	0.00 3.10	0.00 3.10	0.00 3.10	0.00 3.10	0.00 3.10	0.00 3.10	0.00 3.10	0.00 3.10	0.00 3.10	
1972	Qi	68.82	59.20	38.48	63.08	114.52	41.25	13.69	3.15	2.40	14.99	54.20	56.80	1396970.
	Aw	65.72	56.10	35.38	59.98	111.42	38.15	10.59	0.05	-0.69	11.89	51.10	53.70	1298940.
	Dw	0.28	0.49	0.58	2.58	2.47	0.64	1.01	1.01	0.86	2.98	2.16	0.30	40500.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.97	-1.56	0.00	0.00	6628.
1973	Qi	14.06	7.22	12.77	21.27	11.28	10.73	4.81	13.14	72.89	66.42	74.74	98.05	1073709.
	Aw	10.96	4.12	9.66	18.18	8.19	7.63	1.71	10.03	69.79	63.32	71.64	94.95	975948.
	Dw	0.46	0.70	0.98	3.12	2.75	0.64	0.76	0.63	0.51	2.59	2.25	0.19	40982.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1974	Qi	76.59	115.25	89.91	60.68	66.60	19.61	12.77	2.96	1.11	11.84	53.10	24.05	1390017.
	Aw	73.49	112.15	86.81	57.58	63.50	16.51	9.66	-0.14	-1.99	8.74	50.00	20.95	1292255.
	Dw	0.25	0.20	0.31	2.66	2.78	0.78	0.98	1.04	0.78	2.65	2.17	0.42	39624.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.18	-2.77	0.00	0.00	10345.
1975	Qi	13.14	27.94	47.55	30.90	58.09	19.24	27.57	16.09	32.19	38.11	42.55	76.78	1134017.
	Aw	10.03	24.84	44.45	27.80	54.99	16.14	24.47	12.99	29.09	35.01	39.45	73.68	1036255.
	Dw	0.49	0.43	0.61	2.92	2.62	0.65	0.58	0.88	0.66	2.64	2.15	0.16	38941.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1976	Qi	20.91	50.14	73.08	75.48	70.12	22.94	12.95	5.92	22.20	117.29	72.52	25.90	1499811.
	Aw	17.81	47.03	69.97	72.38	67.02	19.84	9.85	2.82	19.10	114.19	69.42	22.80	1401781.
	Dw	0.43	0.53	0.23	2.76	2.85	0.69	1.05	1.06	0.84	2.43	2.34	0.31	40888.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1977	Qi	5.00	3.70	5.37	17.94	15.54	18.50	7.77	7.40	20.35	42.18	41.62	21.83	545502.
	Aw	1.90	0.60	2.27	14.85	12.44	15.40	4.67	4.30	17.25	39.08	38.53	18.73	447740.
	Dw	0.44	0.72	0.65	2.81	2.83	0.73	0.85	1.03	0.69	2.93	2.09	0.36	42471.
	Ba	0.00	-0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	290.
1978	Qi	7.03	4.62	9.07	36.45	20.54	17.39	12.21	5.55	8.14	16.84	22.39	45.51	542513.
	Aw	3.93	1.53	5.97	33.35	17.44	14.29	9.11	2.45	5.04	13.74	19.29	42.41	444751.
	Dw	0.44	0.70	0.55	2.62	2.86	0.56	0.84	1.13	0.75	2.69	2.30	0.20	41165.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1979	Qi	14.80	7.77	24.79	45.70	35.70	37.92	18.50	14.24	39.59	66.42	108.41	35.15	1180562.
	Aw	11.70	4.67	21.69	42.60	32.60	34.83	15.40	11.14	36.49	63.32	105.31	32.05	1082801.
	Dw	0.40	0.72	0.49	2.93	2.76	0.56	0.88	0.80	0.78	2.70	2.06	0.36	40624.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1980	Qi	24.98	49.58	21.65	42.37	34.23	46.06	18.69	22.57	15.17	39.22	38.48	42.37	1038049.
	Aw	21.87	46.48	18.55	39.26	31.12	42.97	15.59	19.47	12.07	36.12	35.38	39.26	940019.
	Dw	0.38	0.29	0.86	2.78	2.90	0.55	0.91	0.78	0.77	2.75	2.36	0.26	41141.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1981	Qi	22.39	18.87	16.84	49.58	81.22	50.51	32.93	19.80	16.47	52.54	55.50	32.37	1182832.
	Aw	19.29	15.77	13.74	46.48	78.12	47.40	29.83	16.69	13.36	49.44	52.40	29.27	1085070.
	Dw	0.45	0.44	0.97	2.61	2.18	0.50	0.92	0.78	1.04	2.68	2.08	0.37	39576.
	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.

