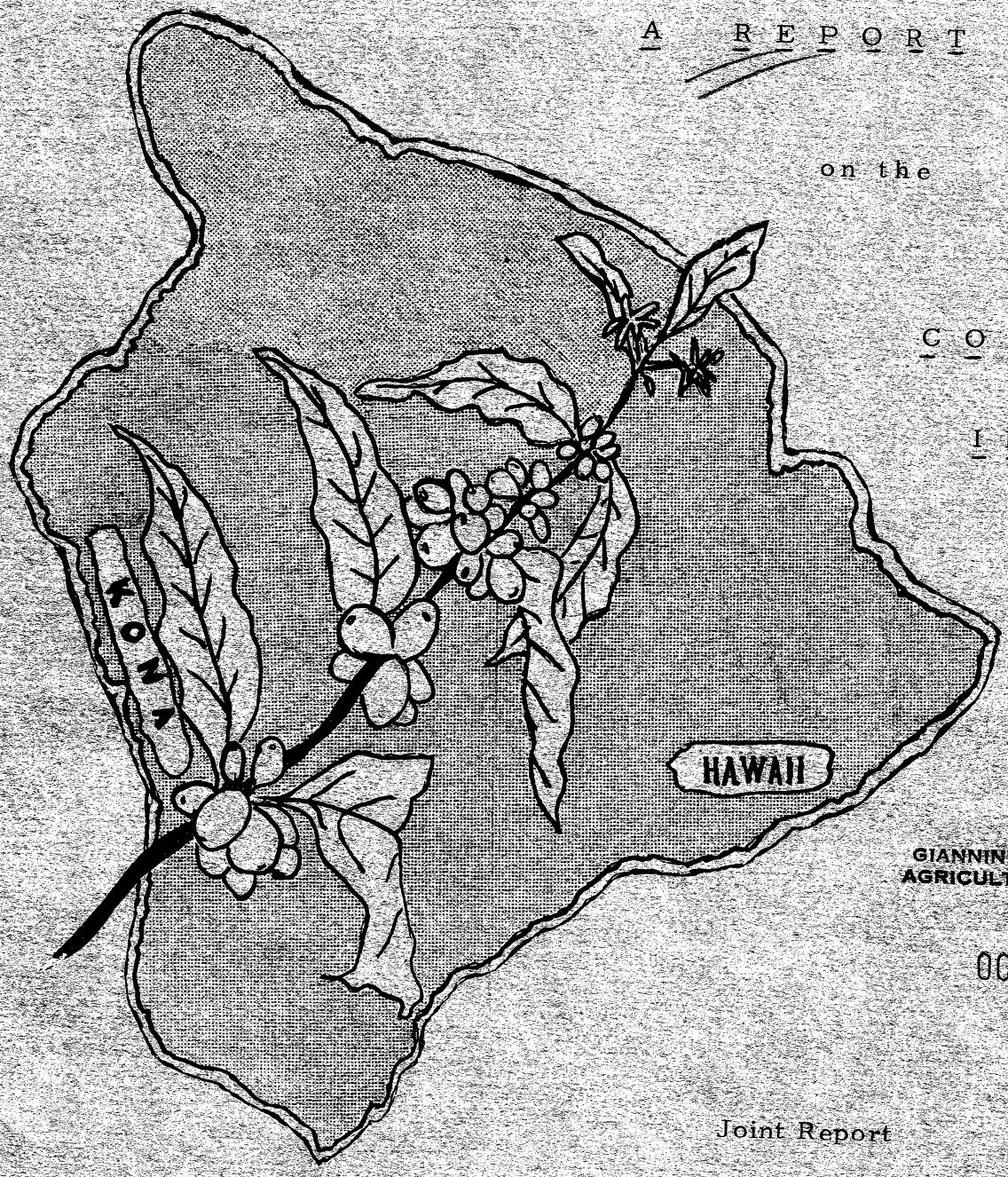
A REPORT

on the

COFFEE INDUSTRY

of

HAWAII



Joint Report

by

Hawaii State Department of Agriculture

and the

County of Hawaii Department of Research and Development

January, 1974

Hawaii is the only State in the nation that grows coffee commercially. The Kona coffee industry, composed of two cooperatives, has been in a decline for many years, and is reaching a critical point in its fight for survival. Low prices, high labor costs, unavailability of labor, old age of farmers and adverse weather have combined to create a near untenable condition for one of the cooperatives.

The Sunset Coffee Cooperative, which produces approximately 70% of the Kona coffee, has been operating its processing mill in a deficit condition for the past few years, and with the financial problems facing it, consideration is being given to actions which would drive many farmers out of the industry, and perhaps close the mill and cooperative. Such a shutdown will have a social impact on the community and County as well as the State, and economically, the governmental income assistance programs will be pressed with many out of work and in need of assistance.

The industry contributed $1,944,129 to personal income of the State in 1973. Increased State welfare costs is estimated at $60,200 per year if the Sunset mill were shut down at the end of the 1973-1974 production year.

The need for comprehensive planning to anticipate social upheavals caused by agricultural shutdowns have long been recognized by the State Department of Agriculture and the County of Hawaii, and it is with this in mind that this joint report has been prepared.

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INTRODUCTION

The Hawaii State Department of Agriculture and the County of Hawaii have been acutely aware of the decreasing role of coffee in the diversified agriculture mix of the State, and in the economic mix of the district of Kona.

