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ECONOMIC ANALYSIS OF THE SEED DRYING AND PROCESSING FACILITY FOR CONSEJO NACIONAL DE PRODUCCION, BARRANCA, COSTA RICA, CA

Services Rendered

Under The Agreement

Between

AID/W and MSU

AID/ta-C 1219

SEED TECHNOLOGY LABORATORY
MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI STATE, MISSISSIPPI

TABLE OF CONTENTS

	Page
Acknowledgements	i
Report Summary	ii
General Situation	1
Plant Costs	14
Recommendations	22
Appendix A AICA/SACMAG	24
Estimaciones para la obra civil y equipo	24
Appendix B	27
Schedule of transportation costs	27
Appendix C	34
Loan terms between Costa Rica and USAID	34
Appendix D	35
Schedule of arrivals of rice seed at Barrnacas 1975	35
Bibliography	39

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WCC

AHB

REPORT SUMMARY

TITLE: Economic Analysis of the Seed Drying and Processing Facility for Consejo Nacional de Produccion, Barranca, Costa Rica, CA.

CONTRACT: MSU/AID/ta-C-1219

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Mississippi State University

PERIOD: August 9-21 1976

SUMMARY

1. This study was undertaken at the request of USAID/Costa Rica to assist Consejo Nacional de Produccion to make an economic analysis of the expanded seed facilities at Barranca and to bring the background report Seed Production and Supply in Costa Rica MSU/USAID report No TA 70-07 up to date.

2. Plant costs are summarized on a per quintal basis at various levels of operation.

3. Recommendations

   a. A follow-up to this study after the plant has been in operation using actual data should be made in the summer of 1977. More detailed information on cost at different stages within the plant should be considered so that areas of inefficiency could be more easily observed. A scheme for developing this information needs to be worked out between MSU and CNP economists.

   b. Since storage capacities will need to be added a detailed economic evaluation of the size and location of these facilities would be highly recommended probably in early 1977. Preliminary data pertinent to storage facilities and transportation rates was provided by CNP, however more detailed analysis of the information was beyond the scope of this trip.

   c. A study of the feasibility of constructing rice seed drying facilities at storage locations would be advisable. Current practices include hauling rice with very high moisture content. This is both expensive to haul as well as detremental to seed quality. Costs analysis of the transportation and handling systems from the farm to the plant is advised.

   d. Methods of marketing beyond the processing plant may be helpful. It is my understanding that there is a very aggressive private sector developing in Costa Rica. The CNP will have to become mor quality conscious and more market oriented if they are to increase their share of the market as projected by CNP personnel.

e. Long range plans should include a scheme where the entire seed procurement, processing, handling and marketing system could receive annual evaulations by stages just as divisions are analyzed by CNP.

f. The possibility of custom cleaning should be explored. Only a portion of the total costs are relevant when considering custom cleaning. In addition revenue would help use excess labor and spread fixed costs of the plant.

ECONOMIC ANALYSIS
OF THE
SEED DRYING AND PROCESSING FACILITY
FOR CONSEJO NACIONAL DE PRODUCCION
BARRANCA, COSTA RICA, CA

1. General Situation

1.1. Introduction

The Seed Technology Laboratory, Mississippi Agricultural and Forestry Experiment Station, Mississippi State University, at the request of USAID/Costa Rica, has undertaken consultation assistance to the Consejo Nacional de Produccion (CNP) to make an economic analysis of the expanded seed drying, storage, and processing facility at Barranca. These services were undertaken as part of ongoing services to aid in the implementation of the seed improvement section of AID Loan 515-L-022.

A previous report, Seed Production and Supply in Costa Rica, TA 70-07, provides much relevant background information about the agricultural situation in basic grains, rice, corn, beans, and sorghum. This report will provide some updated information about basic grains as well as recent projections by the CNP and other agencies.

1.2. General Agricultural Situation

According to the Censo Agropecuario de 1973 [2][1/] agricultural lands totaled 3,122,450.9 hectares (ha) on 81,562 operations. There are seven designated agricultural regions in Costa Rica. (Figure 1). The number of farms and total agricultural lands are shown in Table 1. Land uses within regions by regions are shown in Figure 2. The number of farms by size are shown in Table 2.

1/ Numbers in brackets refer to references cited in the bibliography.

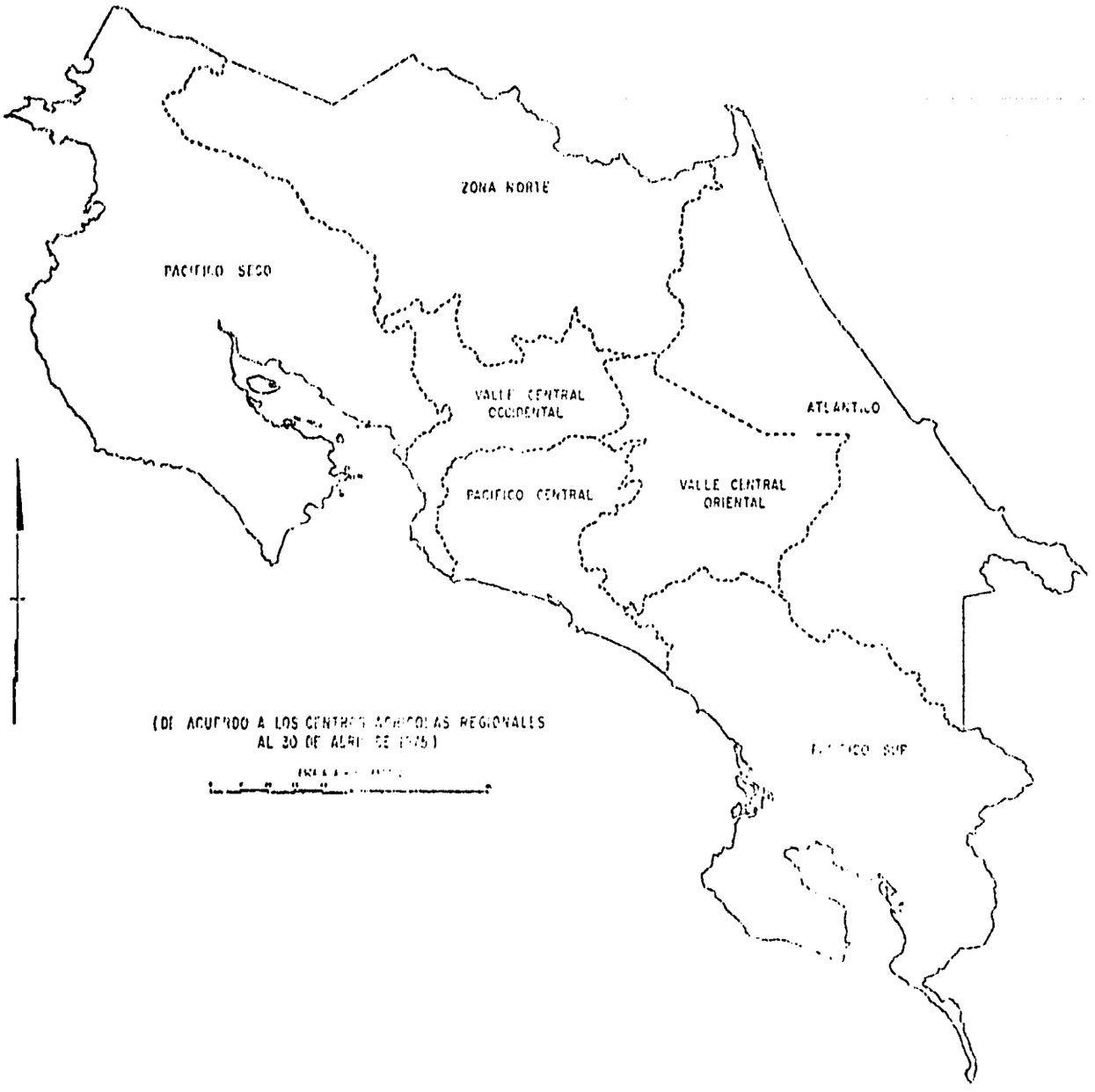

Figure 1. Agricultural Regions of Costa Rico

Table 1. Number of farms and area (in hectares) for agricultural regions

Regions	Number of Operations	Total Land
Costa Rica	81,562	3,122.450.9
Valle Central Oriental	11,131	209,977.4
Vallez Central Occidental	15,348	229,329.9
Zona Norte	8,706	607,414.3
Pacifico Seco	15,712	1,009,107.0
Pacifico Central	11,384	209,131.9
Pacifico Sur	13,901	522,960.4
Atlantico	5,290	244,530.0