Explanation of Table D.3

For instance;

- Discharge at Carrizal Diversion in Jan. 1974:

$$Q_i = 2.3 \text{ l/s/Km}^2 \times 5.6 \text{ Km}^2 = 12.88 \text{ l/s} \quad (\text{refer to Table A.2.6})$$

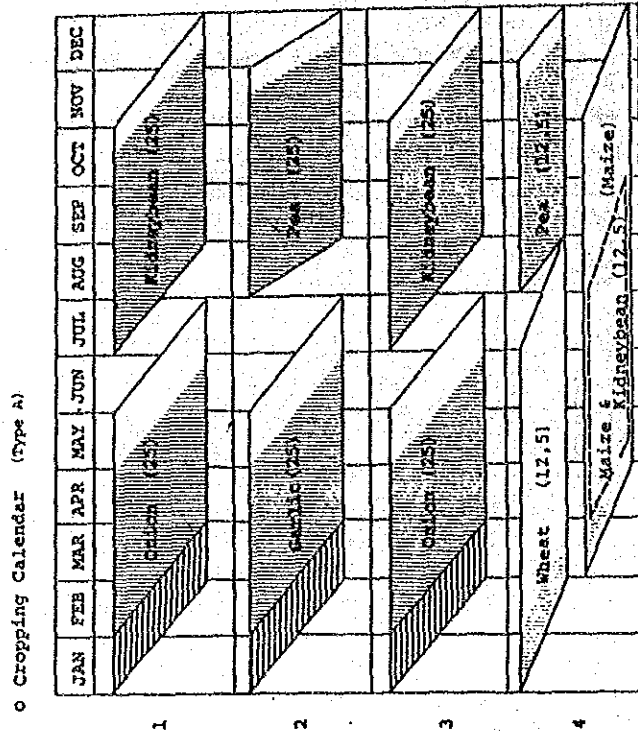
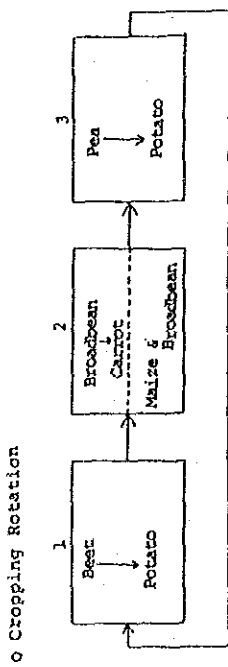
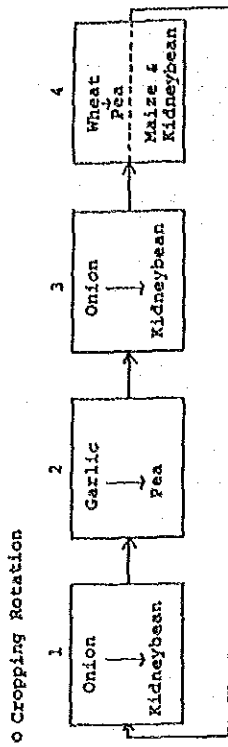
- Available Water :

$$A_w = Q_i - W_r = 12.88 - 0 = 12.88 \text{ l/s}$$

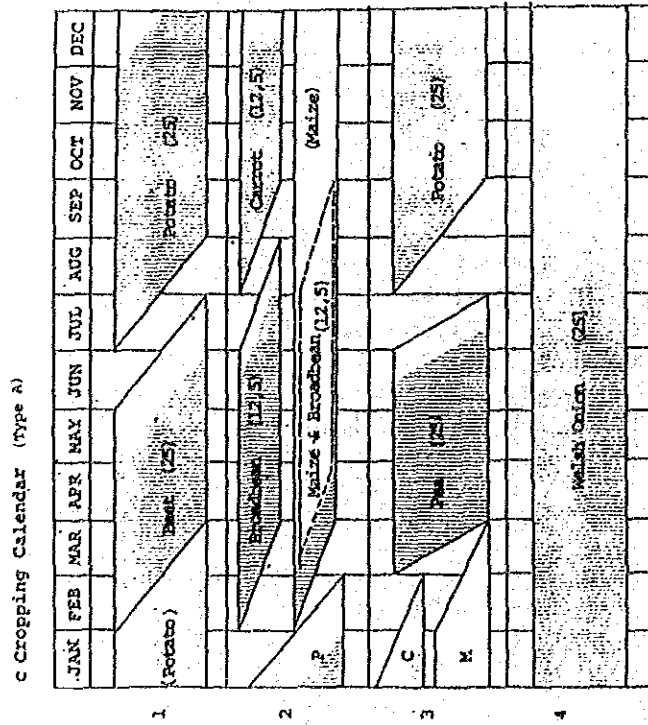
- Diversion Water Requirement in Jan. 1974:

$$D_w = \frac{27.3}{1000 \times 31 \times 86,400} \times \frac{120 \times 10,000}{0.8} = 0.01529 \text{ m}^3/\text{s} = 15.29 \text{ l/s}$$