Coffee in 1957 was the third leading crop produced in the State, behind only Sugar and Pineapple, and accounting for 5.2% of the total value of crop sales ($6,548,000/$125,214,000). The industry has been in a steady decline since, and in 1972, it accounted for only 0.6% of the value of Hawaiian crop sales ($1,104,000/$179,198,000).

The continued viability of coffee in Hawaii has been severely questioned by many in view of the pressures from labor costs, competing labor demands, urban encroachment pressures, and disinterest of younger farmers. A shut down of the coffee industry will have an effect on the economic and social conditions of the Kona district, the County of Hawaii, and to the State. Sound planning dictates that government must anticipate changes to the industry, and take actions necessary for the welfare of the citizens of the respective jurisdictions.

HISTORY OF COFFEE IN HAWAII

Coffee plants were first introduced to Hawaii by John Wilkinson, a missionary, in 1825. Plantings were started in Manoa Valley on the island of Oahu, grew satisfactorily, and subsequently spread to the Kalihi, Niu, and Pauoa valleys on Oahu. Neighbor island plantings were started in the Kona and Hilo areas on the island of Hawaii, and on the island of Kauai soon thereafter. On Kauai, some 1,000 acres were placed into coffee plantings in 1842, but the plantations ended in failure. On the island of Hawaii, coffee grew satisfactorily in the Hilo area, and exceptionally well in Kona, particularly around Kealakekua.

Coffee was consumed locally or sold to visting whaling ships until 1845, when exporting of coffee was started. The 19th century saw coffee fluctuate between high periods and low periods in competition with sugar. The late 19th century was a boom

PRODUCTION DATA - COFFEE

Year	No. of Farms	Total Acreage In Crop (1,000)	Acreage Harvested (1,000)	Yield per Harvested Acre (1,000 lb)	Marketings (parchment) (1,000 lb)	Price/Pound (cents)	Value of Sales ($1,000)
1955	906	5.1	n.a.	n.a.	10,872	46.0	5,001
1956	876	5.8	n.a.	n.a.	11,136	50.4	5,613
1957	994	6.5	n.a.	n.a.	18,496	35.4	6,548
1958	1,151	6.8	n.a.	n.a.	10,634	27.8	2,961
1959	1,160	6.2	n.a.	n.a.	12,999	26.8	3.488
1960	1,128	5.5	n.a.	n.a.	13,272	24.1	3,202
1961	1,028	5.2	n.a.	n.a.	8,432	22.4	1,886
1962	964	4.8	n.a.	n.a.	13,392	22.3	2,985
1963	894	4.7	n.a.	n.a.	6,651	26.2	1,744
1964	860	4.7	3.9	2.6	9,947	30.4	3,024
1965	850	4.7	3.8	2.0	7,500	31.5	2,362
1966	840	4.6	3.7	2.2	8,040	25.6	2,058
1967	830	4.6	3.5	1.6	5,440	27.1	1,471
1968	800	4.4	3.2	1.8	5,700	25.8	1,471
1969	770	4.3	2.9	1.4	4,130	35.5	1,466
1970	750	3.9	2.7	1.6	4,300	33.7	1,449
1971	720	3.4	2.4	1.4	3,280	34.6	1,135
1972	710	3.0	2.3	1.4	3,200	34.5	1,104

Source: Statistics of Hawaiian Agriculture
Hawaii Department of Agriculture

period for coffee, with a reported 13,947 acres in cultivation. Considerable speculation caused abnormally high coffee prices and large increases in coffee acreage.

There was another boom period for the coffee industry shortly after World War II resulting in increased plantings. While the acreage did not approach the 13,947 acres of the late 19th century, the value of the crop rose to 5.2% of the total Hawaiian crop value.

The coffee industry in Hawaii has centered around the Kona District of Hawaii since the 19th century, due in major part to the favorable climate of the area. The climate of the Kona area is characterized by a cool dry period favorable to the maturing of a given coffee crop, and the formation of flower buds for the succeeding crop, and to very favorable spring and summer rainfall, with temperatures favorable to growth of the tree and development of the crop. Through the over 100 years of coffee growing experience, the narrow belt of land approximately two miles wide running parallel to the ocean from 700 feet above sea level to 2,000 feet above sea level has proven to be ideal.

The temperature in this area is within the range in which coffee will grow well and give an abundant yield. It is most desirable that a drop in temperature take place during the winter months, simultaneous with drought, to cause semi-dormancy of coffee trees and the development of buds. The average temperature for December, January, and February is 67 degrees Farenheit. Another outstanding characteristic which makes the coffee belt in Kona an ideal spot for growing coffee is rainfall and it distribution. The average annual rainfall in Kealakekua is 69.32 inches over a 42 year period. More important than the amount of rainfall per annum, however, is its distribution. Coffee production is at its best when there is a short, dry period annually, preferable during the winter months. This forces the coffee trees into a state of semi-dormancy. Ideally this dry period should be followed by a rainy period with rainfall increasing gradually as the crop continues to maturity. As the harvesting season approaches, rainfall should decrease, to be followed by a dry period during the winter. This ideal period distribution of rainfall exists in Kona, as is shown

in Chart 1.

Deep soil, rich in organic matter, is desirable in a coffee orchard, but in Kona, such land is limited. However, as long as there is good drainage and proper fertilization, coffee will grow on almost any piece of land in the coffee belt of Kona. The soil in Kona is similar to the soil in the coffee growing area of Central America.