Source: Agricultural Census of 1973

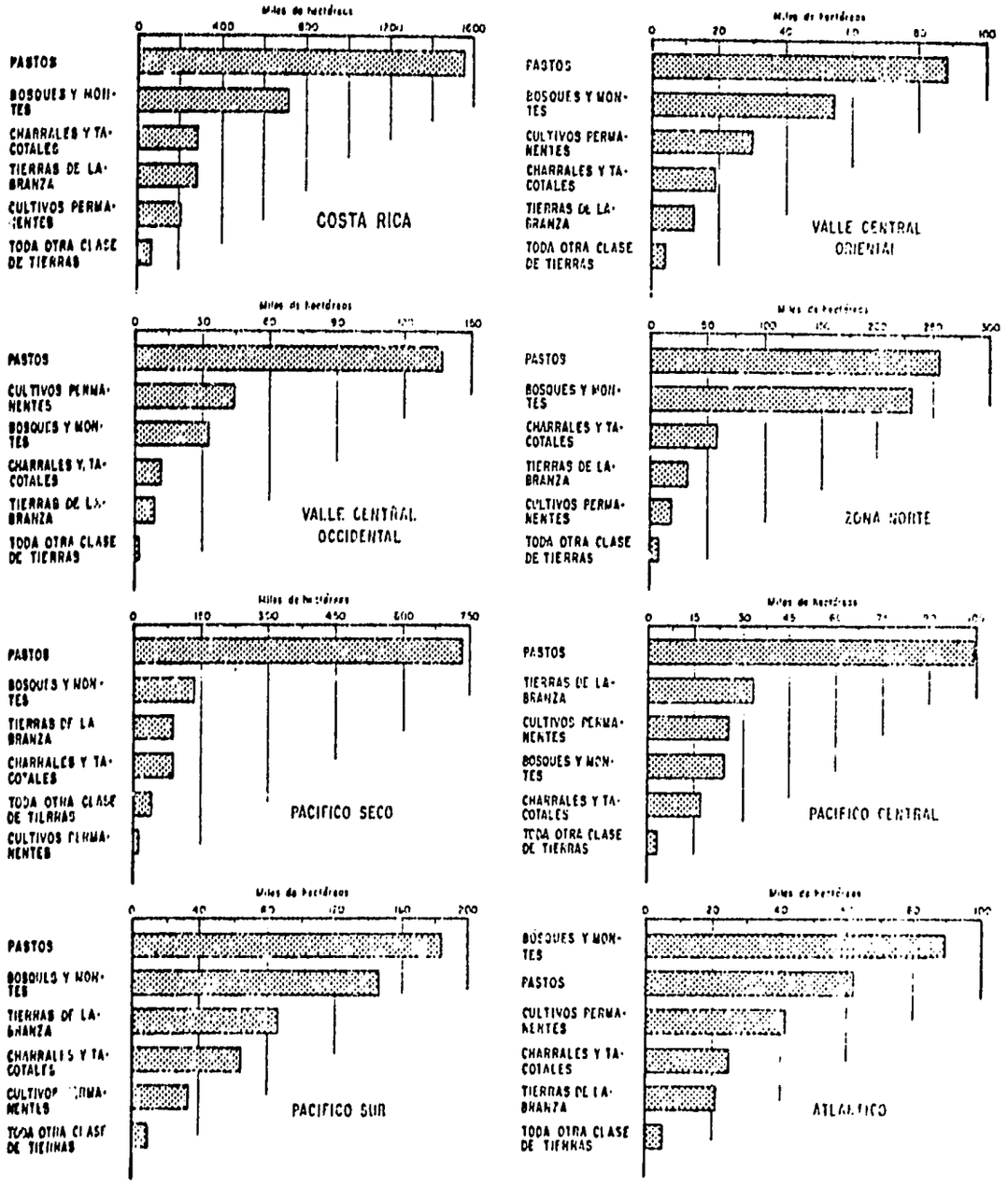

Figure 2. Land uses by agricultural region, Costa Rica. 1973.

Table 2.

RGEMEN DE TENENCIA DE LAS FINCAS.- TOTAL
SEGUN: TAMARO, NUMERO DE EXPLOTACIONES Y EXTENSION (EN HECTAREAS)
POR : COSTA RICA

TAMARO	TOTAL		UNA SOLA FORMA DE TENENCIA		MAS DE UNA FORMA DE TENENCIA	
	NUMERO	SUPERFICIE	NUMERO	SUPERFICIE	NUMERO	SUPERFICIE
TOTAL.....	81,562	3,122,456.1	73,653	2,878,961.5	7,909	243,494.5
EXPLOTACIONES SIN TIERRAS.....	4,564	.0	4,564	.0	-	.0
EXPLOTACIONES CON TIERRAS.....	76,998	3,122,456.1	69,089	2,878,961.5	7,909	243,494.5
MENOS DE 0.2 HA.....	4,518	554.0	4,505	552.1	13	1.8
DE 0.2 A MENOS DE 0.5.....	3,382	1,159.4	3,213	1,096.5	169	62.9
DE 0.5 A MENOS DE 1.....	6,513	4,472.4	6,141	4,184.4	372	288.0
DE 1 A MENOS DE 2.....	7,922	10,241.0	6,929	8,830.9	993	1,410.1
DE 2 A MENOS DE 3.....	8,414	15,390.7	5,442	13,012.0	972	2,378.7
DE 3 A MENOS DE 4.....	3,328	11,379.4	2,796	9,538.8	532	1,840.7
DE 4 A MENOS DE 5.....	3,566	15,809.1	3,020	13,371.5	546	2,437.5
DE 5 A MENOS DE 10.....	9,095	64,846.3	7,791	55,501.8	1,304	9,344.5
DE 10 A MENOS DE 20.....	8,777	122,781.3	7,732	107,987.7	1,045	14,793.6
DE 20 A MENOS DE 50.....	12,436	387,099.0	11,352	353,410.9	1,084	33,688.0
DE 50 A MENOS DE 100.....	5,801	396,933.1	5,344	364,876.3	457	31,656.8
DE 100 A MENOS DE 200.....	2,922	391,733.1	2,705	361,765.4	217	29,967.6
DE 200 A MENOS DE 500.....	1,929	577,198.3	1,780	530,926.7	149	46,271.6
DE 500 A MENOS DE 1000.....	495	338,379.9	464	316,202.3	31	22,177.6
DE 1000 A MENOS DE 2500.....	220	320,924.1	198	290,589.1	22	30,335.0
DE 2500 O MAS.....	80	483,794.2	77	446,914.5	3	16,839.7

Table 3.

ARROZ.- AMBAS SIEMBRAS
SEGUN: TAMARO, NUMERO DE EXPLOTACIONES, EXTENSION COSECHADA (EN HECTAREAS)
PRODUCCION TOTAL Y CONSUMO EN LA FINCA (EN KILOGRAMOS)
POR : COSTA RICA

TAMARO	NUMERO DE EXPLOTACIONES	EXTENSION COSECHADA (EN HECTAREAS)	PRODUCCION TOTAL (EN KILOGRAMOS)	CONSUMO EN LA FINCA (EN KILOGRAMOS)
TOTAL.....	19,278	69,458.4	104,009,791	4,981,975
EXPLOTACIONES SIN TIERRAS.....	34	36.1	23,310	10,359
EXPLOTACIONES CON TIERRAS.....	19,244	69,422.3	103,986,381	4,971,616
MENOS DE 0.2 HA.....	25	17.7	19,729	4,806
DE 0.2 A MENOS DE 0.5.....	68	30.4	33,305	14,431
DE 0.5 A MENOS DE 1.....	313	184.9	219,440	76,285
DE 1 A MENOS DE 2.....	716	554.7	618,170	175,707
DE 2 A MENOS DE 3.....	804	993.8	979,935	247,775
DE 3 A MENOS DE 4.....	416	903.2	930,136	117,664
DE 4 A MENOS DE 5.....	926	784.0	856,181	151,627
DE 5 A MENOS DE 10.....	1,961	2,611.0	2,859,003	464,151
DE 10 A MENOS DE 20.....	2,269	4,237.2	4,706,252	704,722
DE 20 A MENOS DE 50.....	4,667	11,302.4	12,961,074	1,573,133
DE 50 A MENOS DE 100.....	2,239	8,338.3	9,779,949	794,005
DE 100 A MENOS DE 200.....	959	6,730.2	8,781,976	359,195
DE 200 A MENOS DE 500.....	428	11,501.3	21,600,856	138,766
DE 500 A MENOS DE 1000.....	72	5,537.2	10,077,350	17,492
DE 1000 A MENOS DE 2500.....	39	7,969.1	17,365,588	9,179
DE 2500 O MAS.....	19	4,070.1	18,996,457	120,160

Table 4.