Where; Net Water Requirement in Jan. 1974 is 27.3 mm/month
(refer to Table D.2)



(2) Santa Sofia

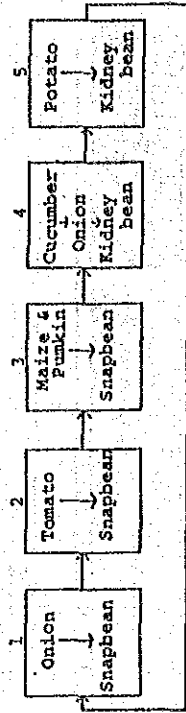


Irrigation Harvesting
 Transplanting or sowing Raising of seeding

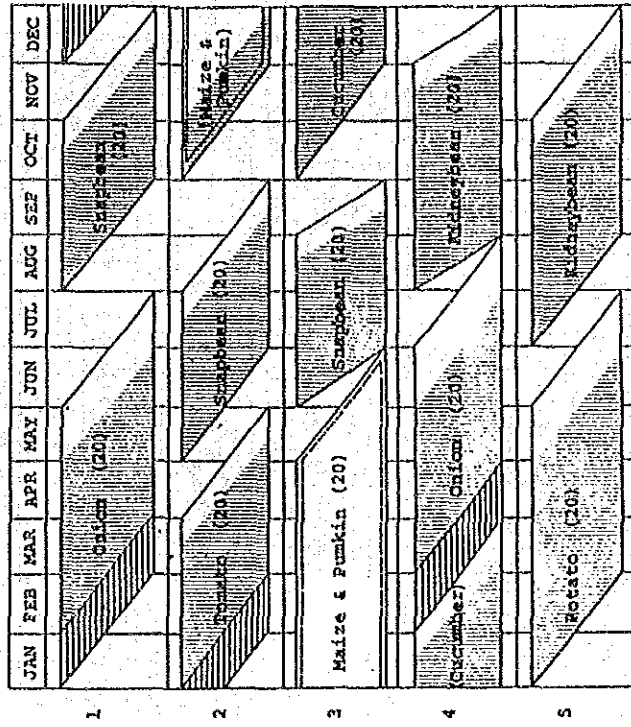
(1) San Pedro de Iguaque

Fig.D.1 Cropping calendar in fields
 Cropping Pattern Type A

o Cropping Rotation

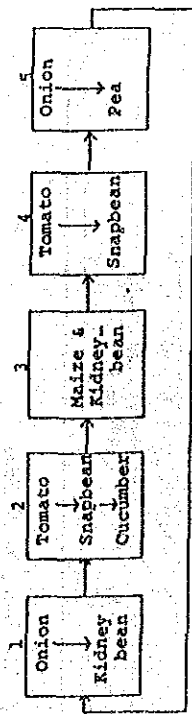


o Cropping Calendar (Type A)

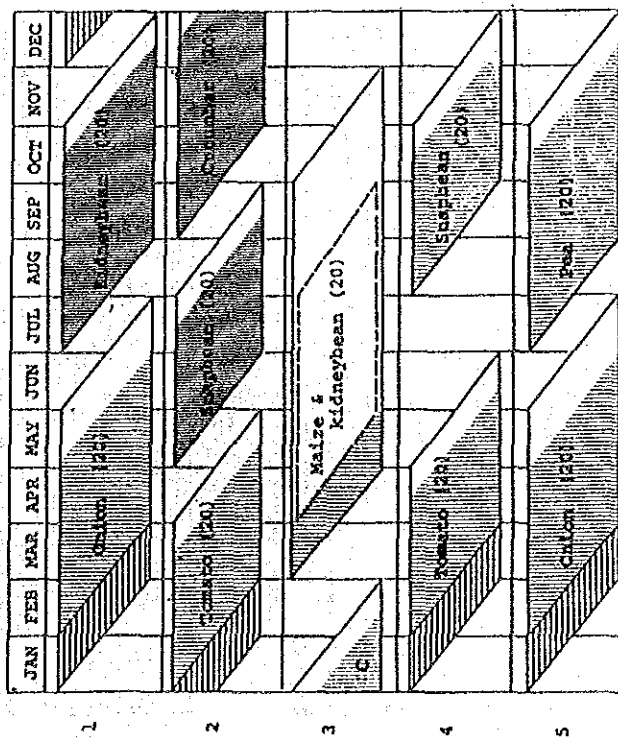


(4) Tibacuy

o Cropping Rotation



o Cropping Calendar (Type A)



(3) Caqueza