THE KONA COFFEE INDUSTRY

The Kona coffee industry has evolved from an industry dominated by large processing companies, each with its own group of farmers, to one characterized by many independent farmers processing their cherry coffee to parchment, to one having two cooperative organizations representing the entire industry.

The two cooperatives are the Pacific Coffee Cooperative, with 98 members, and the Sunset Coffee Cooperative, with 537 members. A comparison of the two gives a good picture of the status of the industry in Kona.

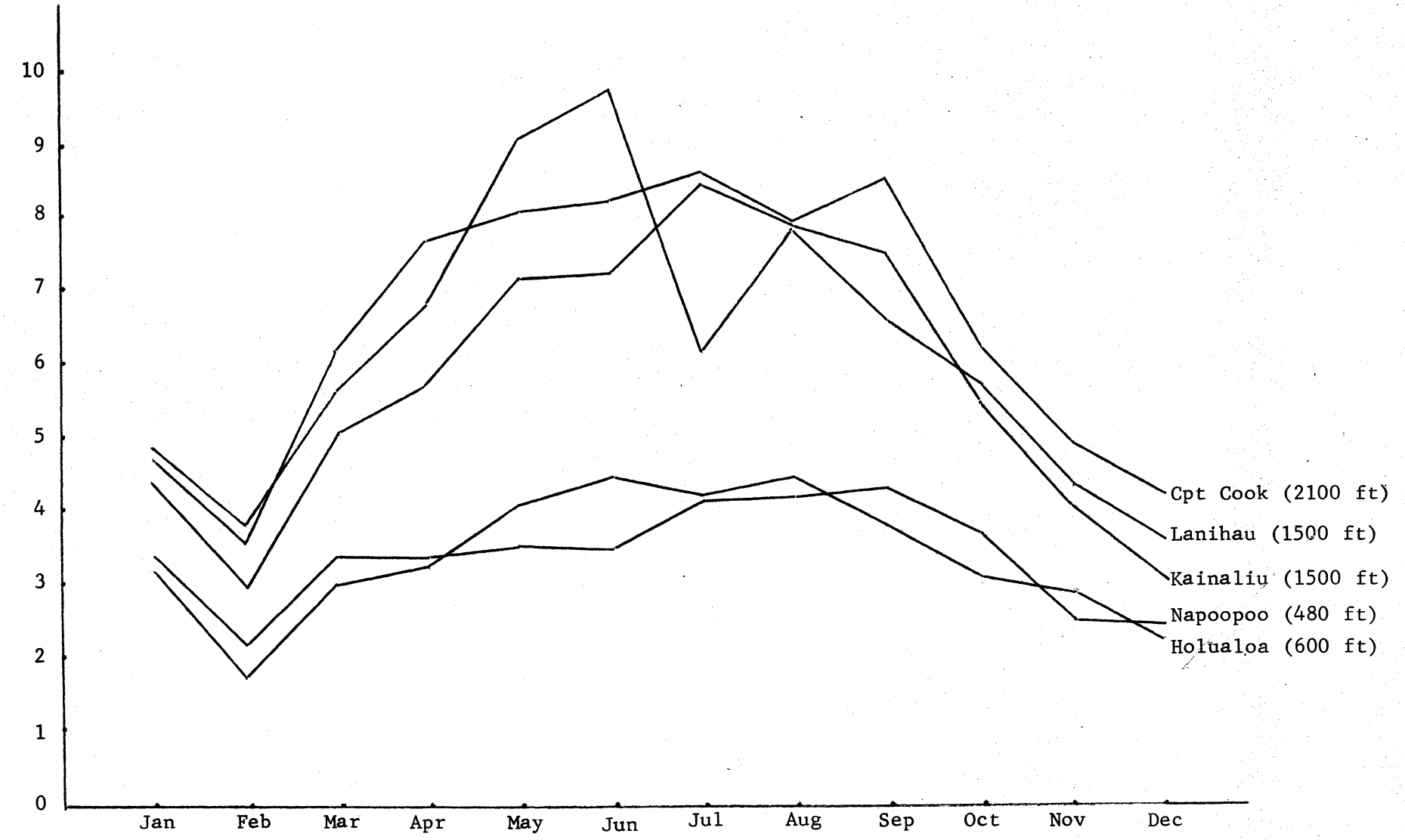
Processing

In 1958, there were 12 millers engaged in processing coffee into its final marketable form in Kona. Today there remains only two processing mills, that belonging to the Pacific Coffee Cooperative, and that of the Sunset Coffee Cooperative. The Pacific Coop mill processes the parchment form of coffee only, while the Sunset Coffee Coop mill processes the cherry as well as parchment form of coffee.

(There are two forms of coffee which farmers sell their coffee - cherry and parchment. When coffee is picked off the tree, it is a small red berry called cherry coffee. A farmer can either market his coffee as cherry, in which case he must do so shortly after picking, or he can undertake processing his crop into the parchment form. Processing coffee from cherry to parchment involves removing the fleshy part of the berry and drying the remaining bean and parchment covering.)

The final process at both mills involves removing the parchment husk which surrounds the bean, and separating the green coffee which remains, into different grades.

RAINFALL



(34 year average)

Chart 1

Volume

In 1958, most farmers processed their cherry coffee to parchment prior to selling it to the mills. Today, the majority of the coffee sold by farmers is in the cherry form. The Sunset Coffee mill produced approximately 19,000 bags of green coffee (mainly from cherry) in 1973, and the Pacific Coffee mill produced about 10,000 bags of green coffee (from parchment).