MAIZ.- AMBAS SIEMBRAS
SEGUN: TAMARO, NUMERO DE EXPLOTACIONES, EXTENSION COSECHADA (EN HECTAREAS)
PRODUCCION TOTAL Y CONSUMO EN LA FINCA (EN KILOGRAMOS)
POR : COSTA RICA

TAMARO	NUMERO DE EXPLOTACIONES	EXTENSION COSECHADA (EN HECTAREAS)	PRODUCCION TOTAL (EN KILOGRAMOS)	CONSUMO EN LA FINCA (EN KILOGRAMOS)
TOTAL.....	30,012	51,888.3	92,447,134	17,511,094
EXPLOTACIONES SIN TIERRAS.....	58	60.7	54,421	28,083
EXPLOTACIONES CON TIERRAS.....	29,954	51,827.5	92,392,713	17,483,011
MENOS DE 0.2 HA.....	230	40.0	55,617	36,140
DE 0.2 A MENOS DE 0.5.....	567	179.2	230,458	159,413
DE 0.5 A MENOS DE 1.....	1,397	720.1	779,166	486,291
DE 1 A MENOS DE 2.....	2,410	1,840.4	2,123,746	1,004,538
DE 2 A MENOS DE 3.....	2,393	2,205.3	2,285,456	1,113,029
DE 3 A MENOS DE 4.....	1,251	1,303.0	1,346,066	613,421
DE 4 A MENOS DE 5.....	1,390	1,615.4	1,627,489	699,247
DE 5 A MENOS DE 10.....	3,920	4,952.5	5,220,935	2,116,815
DE 10 A MENOS DE 20.....	4,397	8,698.7	6,769,919	2,628,196
DE 20 A MENOS DE 50.....	6,949	14,268.2	13,585,712	4,657,866
DE 50 A MENOS DE 100.....	3,072	8,288.4	7,784,365	2,347,621
DE 100 A MENOS DE 200.....	1,287	4,307.3	4,011,456	1,080,061
DE 200 A MENOS DE 500.....	938	2,896.0	2,743,372	444,184
DE 500 A MENOS DE 1000.....	98	1,154.9	1,478,440	74,587
DE 1000 A MENOS DE 2500.....	44	574.1	458,894	23,636
DE 2500 O MAS.....	10	785.4	1,891,122	7,956

1.3. Basic Food Grains

There were 15,278 farms with rice production; 30,017 farms with corn production; 19,149 farms with bean production, and 148 farms producing sorghum (Tables 3-6). A closer look at these tables reveals that rice is concentrated on farms with more than five hectareas. The largest number of producers fall in the group from 10 to 100 ha., however more than 50 per cent of the land planted to rice is on farms with more than 100 ha. Sorghum plantings are concentrated on larger farms with 83.5 percent produced on farms with more than 100 ha. Beans and corn are concentrated on smaller farms. Less than 19 percent of the corn and only 12.4 percent of the beans are produced on farms with more than 100 ha. (Table 7).

1.4. Projections for Basic Grains

Two sources of information were available for projections of basic grains (6,7). Projections from these two sources are shown as Tables 8 and 9. Discussions with Mr. Alberto Vargas, Assistant Director of Research, Minister of Agriculture (MAG), indicated that estimates for 1980 (Table 8) corn and beans were probably low. Projected demands were also made by the Planning Department of CNP for 1980 and 1985. These are shown by area (See Figure 1) in Table 9. The 1980 CNP projections were used for computations throughout this report.

1.5. Expected Seed Needs

Based on discussions with Ing. Alberto Vargas, Ing. Manuel Rodriguez, Executive Secretary National Seed Commission and Ing. Carlos Ramirez, Chief of Agronomy Department, MAG, some of the following assumptions were used to estimate seed needs for basic grains, and project the facility use at Barranca.

Table 7. Number of farms, hectares in production , by size of operation for rice, corn, beans, and sorghum, Costa Rica 1973.

	Rice				Corn				Beans				Sorghum			
Size of Operation ha.	No. Farms	%	No. Hectares	%	No. Farms	%	No. Hectares	%	No. Farms	%	No. Hectares	%	No. Farms	%	No. Hectares	%
<10	4531	29.7	5680.4	8.7	13558	45.2	12856.6	24.8	7790	40.7	6763.3	25.3	24	16.2	53.2	1.4
10-<100	9175	60.1	23937.9	36.6	14418	48.0	29255.3	56.4	9960	52.0	16600.8	62.2	63	42.6	566.5	15.1
100-<500	1412	9.2	18231.5	27.9	1825	6.1	7203.3	13.9	1295	6.8	3075.3	11.6	36	24.3	1038.3	27.7
500+	126	.8	17572.4	26.8	153	.5	2512.4	4.8	68	.4	201.5	.8	25	16.9	2094.1	55.8
Non Owned Land	34	.2	36.1	.1	58	.2	60.7	.1	36	.2	40.0	.1	0	0	0	0
TOTAL	15.278	100	65458.4	100	30.012	100	51888.3	100	19149	100	26680.9	100	148	100	3752.5	100

Source: Agricultural Census of 1973.

Table 8. Projections of the area cultivated to basic grains 1976 to 1980

Year	Rice[a/]	Corn[b/]	Beans[c/]	Sorghum
		ha.		
1976	72.621	51.421	21.822	9.299
1977	74.531	51.305	20.753	9.731
1978	76.491	51.189	19.736	10.184
1979	78.503	51.073	18.769	10.657
1980	80.568	50.098	*17.849	*11.153

a/ Reflects a 2.63% annual increase which was experienced during the period 1962-1972. (1962-50, 506 ha.; 1972-65, 458 ha.)

b/ Assuming a base in demand and production and an average yield of 1113 kg/ha.

c/ Reflects a negative 4.0% annual decrease. Plantings in 1962 were 43,805 has.

Source: "Programa Nacional de Granos Básicos 1975-1978." Oficina Sectorial de Planificación Agropecuaria, February. 1975.

Table 9. Projections of the area planted to basic grains in Costa Rica for 1980 and 1985 by agricultural regions.

Agricultural Regions	1980				1985			
	Rice	Corn	Beans	Sorgham	Rice	Corn	Beans	Sorgham
Costa Rica	94,655	81,160	39,970	10,750	105,380	97,830	42,518	10,750
Pacifico Seco	30,500	9,555	5,500	3,000	28,500	10,010	5,500	3,000
Pacifico Sur	42,875	37,100	12,000	3,600	51,140	47,000	12,500	3,600
Meseta Central	800	13,755	10,000	150	600	14,410	10,000	150
Zona Norte	4,480	4,480	10,970	-	4,640	4,640	12,018	-
Atlantico	4,500	15,000	300	-	9,000	20,000	500	-
Parrita-Quepos	11,500	1,270	1,200	4,000	11,500	1,770	2,000	4,000

Source: "Proyecto Nacional De Alamacenamiento de Granos Basicos"

Depto. De Planificacion, C.N.P., Enero 1976.

The assumptions were as follows:

1. Planting rates in quintals per hectare.

	Assumptions
Rice	2.17
Corn	.50
Beans	.84
Sorghum	.46

2. Assumptions about seed purchased

	Assumptions		
	1977	1980	1985
Rice	60.0	75.0	80.0
Corn	6.5	10.0	10.0
Beans	1.0	2.0	2.0
Sorghum	100.0	100.0	100.0

*Currently all sorghum is imported, however, there is interest in establishing production of sorghum seed in Costa Rica.

3. Purchased seed to be provided by CNP will be 60 percent {4, p. 5}.

1.6. Estimated Plant Use at Barranca

Using the above assumptions the requirements for the seed cleaning and storage were estimated. It should be pointed out that these are estimates and the cost of operation per quintal will vary based on actual facility use. Estimates will be made using CNP projections for 1980 and 1985. The projections in Table 8 will be used for 1976-1977 year. It was assumed that the plant would process only rice in 1976-1977. Future demands on the plant for sorghum processing will depend on the speed in which Costa Rica moves toward becoming self sufficient in sorghum seed production.

Seed needs projected for basic grains were estimated as follows:

	Rice		
	1977	1980	1985
Hectares planted	74,531 1/	94,655 2/	105,380 2/
Total Seed Needs (qq)	161,732	205,401	228,675
Seed Purchased (qq) 3/	97,039	154,051	182,940
Seed Provided by CNP (qq)	58,223	92,431	109,763

1/ Table 8

2/ Table 9

3/ Based on 60% in 1977, 75% in 1980, 80% in 1985.

	Corn		
	1977	1980	1985
Hectares planted	51.305 1/	81.160 2/	97.830 2/
Total Seed Needs	25.652	40.580	48.915
Seed Purchased 3/ in Quintals (qq).	1.667	4.058	4.891
Seed Provided by CNP (qq)	1.000	2.435	2.935

1/ Table 8.

2/ Table 9.

3/ Based on 6.5$ in 1977, and 10% in 1980 and 1985.

	Beans		
	1977	1980	1985
Hectares planted	20.753 1/	39.970 2/	42.518 2/
Total Seed Needs	17.433	33.575	35.715
Seed Purchased (qq) 3/	174	336	357
Seed Provided by CNP (qq)	105	202	214

1/ Table 8.

2/ Table 9.

3/ 1.0% in 1976, 2.0% in 1980, 2.0% in 1985.-

	Sorghum		
	1977	1980	1985
Hectares planted	9.731 1/	10.750 2/	10.759 2/
Total Seed Needs	4.476	4.945	4.945
Seed Purchased (qq) 3/	4.476	4.945	4.945
Seed Provided by CNP (qq)	2.685	2.967	2.967

1/ Table 8.

2/ Table 9.

3/ Based on 100% all years.

Based on the above projected seed needs and amounts provided, the needs for facility use at Barranca are shown in Table 10.

Table 10. Estimate Seed Needs, processing capacity, and required hours of operation of the seed processing plant at Barranca. 1976-1977, 1980-1985.

Seed	Plant Capacity	Annual hours of operation 1/				
		1976	1980	1980	1985	1985
	qq./hr	hours				
Rice	75	776	1232	1232	1405	1405
Corn 2/	50	-	49	49	59	59
Beans 2/	200	-	1	1	14	14
Sorghum 2/	50	-	-	59	-	59
Total		776	1282	1341	1463	1524

1/ Does not include set up and clean up time.

2/ None in 1976.

2. Plant Costs

2.1. Introduction

Estimated investment requirements and annual costs of the new seed processing plant at Barranca. Costs were estimated from data provided by CNP, bid sheets from AICA/SACMAG, and estimates based on previous work done in the Agricultural Economics Department, Mississippi State University {8}. A copy of the bid sheets are included as Appendix A.

Calculations were made and then summarized on a cost per quintal basis. These calculations were made on five different situations, one for seed needs for the anticipated 1977 rice crop: two for 1980 expectations, all basic grains, and two for 1985 expectations for all basic grains.

Current storage and laboratory facilities were not included in depreciation schedules. Estimates given by CNP of their current operating cost were included in the tabulations.

It was expected that the plant would only process rice during the 1976-1977 season, therefore costs were computed on this basis.

Mr. Guillot, seed plant manager, estimated that in the future rice would come into the plant from August to December. His estimates about inflows of seed were as follows: 10 percent in August, 25 percent September and October, and 65 percent in November and December. See Appendix D for 1975 inflows. It was anticipated that processing would continue up to March. Corn, beans, and sorghum are harvested in December and January. It was assumed that they would be able to be processed by March also.

2.2. Initial Investment Requirements (Barranca)

Initial investment requirements were as follows:

Building for processing plant	₡ 1,783,000
New Equipment for plant	₡ 7,876,983
T O T A L	₡ 9,659,983

An itemized list of charges for the building and equipment are shown in Appendix A.

2.3. Additional Storage

Currently there is only storage for 48,000 qq. in facilities in Barranca. Therefore additional storage for processed seed will be needed based on projections stated above.

Given the assumptions stated above and projections for the future storage needs expected are shown in Table 11.

Table 11. Seed Storage Requirements CNP 1977, 1980, 1985.

	1976	1980	1985
Rice	58,223	92,431	109,76[illegible]
Corn	1,000	2,435	2,935
Beans	105	202	214
Sorghum	2,685	2,967	2,967
TOTAL 1/	62,013	98,035	115,879

1/ Storage is assumed to be necessary for seed even though the seed are not processed in the plant.

Based on current capacities, additional storage for 148 qq. in 1977, 50,035 qq. by 1980, and 67,879 qq. by 1985 will be needed in addition to maintaining current capacities.

Addition storage was estimated to cost ₡264,000/5,000 qq. (Appendix B). Using the above estimated of storage needs additional units needed would be three for 1977, 10 by 1980 and 14 by 1985.

Storage Investment

1977 - 3 units @ C364,000 ea. = ₡ 792,000

1980 - 10 units @ C264,000 ea. = ₡2,640,000

1985 - 14 units @ C264,000 ea. = ₡3,696,000

These were not included in the cost analysis.

2.3. Annual Costs

Annual costs are divided into two categories, fixed costs and variable costs. Fixed cost include depreciation, interest on investment, insurance (social security), mortgage payments, and maintenance.

Variable costs include power, fuel, bags, repairs to equipment, fumigation, and labor.

2.3.1. Fixed Costs

Labor costs

Labor in many cases is considered a variable cost. Discussions with Mr. Guillot indicate that most of the men are hired on an annual basis. Permanent labor and their wage rates are shown in Table 14.

Table 12. Permanent labor, wage rates and annual labor costs seed processing plant at Barranca.

Job	Number	Salary Monthly	Salary Annual
		---Colones---	
Manager	1	4,000	48,000
Secretary	1	1,600	19,200
Analyst	1	1,600	19,200
Electrician	1	1,300	15,600
Foreman	3	1,600	57,600
General Workers	12 (₡4/hr)	763	109,824
Total			269,424

Social Insurance

Indications were that there was no insurance on building or equipment. The only form of insurance was the social security taxes; paid by the employer. Social security payments are as follows:

Sickness	6.75%
Death and Disability	4.75%
Total	11.50% of wages, ₡30,984

Depreciation

Depreciation was computed using the straight line method assuming no salvage value. Charges for depreciation were computed only on the new facilities and did not include the office or current storage facilities. For purposes of this report, depreciation was calculated over a 20 year period.

Facility	Initial Investment	Annual Depreciation
Plant and equipment	₵ 9,659,983	₵ 482,999
Storage (1980)	₵ 2,640,000	₵ 132,000
Storage (1980)	₵ 3,696,000	₵ 184,800

Total 1976 = ₵482,999
1980 = ₵614,999
1985 = ₵667,799

Loan Repayments - Plant

See Appendix C for an explanation of terms of payment. For the time period involved in this study only two percent interest would be paid.

Initial investment ₵9,659,983. At two percent interest the annual installment would be ₵193,200 for 1976-1977. Beginning in 1980 installments are estimated to be at ₵303,260 per annum.

Loan Repayment - Storage

It was assumed that funds for construction of storage facilities would come from normal commercial channels. By 1980, if the predicted storage needs are met, approximately ₵2,640,000 will have been borrowed. Assuming a 10 year repayment schedule and nine percent interest, annual installments would be ₵389,400. By 1985 additional storage capacity will have to be added. By this time CNP will be making larger payments on storage facilities. By then ₵3,696,000 will have been borrowed for construction of storage facilities. Payments on the principle and interest for 1985 are estimated at ₵545,160.

2.3.2. Variable Costs

Electricity Requirements

Requirements were based on uses of a previously estimated plant {8}. Requirements for equipment not included in the model[2/] plant were added. Other requirements were based on the use as a percent of the model plant.

[2/] The estimates were derived from the plant with 300,000 bushel capacity.

The model plant used 77,535 kilowatt hours of electricity. The Barranca facility had an air screen cleaner, an aspirator, and an air pollution system not included in the plant in {8}.

Electricity was estimated to cost ₡.35 per kilowatt hour (kwh). Estimates are as follows:

	1976	1980	1980s 1/	1985	1985s 1/
Estimated kwh	58.719	97.348	102.302	111.380	116.334
Total cost	₡ 20.552	₡ 34.072	₡ 35.806	₡ 38.983	₡ 40.717

1/ Plant processes sorghum seeds.

Maintenance

Maintenance was estimated to be one percent of initial investment. An estimate for upkeep of the current facilities was provided by CNP.

	₡	Annual Maintenance ₡
Initial Investment		
Buildings	1,783,000	17,830
1980	2,640,000	26,400
1985	3,696,000	39,960

Total Maintenance 1976 = ₡17,830
1980 = ₡44,230
1985 = ₡57,790

Maintenance on existing facilities estimated at ₡ .6/qq.

Fuel Costs

Fuel costs were estimated assuming that one gallon diesel fuel was needed for each five quintals of seed dried. Diesel fuel cost were given at four colons per gallon, therefore fuel cost are ₡.8/qq.

Repairs to Equipment

Repairs to equipment are estimated at five percent of initial investment per 1000 hours of operation. Repair estimates do not include laboratory equipment.

are shown in Table 12. Fixed costs are given in Table 13. Total annual costs are found in Table 14.

Table 13. Estimates of variable costs, CNP seed cleaning and processing plant at Barranca, Costa Rica, 1976-1977, 1980, 1985.1/

Item	1976 - 1977 Rice Only	1980 With sorghum	1980 Without sorghum	1985 With sorghum	1985 Without sorghum
			¢/qq		
Power	.36	.37	.36	.35	.35
Fuel	.80	.80	.80	.80	.80
Labor	1.20	1.20	1.20	1.20	1.20
Repairs	5.32	5.38	5.31	5.17	5.11
Bags	6.00	6.00	6.00	6.00	6.00
Fumigation	.70	.70	.70	.70	.70
TOTAL	14.38	14.45	14.37	14.22	14.16

Table 14. Estimates of fixed costs, CNP seed cleaning and processing plant at Barranca, Costa Rica, 1976-1977, 1980, 1985.

Item	1976-1977 Rice only	1980 With sorghum	1980 Without sorghum	1985 With sorghum	1985 Without sorghum
		¢/qq.			
Labor	4.75	2.75	2.83	2.32	2.39
Insurance	.55	.32	.33	.27	.27
Payments - plant interest & investment	-	3.09	3.19	2.61	2.69
Payments - storage interest & investment	-	3.97	4.10	4.70	4.83
Depreciation - plant & equipment	8.51	4.93	5.08	4.17	4.28
Depreciation - new storage	-	1.35	1.39	1.57	1.64
Maintenance - new plant	.31	.18	.19	.16	.16
Maintenance - new storage	-	.27	.28	.34	.35
Maintenance - old storage	.60	.60	.60	.60	.60
Total	18.12	17.46	17.99	16.76	17.21

Table 15. Estimated total annual costs, CNP seed cleaning and processing plant at Barranca, Costa Rica, 1976-1977.

	1976-1977	1980	1980	1985	1985
			¢ qq.		
Total Fixed Costs	18.12	17.99	17.46	17.21	16.76
Total Variable Costs	14.38	14.37	14.45	14.16	14.22
Total Cost	32.50	32.36	31.91	31.37	30.98

As shown in Table 14 the estimated total annual costs do not vary widely. The 1976-1977 costs would be much higher if loans would have to be repaid. It should also be pointed out that should expectations fall short of projections the 1980 and 1985, estimates would also be higher or vice versa. However, costs appear to be well within the current 50 colon margin (according to Mr. Guillot) between prices paid to farmers for seed and prices received for seed.