Financial Condition

The Pacific Co-op is sound financially, while the Sunset Co-op cannot continue operating as it has in the past without becoming insolvent. The Pacific Co-op has nearly $55,000 in cash while Sunset for many years save the last, had nothing near that amoung (see Illus 1-5). More importantly, the processing mill of the Pacific Co-op has operated with net excess charges over expenses, and paid out dividends (see Illus 1-5) while the Sunset mill has operated in the red save the 1972 - 1973 production year, when a combination of a bumper crop and increased processing fee resulted in a net charges over expenses.

A commonly used measure of solvency is the Current Ratio (Current Assets to Current Debt). The "rule of thumb" is that 2 to 1 is a desirable figure. Also, a comparable industry, grain milling, shows a median of about 2 to 1 (Dun and Bradstreet, Inc., Key Business Ratio). The following are the Current Ratios for both Co-ops:

	Pacific	Sunset
1969	-	3.8
1970	-	1.6
1971	5.3	.8
1972	7.5	.6
1973	2.9	.8

While one ratio does not give an absolute measure of financial stability, it provides one view, and used in conjunction with others, will provide a good picture.

Operating expense to sales shows a greater proportion for Sunset than Pacific (approximately 23% to 9%). This is due in great part to the cherry processing done

BALANCE SHEET - PACIFIC COFFEE COOPERATIVE

	1973	1972	1971
ASSETS			
CURRENT ASSETS			
Cash	$ 54,676	$ 91,627	$ 70,684
Accounts Receivable	76,696	36,876	62,625
Inventories	12,207	2,558	1,490
Total Current Assets	143,579	131,061	134,799
FIXED ASSETS			
Machinery	41,502	37,518	37,518
Less: Depreciation	- 37,862	- 36,442	- 33,610
Total Fixed Assets	3,640	1,076	3,908
TOTAL ASSETS	$147,219	$132,137	$138,707
LIABILITIES			
CURRENT LIABILITIES			
Accounts Payable	46,023	13,142	20,215
Accrued Liabilities	3,353	4,131	5,113
Total Current Liabilities	49,376	17,273	25,328
PATRON'S EQUITY			
Membership Fees	3,050	3,050	3,050
Revolving Fund	51,818	68,839	67,354
Retained Patron's Savings	42,975	42,975	42,975
Total Patron's Equity	97,843	114,864	113,379
TOTAL LIABILITIES	$147,219	$132,137	$138,707

Illustration 1

BALANCE SHEET - SUNSET COFFEE COOPERATIVE

	1973	1972	1971	1970	1969
ASSETS					
CURRENT ASSETS					
Cash	$ 49,303	$ 5,811	$ 25	$ 3,721	$ 25
Accounts Recievable	23,919	42,618	166,609	259,652	243,340
Inventories	33,627	74,166	68,163	39,970	95,920
Prepaid Expenses	-	814	1,620	-	-
Total Current Assets	106,849	123,409	236,417	303,343	339,285
FIXED ASSETS					
Buildings	179,956	179,956	215,682	69,879	57,273
Machinery	329,042	305,718	274,718	33,865	55,067
Water System	1,611	1,611	1,611	-	-
Automobile and Truck	30,348	26,048	29,064	10,881	12,981
Office Machinery and Furniture	25,667	25,667	26,775	8,331	8,121
	566,624	539,000	547,850	122,956	133,442
Less: Depreciation	-322,203	-280,509	-293,323	-22,545	-22,527
	244,421	258,491	254,527	100,411	110,915
Land	11,146	11,146	11,146	2,589	2,589
Total Fixed Assets	255,567	269,637	265,673	103,000	113,504
OTHER ASSETS	200	7,600	7,437	21,608	19,350
TOTAL ASSETS	$362,616	$400,646	$509,527	$427,951	$472,139

Illustration 2

BALANCE SHEET - SUNSET COFFEE COOPERATIVE

	1973	1972	1971	1970	1969
LIABILITIES					
CURRENT LIABILITIES					
Notes Payable to Bank	$ -	$ 61,667	$37,825	$ 83,000	4,194
Equipment Obligation	-	4,431	739	-	-
Current Maturities of Long Term Debt	35,905	43,420	38,005	-	-
Accounts Payable	79,321	92,065	198,448	106,943	77,647
Accrued Liabilities	6,502	5,211	8,331	3,502	7,065
Other Liabilities	7,326	9,958	19,143	-	-
Total Current Liabilities	129,054	216,752	302,491	193,445	88,906
LONG TERM DEBT					
Notes Payable	106,654	141,231	122,276	73,724	158,057
Equipment Obligation	-	-	8,871	-	-
Less: Current Maturities	-35,905	-43,420	-38,005	-	-
	70,749	97,811	93,142	73,724	158,057
PATRON'S EQUITY					
Membership Fees	10,590	10,400	10,070	9,290	8,910
Certificate of Indebtedness	119,454	119,454	119,454	129,605	132,873
Capital Fund	112,484	93,074	74,642	66,220	73,339
Patronage Accounts	(79,715)	(136,845)	(90,272)	(44,334)	10,054
	162,813	86,083	113,894	160,781	225,176
TOTAL LIABILITIES	$362,616	$400,646	$509,527	$427,950	$472,139