RECOMMENDATIONS

There are several areas that additional economic evaluations could be helpful.

1. A follow-up to this study after the plant has been in operation using actual data should be made in the summer of 1977. More detailed information on cost at different stages within the plant should be considered so that areas of inefficiency could be more easily observed. A scheme for developing this information needs to be worked out between MSU and CNP economists.

2. Since storage capacities will need to be added a detailed economic evaluation of the size and location of these facilities would be highly recommended probably in early 1977. Preliminary data pertinent to storage facilities and transportation rates was provided by CNP, however more detailed analysis of the information was beyond the scope of this trip.

3. A study of the feasibility of constructing rice seed drying

facilities at storage locations would be advisable. Current practices include hauling rice with very high moisture content. This is both expensive to haul as well as detremental to seed quality. Costs analysis of the transportation and handling systems from the farm to the plant is advised.

4. Methods of marketing beyond the processing plant may be helpful. It is my understanding that there is a very aggressive private sector developing in Costa Rica. The CNP will have to become more quality conscious and more market oriented if they are to increase their share of the market as projected by CNP personnel.

5. Long range plans should include a scheme where the entire seed procurement, processing, handling and marketing system could receive annual evaluations by stages just as divisions are analyzed by CNP.

6. The possibility of custom cleaning should be explored. Only a portion of the total costs are relevant when considering custom cleaning. In addition revenue would help use excess labor and spread fixed costs of the plant.

APPENDIX A

AICA SACMAG
Arouitectos Ingemieros

ESTIMACIONES PARA LA OBRA CIVIL
PLANTA DE SEMILLAS BARRANCA

TABLA DE

		%	PAGOS
1-a	Trabajos preliminaras y gastos legales	2	35.660
b	Garantias y Seguros	2	35.660
2	Preparacion del terreno, trazo y bodega	2	35.660
3	Bases de cilos y secadora	17	303.110
4	Fundaciones		
a	Ciminentos en zona de bodega	2	35.660
b	Cimientos en zona de recibo	2	35.660
c	Places y pedestales	3	53.490
d	Muros de concreto en tunel, zona de silos	3	53.490
5	Rellenos de M. selecto zona bodega	2	35.660
6	Hormigon armano		
a	Vigas sismica en zona bodega	2	35.660
b	Vigas tensoras en zona bodega	2	35.660
c	Columnas en zona bodega	3	53.490
d	Vigas intermedias	3	53.490
d	Viga corona en zona bodega	1	17.830
e	Vigas y columnas en zona silos	2	35.660
7	Paredes	2	35.660
a	de blogue en zona de bodega	3	53.490
b	de bloque en zona de silos	2	35.660
c	Otras paredes	2	35.660
8	Repellos, afinados y enchapes	2	35.660
9	Estructura de acero		
a	Columnas y vigas en zona de recibe	2	35.660
b	Purlings, largueros, tensores en zona de recibo	1	17.830
c	Marcos en zona de bodega	6	106.980
d	Purlinos, largueros, tensores en zona de bodega	6	106.980
10a	Cubierta techo y cielos en zona bodegas	3	53.490
b	Cubierta en techo en zona de recibo	1	17.830
11	Pisos	8	142.640

ESTIMACIONES PARA LA OBRA CIVIL PLANTA DE SEMILLAS BARRANCA
CONTINUED

12	Evacuacion pluvial		
a	Canoas y bajantes	2	35.660
b	Tuberia entrarrada	2	35.660
c	Cajas de registros	1	17.830
13	Piezas sanitarias y cloacas	1	17.830
14	Fontaneria	1	17.830
15	Portones, quartas y ventanas	2	35.660
16	Tuberia electrica	2	35.660
17	Apoyos y timentacion da maquiras	1	17.830
18	Pinturas	2	35.660
19	Detalles finales	2	38.660
	Totals	100	1,783.000

ESTIMACIONES PARA EQUIPO

PLANTA DE SEMILLAS BARRANCA

TABLA DE PAGOS

	Instalacion		% C	
Gastos Legales	54.000		.72	54,000.00
Planos				
Gasetas			.12	9,006.00
Elevadores	52.500		6.92	518,379.20
Equipos Clipper	43.500		4.81	359,985.40
Equipo Carter Day	38.000		6.74	504,083.80
Tratadors de Grano	2.000		0.68	55,569.40
Ensacadora Cosedora	2.000		1.94	51,200.00
Monta-Cargas	1.500		1.94	145,467.20
Tuberias	12.000		2.69	201,139.30
Equipos Miscelaneos	.500	Sobrepared	0.14	10,863.00
Silos	528.000		54.72	2,600,387.60
Transportadores arrastre	26.000		9.89	741,210.40
Secadoras	51.000		7.47	560,025.40
Tolvas de trabajo	22.000	Sobrepared	0.06	5,006.40
Sistema de aciete	10.000		0.92	68,910.00
Sistema Electrico	223.600		10.91	817,903.00
Mezzanine	8.000		4.39	328,995.00
Tecnico para entrenamiento	51.600		2.06	154,800.00
Requestos a suplir			2.17	162,562.86
Orden De Cambio No. 1				20,425.86
Orden De Cambio No. 2				364,639.31
	1,135.200	TOTALES	100	7,491,017.86

F8F6.983.03

Appendix B

Consejo Nacional de Producción

SAN JOSE
COSTA RICA
APARTADO 2205

Form. C N. P. No 128

11 de agosto de 1976

Dr. Warren C. Conviller
Dr. A.H. Boyd

Estimados Señores:

Con mucho gusto, por medio de la presente suministramos la información que nos solicitaran personalmente en el día de hoy.

1) El costo de transporte entre bodegas es el siguiente:

Barranca - Liberia	$ 2.80 por cada 46 kilos
Barranca - Quepos	7.25 por cada 46 kilos
Barranca-Palmar	7.75 por cada 46 kilos

2) Costo total de una bodega: $ 264.000.00 para una capacidad de almacenamiento de 230 tm. (5.000 qq)

3) Capacidad total de bodegas para semilla: 2[illegible] tm.

4) Tarifa de transporte de granos y otros: [illegible]

Atentamente

Ing. José Roberto [illegible]
Jefe Depto. Planificación.

Consejo Nacional de Producción

SAN JOSE
COSTA RICA
APARTADO 2205

Form. C N. P. No 129

11 de agosto de 1976

TARIFA DE FLETES A LA TARIFA DE GRANOS, [illegible], PANTALLA
Y EQUIPO DE EL PERIODO 1976 - 1977

Atenas a San José o viceversa	¢ 3.50	X 46 kilos
Atenas a Arrocera China o viceversa	[illegible]	"
Atenas a Barranca o viceversa	[illegible]	"
Orotina a San José o viceversa	[illegible]	"
Orotina a Barranca o viceversa	[illegible]	"
Turrubares a San José o viceversa	[illegible]	"
Orotina a Arrocera China o viceversa	[illegible]	"
San Ignacio de Acosta a San José o viceversa	[illegible]	"
San Gabriel de Aserrí a San José o viceversa	[illegible]	"
Aserrí a San José o viceversa	[illegible]	"
Puriscal a San José o Viceversa	3.75	"
Ciudad Colón A San José o viceversa	[illegible]	"
Palmichal de Acosta a San José o viceversa	[illegible]	"
San Pedro de Turrubares a San José o viceversa	[illegible]	"
Aguas Claras a Barranca o viceversa	[illegible]	"
Aguas Claras a Liberia o viceversa	[illegible]	"
Guayabo de Bagaces a Liberia o viceversa	[illegible]	"
Guayabo de Bagaces a Barranca o viceversa	[illegible]	"
Jicaral a Barranca o viceversa	[illegible]	"
Jicaral a San José o viceversa	[illegible]	"
La Mansión a Barranca o viceversa	[illegible]	"
La Mansión a Liberia o viceversa	[illegible]	"
La Mansión a Arrocera China o viceversa	[illegible]	"
La Mansión a San José o viceversa	[illegible]	"
La Mansión (vía Playa Naranjo) a Barranca o viceversa	[illegible]	"
La Mansión (vía Playa Naranjo) a Arroc. China o vicev.	[illegible]	"
La Mansión (vía Playa Naranjo a San José o viceversa	[illegible]	"
La Mansión (vía Puerto Moreno) a Barranca o viceversa	[illegible]	"
La Mansión (vía Puerto Moreno) a Arrocera China o vice.	[illegible]	"
La Mansión (vía Puerto Moreno) a San José o viceversa	[illegible]	"
Nicoya a Liberia o viceversa	[illegible]	"
Nicoya a Barranca o viceversa	[illegible]	"
Nicoya a Arrocera China o viceversa	[illegible]	"
Nicoya a San José o viceversa	[illegible]	"
Nicoya (vía Playa Naranjo) a Barranca o viceversa	[illegible]	"
Nicoya (vía Playa Naranjo) a Arrocera China o vicev.	[illegible]	"
Nicoya (vía Playa Naranjo) a San José o viceversa	[illegible]	"
Nicoya (vía Pto. Moreno) a Barranca o viceversa	[illegible]	"
Nicoya (vía Pto. Moreno) a Arrocera China o vicev.	[illegible]	"
Nicoya (vía Pto. Moreno(a San José o viceversa	[illegible]	"
27 de Abril a Barranca o viceversa	[illegible]	"
27 de Abril a Liberia o viceversa	[illegible]	"