Illustration 3

STATEMENT OF OPERATIONS AND RETAINED PATRON'S SAVINGS
Pacific Coffee Cooperative

	1973	1972	1971
Sales	$695,827	$344,619	$411,314
Cost of Sales	695,827	344,619	411,314
	0	0	0
Retains for Milling	51,230	33,882	40,462
	51,230	33,882	40,462
Operating Expenses	46,246	34,330	35,274
Sales over Expenses	4,984	(448)	5,188
Other Income (Supplies)	4,809	3,045	(618)
Savings Before Deductions	9,793	2,597	4,570
Other Deductions - Interest	9,793	0	1,153
Net Charges over Expenses	$ 0	$ 2,597	$ 3,417
Dividends Paid	$ 0	$ 2,597	$ 3,417

Illustration 4

STATEMENT OF SALES, EXPENSES, AND PATRONS ACCOUNT
Sunset Coffee Cooperative*

	1973	1972	1971	1970	1969
Sales	1,188,019	$766,061	$1,119,508	$1,210,011	$1,221,386
Cost of Sales	1,188,019	746,208	1,102,251	1,108,346	1,100,759
	0	19,853	17,257	101,665	120,627
Retains for Milling	257,034	165,351	202,029	176,138	197,500
	257,034	185,204	219,286	277,803	318,127
Operating Expenses	217,419	187,420	242,432	276,760	320,155
	39,615	(2,216)	(23,146)	1,043	(2,028)
Other Income - Interest and Other	2,293	1,950	4,665	20,466	866
	41,908	(266)	(18,481)	21,509	(1,162)
Other Deduction - Interest and Other	7,470	13,321	19,446	47,163	-
Excess Expenses (Expenses over Charges)	$34,438	($13,587)	($37,927)	($25,654)	($1,162)

*For coffee operations only. Does not include Macadamia Nut operations nor supplies sale.

Illustration 5

by the Sunset mill. The cherry processing requires: 1)more frequent pick ups; 2) a wet process; 3) greater capital costs; and 4) greater personnel costs.

1) Since the cherry form of coffee must be processed within 12 hours, they must be picked up daily by the mill. The parchment form on the other hand, can be stored at the farm for very long periods, making possible very few pick ups per season. The cherry form also has a greater bulk than parchment, meaning less coffee is hauled per unit weight for the cherry than parchment (in general, 4 bags of cherry makes 1 bag of parchment which in turn makes .8 bag of green coffee).

2) Cherry coffee processing is a wet process, requiring removing the pulp, fermenting the bean in water to remove the mucilagenous matter, rinsing the bean, and drying it. This means more equipment, more utility cost, and greater maintenance costs. From the parchment form to green on the other hand, requires only removing the "shell", and sorting the green coffee.

3) As mentioned above, the cherry processing requires greater capital investment. Pulpers, fermentation tanks, and dryers are required as well as a water system to wash off the coffee. The comparison in fixed assets and depreciation expense for both Co-ops makes this fact very clear.

4) Personnel costs due to the greater number of pickups, more involved processing, and maintenance problems are much greater for the cherry processing than parchment.

These facts can easily be seen by comparing the costs for both Co-op during the past year.

	Pacific	Sunset
Electricity and Fuel	$ 1,390	$ 24,551
Fixed Asset (less deprec)	$ 3,640	$188,406
Personnel Costs	$26,980	$103,239

Marketing

Over production of coffee and low prices on a world-wide basis have caused havoc in the marketing of Kona coffee, with its price subject to the fluctuations of world coffee prices. This has been true despite the fact that mild coffees

such as Kona have a distinctive flavor and have commanded higher prices than other coffees.

The small size of the total Hawaiian crop does not create the quantity or surplus problems that exists in countries with large production, and there is rarely a hold-over of Kona coffee from the previous crop year and when there is, it is due to the miller's anticipation of higher future prices rather than to the lack of a market.

The characteristics of small total volume, high quality, and distinctive flavor held by Kona coffee have long convinced the industry that the product should be marketed as a speciality product at premium prices.

In 1969, the Superior Tea and Coffee Company of Illinois and the Pacific and Sunset coffee cooperatives entered into an agreement in which the entire green Kona coffee crop produced by member farmers of both co-ops would be purchased by the Company. The Company agreed to purchase the coffee at a price "equal to five cents (5¢) per pound in excess of the average daily coffee index price for the first 15 days of the purchase month as established by the International Coffee Organization for coffee known as 'other mild Arabica'".

This agreement stabilizes the heretofore unsettling problems in the marketing of Kona coffee. The agreement is up for renegotiations in 1974, and a higher premium price will be negotiated by the co-ops. There are sales on record with Japan where a premium price of 10¢ per pound has been paid.

State Support

The State government has been assisting the coffee industry for a great number of years. In the past, the primary agency had been the University of Hawaii, through the Cooperative Extension Service and the Hawaii Agricultural Experimental Station (CES and HAES) offices. Advice in the form of personal visits by Extension Agents, classes by CES and HAES personnel, and numerous research projects and economic reports on the subject have been provided by the State.

In more recent years, the Department of Agriculture has assisted the coffee industry by developing standards for cherry and green coffee, and establishing an

inspection program for quality control of the product, and providing low interest Farm Loans (for example, during the period 1961 - 1966, the State provided over $438,000 in emergency loans when conventional credit sources were exhausted for the coffee farmers).