Consejo Nacional de Producción

SAN JOSE
COSTA RICA
APARTADO 2205

Form. C. N. P. No 128

27 de Abril a San José o viceversa	7.25	X 46 kilos
27 de Abril a Arrocera China o viceversa	5.75	"
Cartagena a Liberia o viceversa	3.10	"
Cartagena a Barranca o viceversa	1.40	"
Cartagena a San José o viceversa	7.25	"
Cartagena a Arrocera China o viceversa	5.75	"
Santa Cruz a Liberia o viceversa	2.50	"
Santa Cruz a Barranca o viceversa	3.40	"
Santa Cruz a San José o viceversa	7.25	"
Santa Cruz a Arrocera China o viceversa	1.75	"
Filadelfia a Liberia o viceversa	2.00	"
Filadelfia a Barranca o viceversa	3.15	"
Filadelfia a Arrocera China o viceversa	4.50	"
Filadelfia a San José o viceversa	5.00	"
Liberia a Barranca o viceversa	3.80	"
Liberia a Arrocera China o viceversa	4.60	"
Liberia a San José o viceversa	4.90	"
Cañas a Liberia o viceversa	2.25	"
Cañas a Barranca o viceversa	2.35	"
Cañas a Arrocera China o viceversa	3.75	"
Cañas a San José o viceversa	4.25	"
Sardinal a Liberia o viceversa	2.25	"
Sardinal a Barranca o viceversa	1.25	"
Sardinal a Arrocera China o viceversa	3.00	"
Sardinal a San José o viceversa	4.50	"
Tilarán a Cañas o viceversa	1.75	"
Tilarán a Barranca o viceversa	2.75	"
Tilarán a Arrocera China o viceversa	4.50	"
Tilarán a San José o viceversa	5.00	"
Las Junta de Abangares a Liberia o viceversa	2.50	"
Las Juntas de Abangares a Barranca o viceversa	2.50	"
Las Juntas de Abangares a Arrocera China o viceversa	3.50	"
Las Juntas de Abangares a San José o viceversa	4.50	"
Hojancha a Barranca o viceversa	3.25	"
Hojancha a Arrocera China o viceversa	5.50	"
Hojancha a Liberia o viceversa	4.25	"
Hojancha a San José o viceversa	3.00	"
Hajancha (vía Playa Naranjo) a Barranca o viceversa	6.25	"
Hojancha (vía Playa Naranjo) a Arrocera China o vicev.	7.00	"
Nandayure a Barranca o viceversa	6.00	"
Nandayure a Arrocera China o viceversa	7.50	"
Nandayure a San José o viceversa	7.00	"
Nandayure (vía Playa Naranjo) a Barranca o viceversa	5.00	"
Nandayure (vía Playa Naranjo) a Arrocera China o vicev.	6.50	"
Nandayure (vía Playa Naranjo) a San José o viceversa	7.00	"
Nandayure (vía Pto. Moreno) a Barranca o viceversa	6.00	"
Nandayure (vía Pto. Moreno) a Arrocera China o vicev.	7.00	"
Nandayure (vía Pto. Moreno) a San José o viceversa	8.00	"
Hojancha (vía Playa Naranjo) a San José o viceversa	3.50	"
La Cruz a Liberia o viceversa	2.50	"

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APARTADO 2205

Fórm. C. N. P. No 128

La Cruz a Barranca o viceversa	3.50	X 46 kilos
La Cruz a Arrocera China o viceversa	4.75	"
La Cruz a San José o viceversa	5.25	"
Santa Cecilia a Liberia o viceversa	6.25	"
Santa Cecilia a Barranca o viceverasa	8.75	"
Santa Cecilia a Arrocera China o viceversa	10.50	"
Santa Cecilia a San José o viceversa	11.00	"
Guatuso a Cañas o viceversa	15.00	"
Guatuso a Barranca o viceversa	17.00	"
Guatuso a Liberia o viceversa	16.00	"
Guatuso a Arrocera China o viceversa	18.00	"
Los Chiles a Arrocera China o viceversa	17.00	"
Bijagua a Liberia o viceversa	7.00	"
Bijagua a Barranca o viceversa	7.50	"
Bijagua a Cañas o viceversa	6.00	"
San José de Upala a Liberia o viceversa	7.00	"
San José de Upala a Cañas o viceversa	16.00	"
San José de Upala a San José o viceversa	20.00	"
San José de Upala a Arrocera China o viceversa	0.00	"
Santa Clara de Upala a Upala o viceversa	4.00	"
Santa Clara de Upala a Cañas o viceversa	11.50	"
Santa Clara de Upala a Liberia o viceversa	15.00	"
Santa Clara de Upala a Arrocera China o viceversa	15.00	"
San Juan de Dios de Upapa a Cañas o viceversa	10.00	"
San Juan de Dios de Upala a Liberia o viceversa	11.50	"
San Jorge de Upala a Cañas o viceversa	20.00	"
San Jorge de Upala a Liberia o viceversa	21.00	"
San Jorge de Upala a Barranca o viceversa	17.00	"
San Jorge de Upala a San José o viceversa	24.00	"
San José de Upala a Barranca o viceversa	18.00	"
San Vito de Java a Palmar Norte o viceversa	5.00	"
San Vito de Java a San José o viceversa	9.00	"
San Vito de Java a Arrocera China o viceversa	5.75	"
Buenos Aires a San Isidro del General o vicev.	2.00	"
Buenos Aires a San José o viceversa	4.90	"
Buenos Aires a Arrocera China o viceversa	5.90	"
Buenos Aires a Barranca o viceversa	7.15	"
Pejibaye de Pérez Zeledón a San Idro. del General o vicev.	4.50	"
Pejibaye de Pérez Zeledón a San José o viceversa	8.00	"
Pejibaye de Pérez Zeledón a Arrocera China o viceversa	9.00	"
Santa Marta de Buenos Aires a Sn. Idro. de General o vicev.	2.00	"
Santa Marta de Buenos Aires a San José o viceversa	4.90	"
Santa Marta de Buenos Aires a Arrocera China o viceversa	5.80	"
San Isidro del General a San José o viceversa	4.00	"
San Isidro del General a Arrocera China o viceversa	4.75	"
San Isidro del Genral a Barranca o viceversa	6.25	"
Santa Marta de Dota a San José o viceversa	3.00	"
San Marcos de Tarrazú a San José o viceversa	3.00	"
San Pablo a San José o viceversa	3.00	"
San Lorenzo a San José o viceversa	3.00	"

Consejo Nacional de Producción

SAN JOSE
COSTA RICA
APARTADO 2205

Fórm. C. N. P. No 128

San Juan de Tobosi a San José o viceversa	3.75	X 46 kilos
Siquirres a San José o viceversa	4.00	"
Siquirres a Arrocera China o viceversa	5.00	"
Siquirres a Barranca o viceversa	3.25	"
Bataan a San José o viceversa	4.50	"
Bataan a Arrocera China o viceversa	5.50	"
Limón a San José o viceversa	[illegible]	"
Limón a Arrocera China o viceversa	6.50	"
Penshurt a San José o viceversa	7.00	"
Talamanca a Limón o viceversa	[illegible]	"
Atirro a San José o viceversa	3.25	"
La Suiza a San José o viceversa	3.25	"
Pejibaye a San José o viceversa	[illegible]	"
Tucurrique a San José o viceversa	[illegible]	"
Guácimo a San José o viceversa	[illegible]	"
Guácimo a Arrocera China o viceversa	[illegible]	"
Guácimo a Barranca o viceversa	2.50	"
Ciudad Cortés a Palmar Norte o viceversa	2.25	"
Ciudad Cortes a San José o viceversa	4.25	"
Ciudad Cortes a Arrocera China o viceversa	[illegible]	"
Ciudad Cortes a Barranca o viceversa	3.00	"
Palmar Norte a San José o viceversa	4.50	"
Palmar Norte a Arrocera China o viceversa	5.50	"
Palmar Norte a Barranca o viceversa	2.75	"
Golfito a Palmar Norte o viceversa	[illegible]	"
Golfito a San José o viceversa	6.75	"
Golfito a Arrocera China o viceversa	[illegible]	"
Golfito a Barranca o viceversa	2.50	"
Ciudad Neilly a Palmar Norte o viceversa	[illegible]	"
Ciudad Neilly a San José o viceversa	[illegible]	"
Ciudad Neilly a Arrocera China o viceversa	[illegible]	"
Ciudad Neilly a Barranca o viceversa	[illegible]	"
Laurel a Palmar Norte o viceversa	[illegible]	"
Laurel a San José o viceversa	[illegible]	"
Laurel a Barranca o viceversa	[illegible]	"
La Cuesta a Palmar Norte o viceversa	[illegible]	"
La Cuesta a San José o viceversa	[illegible]	"
La Cuesta a Arrocera China o viceversa	[illegible]	"
La Cuesta a Barranca o viceversa	[illegible]	"
La Vaca a Palmar Norte o viceversa	[illegible]	"
La Vaca a San José o viceversa	[illegible]	"
La Vaca a Arrocera China o viceversa	[illegible]	"
La Vaca a Barranca o viceversa	[illegible]	"
Quepos a Parrita o viceversa	[illegible]	"
Quepos a San José o viceversa	[illegible]	"
Quepos a Arrocera China o viceversa	[illegible]	"
Quepos a Barranca o viceversa	[illegible]	"
Parrita a San José o viceversa	[illegible]	"
Parrita a Arrocera China o viceversa	[illegible]	"
Parrita a Barranca o viceversa	[illegible]	"
Matapalo a Parrita o viceversa	[illegible]	"