Presently, the State effort in support of the industry is confined to the following areas:

a. University of Hawaii - continued consultative support by CES and HAES personnel, with research on the mechanical shaker completed. Research related to the problem of uniform ripening for mechanical harvesting is continuing on a limited basis.

b. Department of Agriculture - Cherry and green coffee inspection, with State share of costs at $15,472 and industry share at $4,022 in Fiscal Year 1972 - 1973. Farm Loans - One with the Sunset Coffee Cooperative, with a balance as of November 1, 1973 at $2,761.75 (State portion), and individual farm operating loans of $44,907.45 as of October 31, 1973.

REASON FOR STUDY

The State, County of Hawaii, and civic leaders of the Kona district have long been concerned about the future of the coffee industry specifically, and agriculture in general in the Kona district, and in July 1973, the State Department of Agriculture and the County of Hawaii agreed to conduct a joint study of the coffee industry of Kona. The need for government to plan from a position of knowledge about the problems rather than from a position of ignorance was the primary impetus behind the conduct of the study. Public displacement from sudden terminations of large agricultural enterprises had to be avoided or at least planned for.

Effective planning requires analysis based on current information and data about the industry, such as its composition, economic units, motivation for farming, returns on investment, age, etc., etc.. Data on the industry in Kona were meager, or non-existent. To gather the necessary data, a survey technique was agreed on. Various sample sizes were proposed (see attachment), and a full

commitment on data gathering was made by government leaders.

While preparing for the conduct of the study, a crisis of sorts developed when one cooperative reported that because of the drought that Kona had been experiencing over the past six (6) months, the coffee crop was expected to be 30% of last year's. With this low volume, the mill would have to charge a processing fee 50% over last year's to cover its costs. Considering the poor returns to the farmers without the increase in processing fee, it was felt by the management of the Sunset Cooperative that this increase in fees would cause the farmers to stop picking coffee, and kill the cooperative (and 70% of the industry).

The final questionnaire (see attachment) was designed to answer both the short range questions (size of this year's crop, impact of increased processing fees), as well as the long range questions (characteristics of the industry, returns on investment, motivation for farming).

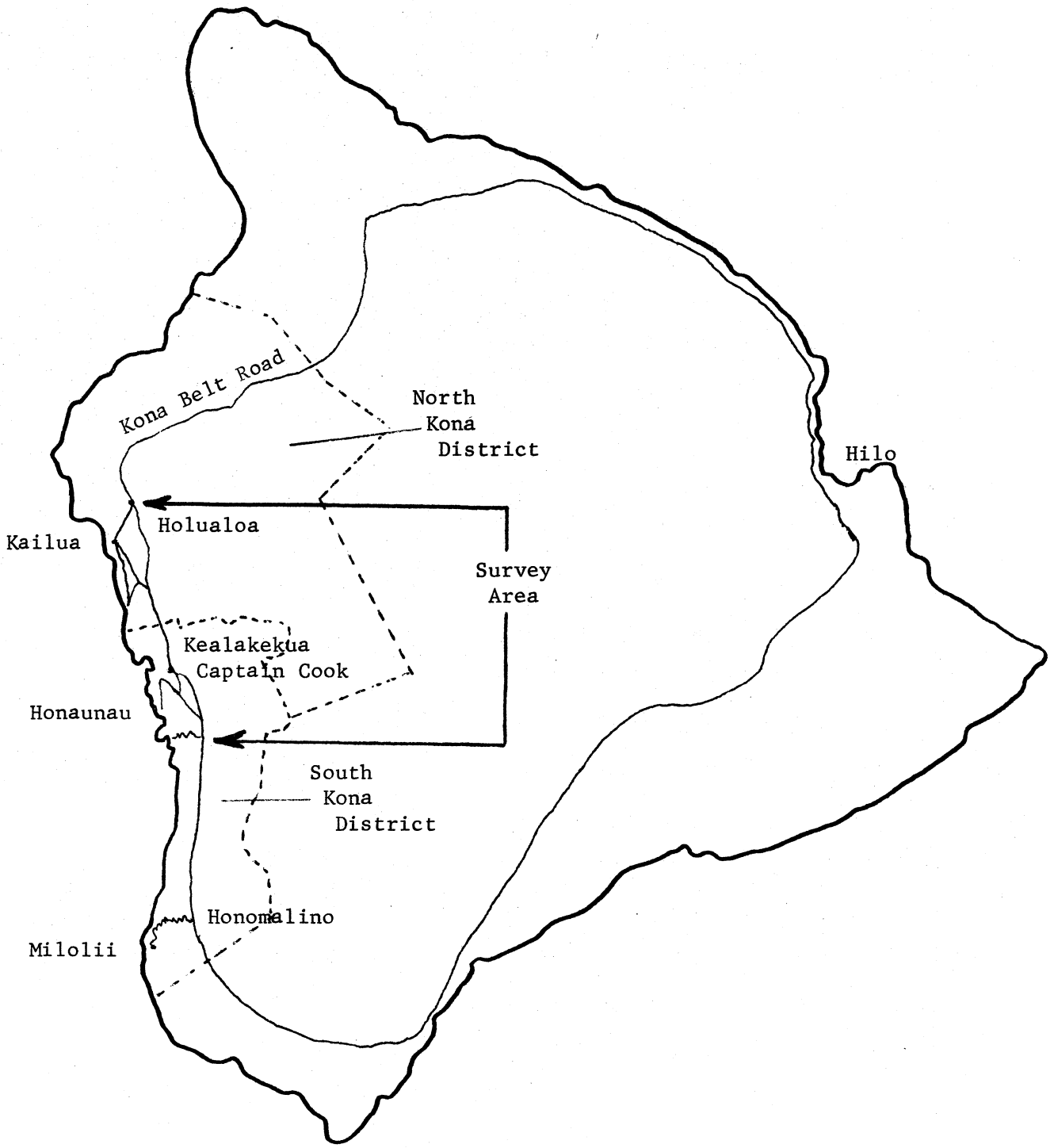
An in-person, farm level survey was conducted from July 18, 1973 to July 28, 1973. Eleven surveyors were utilized, with six being the most ever working at the same period. These were for the most part contractual hires from the community.