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Form. C N. P. No 128

Matapalo a San José o viceversa	[illegible]	a 45 kilos
Matapalo a Arrocera China o viceversa	[illegible]	"
Matapalo a Barranca o viceversa	[illegible]	"
Matapalo a San Mro. del General o viceversa	[illegible]	"
Puntarenas a San José o viceversa	[illegible]	"
Puntarenas a Arrocera China o viceversa	[illegible]	"
Puntarenas a Barranca o viceversa	[illegible]	"
Esparza a Barranca o viceversa	[illegible]	"
Esparza a Puntarenas o viceversa	[illegible]	"
Barranca a San José o viceversa	[illegible]	"
Barranca a Arrocera China o viceversa	[illegible]	"
Estación Ferrocarril a Plantel central o viceversa	[illegible]	"
Estación Ferrocarril a Plantel de Pavas o viceversa	[illegible]	"
Plantel Central a Bodegas de San José o viceversa	[illegible]	"
Plantel Central a Plantel de Pavas o viceversa	[illegible]	"
Planta de Pavas a Bodegas de San José o viceversa	[illegible]	"
Planta Central a Arrocera China o viceversa	[illegible]	"
Planta Pavas a Arrocera China o viceversa	[illegible]	"
Barrio Cuba a Molinos de Costa Rica o viceversa	[illegible]	"
Barrio Cuba a Junta de la Caja o viceversa	[illegible]	"
Plantel Central a Villa Esperanza (Pavas) o viceversa	[illegible]	"
Plantel Central a La Belgalina (La Uruca) o viceversa	[illegible]	"
Ciruelas a Estación del Ferrocarril o viceversa	[illegible]	"
Ciruelas a Bodegas de San José o viceversa	[illegible]	"
Ciruelas a Puntarenas o viceversa	[illegible]	"
Arrocera de Pavas a Alajuela o viceversa	[illegible]	"
Planta Silos San José a Alajuela o viceversa	[illegible]	"
Arrocera Pavas a Naranjo o viceversa	[illegible]	"
Planta Silos San José a Naranjo o viceversa	[illegible]	"
Arrocera Pavas a Sarchí o viceversa	[illegible]	"
Planta Silos San José a Sarchí o viceversa	[illegible]	"
Arrocera de Pavas a Barva o viceversa	[illegible]	"
Planta Silos San José a Barva o viceversa	[illegible]	"
Arrocera de Pavas a Santa Rosa de Sto. Domingo o vice.	[illegible]	"
Planta Silos San José a Santa Rosa de Sto. Domingo o vice.	[illegible]	"
Arrocera de Pavas a San Rafael de Ojo de Agua o vice.	[illegible]	"
Planta Silos San José a San Rafael de Ojo de Agua o vice.	[illegible]	"
Alajuela a Bodegas zona San José o viceversa	[illegible]	"
Naranjo a Bodegas zona San José o viceversa	[illegible]	"
Sarchí a Bodegas zona San José o viceversa	[illegible]	"
Barva a Bodegas zona San José o viceversa	[illegible]	"
San Raf. de Ojo de Agua a Bodegas zona San José o vice.	[illegible]	"
Sta. Rosa de Santo Domingo a Bodegas zona San José o vice.	[illegible]	"
Zarcero a San José o viceversa	[illegible]	"
Ciudad Quesada a San José o viceversa	[illegible]	"
Bo. San Martín de Ciudad Quesada a San José o viceversa	[illegible]	"
Aguas Zarcas a San José o viceversa	[illegible]	"
Venecia a San José o viceversa	[illegible]	"
Pital a San José o viceversa	[illegible]	"
Florencia a San José o viceversa	[illegible]	"
La Fortuna a San José o viceversa	[illegible]	"

Consejo Nacional de Producción

SAN JOSE
COSTA RICA
APARTADO 2205

Form. C N. P. No 128

Río Frío a San José o viceversa	[illegible].50 x 46 kilos

[illegible]

San Juanillo a Barranca o viceversa	15.[illegible] "
Puerto Carrillo a Barranca o viceversa	[illegible] "

Appendix C

ARTICLE II

Loan Terms

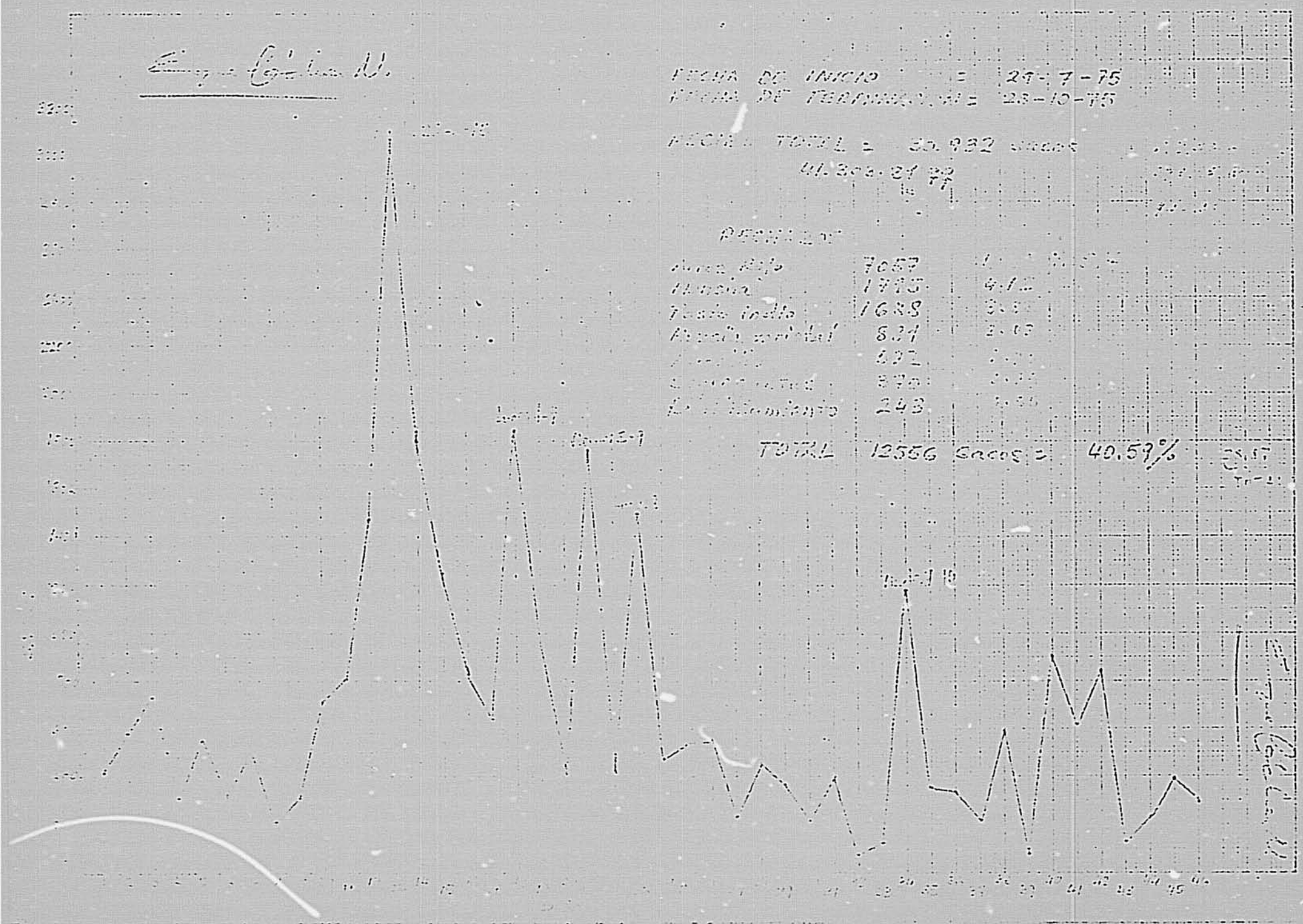
SECTION 2.01. Interest. The Borrower shall pay to A.I.D. interest which shall accrue at the rate of two percent (2%) per annum for ten years following the date of the first disbursement hereunder and at the rate of three percent (3%) per annum thereafter on the outstanding balance of Principal and on any due and unpaid interest. Interest on the outstanding balance shall accrue from the date of each respective disbursement (as such date is defined in Section 7.04), and shall be computed on the basis of a 365-day year. Interest shall be payable semi-annually. The first payment of interest shall be due and payable no later than six (6) months after the first disbursement hereunder, on a date to be specified by A.I.D.