The survey area was established as being from the junction of the Palani Road and the North Kona Belt Road in the north, and the junction of the City of Refuge Road and the South Kona Belt Road in the south, a straight line distance of approximately 25 miles (see map). The width of the survey area was approximately 3 miles. The survey area was subdivided into five general districts, Holualoa, Kailua-Kona, Kealakekua, Captain Cook, and Honauanu. Membership lists were provided by the Cooperatives and using mailing addresses and the personal knowledge of our surveyors, farmers were assigned.

Many problems unique to the area and industry were encountered during the surveying:

a. Determining the location of farms was very difficult. Membership lists

SURVEY AREA


Kona Belt Road
North
Kona
District
Hilo
Holualoa
Kailua
Survey
Area
Kealakekua
Captain Cook
Honaunau
South
Kona
District
Honomalino
Milolii

OFFICE OF THE MAYOR — county of hawaii, hilo, hawaii 96720

SHUNICHI KIMURA
MAYOR

July 17, 1973

TO WHOM IT MAY CONCERN:

This letter will introduce _____ whom I have requested to conduct research on the coffee farmers of Kona. We are conducting this survey from July 18 through July 31, 1973 to determine the characteristics of the coffee industry so that we can design appropriate government programs.

All your responses will be held in strictest confidence.

I respectfully request your full cooperation.

Thank you.

S Kimura
SHUNICHI KIMURA
Mayor

provided by the coops gave mailing addresses, but these were predominantly post office box numbers, and did not necessarily reflect the physical location of the farms i.e. a farmer listed under the Kealakekua post office may have his farm in Milolii, some 24 miles away. The few road maps that were available proved of little value. These maps showed only the main roads, and not the many jeep roads shown. It was at this time that the personal knowledge of the area possessed by our surveyors proved invaluable. Road maps provided for the surveyors were turned down as not very useful, and instead references were made to the "Kona Meat Market Road", or the "Filipino Community House Road", or the "DeCasa Farm Road".

b. The length of the survey area provided another problem. Coffee farms were scattered throughout the North and South Kona Districts, covering a distance of over 34 miles (north of Honokahau to south of Milolii). Given the time and manpower constraint facing the project, the area between the Palani Junction to the north and the junction of the Belt Road and the City of Refuge Road to the south was established as the survey area. Two trips were made to the Milolii/Honomalino area in an attempt to cover the pocket of farms in that area.

c. More imposing than the distance problem was the terrain problem. The slope in the area approximates 25%, and four-wheel drive vehicles are a necessity for certain areas. Roads, which resemble stream beds more than roads, were seldom paved, and provided a real challenge to our surveyors.

d. Dogs provided another problem for the surveyors. The number of dogs living in the area was very high, and offered a problem for some of our female surveyors.

The results of the survey concerning the immediate problem were reported to the Board of Directors of the Sunset Coffee Cooperative at a special meeting on August 28, 1973 (see attachment 2), and the recommendation to keep the processing fee at the 1972-1973 level was discussed. The Board later decided at their regular meeting to keep the processing fee unchanged.

RESULTS OF SURVEY

Membership lists provided by both cooperatives showed a total population of 635 farmers (98 for Pacific and 537 for Sunset). Out of this total population, certain farmers were designated as being unreachable, due to the location of farms (i.e. too far from the survey headquarters), farmers giving up coffee, or farmers on trips outside the Kona area during the survey period. The reachable population was determined to be 556 (80 in Pacific and 476 in Sunset).

446 farms, or 80.2% of the reachable population, were surveyed. The data gathered shows the following characteristics of farm units.

Size of Farms

The average size of a coffee farm in Kona ia 6.8 acres (see chart 2). There doesn't seem to be any great significance in the location of farm, i.e. Makai or Mauka of the Belt Road, in relation to the size of the farm, as the Pacific Co-op shows the large farms to be in the Mauka area, while the Sunset Co-op shows the larger farms in the Makai area. The significant difference is in the size of farms between co-ops. Pacific co-op members have the larger farms, on the average, than the Sunset Co-op members, in both Mauka and Makai areas.

Number of Persons Living on Farm

The average number of persons living on a coffee farm in Kona is 4.0 (see chart 3). Chart 3 shows the data stratified by size of coffee plantings, location of farm, and co-op. The data shows a consistent increase in number of persons living on the farm as the size increases, as could be expected.