SECTION 2.02. Repayment. The Borrower shall repay to A.I.D. the Principal within forty (40) years from the date of the first disbursement hereunder in sixty-one (61) approximately equal semiannual installments of Principal and interest. The first installment of Principal shall be payable nine and one-half (9½) years after the date on which the first interest payment is due in accordance with Section 2.01. A.I.D. shall provide the Borrower with an amortization schedule in accordance with this Section after the final disbursement under the Loan.

APPENDIX D.

Schedule of Rice Seed Arrival

Barranca, 1975


FECHA DE INICIO = 29-7-75
FECHA DE TERMINACION = 23-10-75
RECIBO TOTAL = 30.932 sacos
41.303.31 qq
RECHAZOS
Arroz Rojo 7057
Mancha 1795 4.12
Pasto Indio 1638
Mancha cristal 831
Amarillo 692
Semiarrugado 370
Debilitamiento 243
TOTAL 12556 Sacos = 40.59%

ENTRADA DE SEMILLA DE PARRITA Y QUEPOS

Eque Cáceres N.

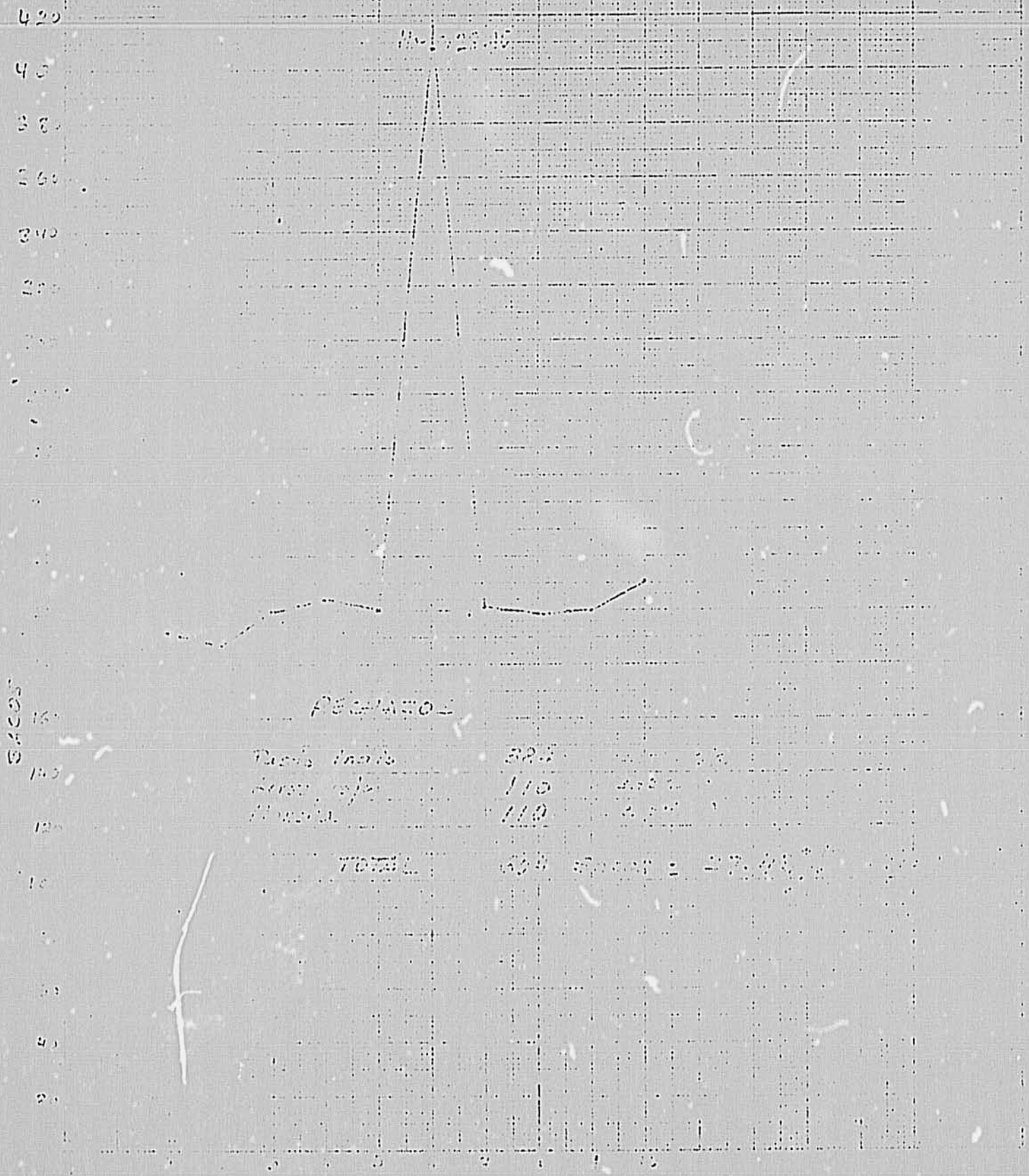
Eque Cáceres N.

FECHA DE INICIO 20-10-75

FECHA DE TERMINACION 5-11-75

RECIBO TOTAL 2202 Sacos

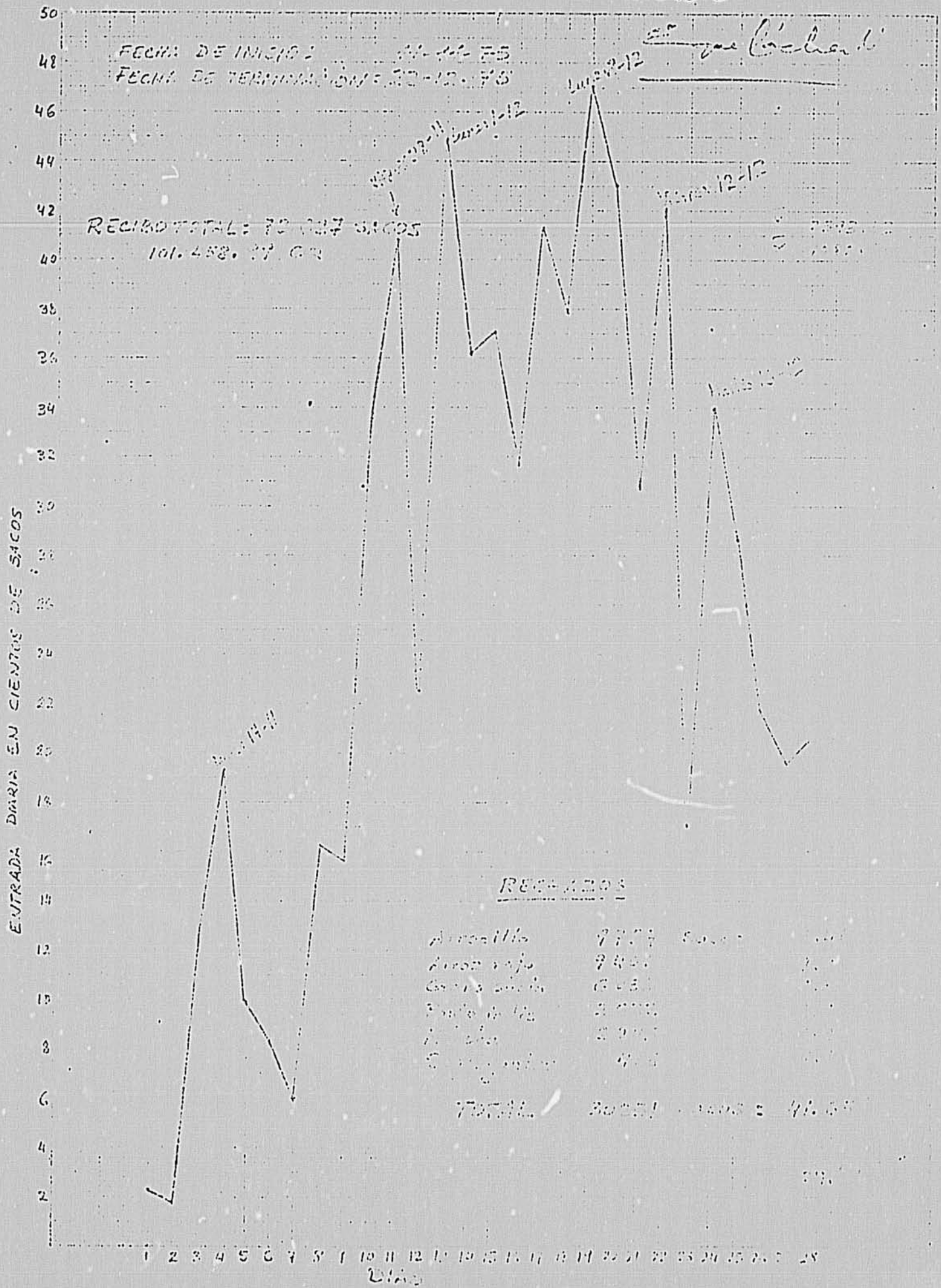
3065.26 QQ



RECHAZOS

Pasto Indio	385	[illegible]
Arroz rojo	110	[illegible]
Mancha	110	[illegible]
TOTAL	604	Sacos = 27.45 %

ENTRADA DE SEMILLA DE GUANACASTE



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