Degree of Diversification

Survey results show that 60.0% of the Pacific Co-op members have diversified to alternative income producing crops, while only 46.6% of the Sunset Co-op members have (see charts 4 and 5). 52.0% of the Pacific Co-op members have

SIZE OF FARM
(in acres)

	Mauka	Makai	Total
Pacific Co-op	10.2 (29)	8.8 (37)	9.4 (66)
Sunset Co-op	5.5 (239)	7.8 (140)	6.4 (379)
Industry	6.0 (268)	8.0 (177)	6.8 (445)

( ) = sample size

Chart 2

NUMBER OF PERSONS LIVING ON FARM

	0 - 3 Acres		3+ - 5 Acres		5+ - 10 Acres		10+ Acres		
	Mauka	Makai	Mauka	Makai	Mauka	Makai	Mauka	Makai	Total
Pacific Co-op	2.1	4.6	3.3	3.4	5.2	3.3	6.5	9.3	4.2
	(7)	(12)	(10)	(8)	(9)	(12)	(4)	(3)	(65)
Sunset Co-op	3.7	3.6	3.7	4.8	3.8	5.2	4.9	10.5*	4.0
	(140)	(74)	(65)	(49)	(26)	(10)	(8)	(7)	(379)
Industry	3.6	3.8	3.7	4.6	4.2	4.2	5.4	10.2	4.0
	(147)	(86)	(75)	(57)	(35)	(22)	(12)	(10)	(444)

*One respondent listed 40 living on his farm. Without this response, the mean would be 5.7. Industry mean included this "40" sample.

( ) = sample size

diversified into Macadamia nuts, the larger farms showing greater moves toward diversification into mac nuts than the smaller. Macadamia nuts are also the most popular alternative crop for Sunset Co-op members, with 34.4% of them having macadamia nut plantings. In both co-ops, the larger farms have diversified much more extensively than the smaller farms, as could be expected.

Labor

Coffee does not mature all at once, and berries in several stages of development may be found on any one tree. This creates considerable problems in harvesting, since only fully ripe coffee should be harvested, for nothing can be done in the processing of coffee to improve the quality of under- or over-ripe coffee beans.

No feasible mechanical means of harvesting the coffee has been developed (the terrain and plant spacing limits the use of mechanical harvesting), so hand labor, at high rates, must be used. The equipment needed for hand picking of coffee is simple and inexpensive, and include baskets for the individual picker, holding hooks for bringing branches into position for picking, ladders, and containers for transport of large quantities of berries from the orchards to the processing area.

Maintaining and harvesting the coffee crop in Kona has traditionally been a family affair, due to several factors. The farms have been small plots of land, as covered in the previous section on size of farm. Since there has never been an effective mechanical method of harvesting, no economies of scale pressures exist. The high cost of labor and low returns from the crop necessitated use of family members.

Survey results show this to be true today, (see chart 6), with 73.2% of the surveyed farmers indicating that they hired no outside help, and 26.8% indicating that they did hire outside help for either maintaining or harvesting the crop. The average number of persons hired by those farmers who used hired help is 4.6, for a period of 2.6 months, at a rate of $4.78 per bag of cherry coffee. A good picker can pick three bags of cherry coffee in a day, and at

DO YOU HAVE ANY OTHER INCOME PRODUCING CROP?*

	0 - 3 Acres		3+ - 5 Acres		5+ - 10 Acres		10+ Acres		
	Mauka	Makai	Mauka	Makai	Mauka	Makai	Mauka	Makai	Total
Pacific Co-op	(7)	(12)	(9)	(9)	(9)	(12)	(4)	(3)	(65)
No	4 57.1%	6 50.0%	4 44.4%	4 44.4%	4 44.4%	4 33.3%	0 0	0 0	26 40.0%
Yes - Macadamia Nuts	3 42.9%	6 50.0%	5 55.6%	4 44.4%	4 44.4%	6 50.0%	3 75.0%	3 100%	34 52.3%
Avocado	0 0	1 8.3%	1 11.1%	1 11.1%	2 22.2%	2 16.7%	2 50.0%	1 33.3%	10 15.4%
Banana	0 0	1 8.3%	0 0	2 22.2%	0 0	1 8.3%	0 0	0 0	4 6.2%
Other	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
All Yes's	3 14.3%	6 50.0%	5 55.6%	5 55.9%	5 55.9%	8 66.7%	4 100%	3 100%	39 60.0%

*Some farms have more than one alternate crop, therefore, figures indicate how many farms in each category has a particular alternate crop. The figures are not mutually exclusive.

Sample size shown in parentheses.

DO YOU HAVE ANY OTHER INCOME PRODUCING CROP?*

	0 - 3 Acres		3+ - 5 Acres		5+ - 10 Acres		10+ Acres		
	Mauka	Makai	Mauka	Makai	Mauka	Makai	Mauka	Makai	Total
Sunset Co-op	(140)	(90)	(65)	(35)	(26)	(8)	(8)	(6)	(378)
No	84 60.0%	52 57.8%	34 52.3%	15 42.9%	10 38.5%	3 37.5%	2 25.0%	2 33.3%	202 53.4%
Yes - Macadamia Nuts	38 27.1%	30 33.3%	23 35.4%	13 37.1%	13 50.0%	4 50.0%	6 75.0%	3 50.0%	130 34.4%
Avocado	13 9.3%	1 1.1%	7 10.8%	8 22.9%	5 19.2%	1 12.5%	0 0	3 50.0%	38 10.1%
Banana	9 6.4%	4 4.4%	9 13.8%	4 11.4%	4 15.4%	2 25.0%	0 0	2 33.3%	34 9.0%
Other	5 3.5%	3 3.3%	1 1.5%	2 5.8%	1 3.8%	1 12.5%	0 0	2 33.4%	15 4.0%
All Yes's	56 40.0%	38 42.2%	31 47.7%	20 57.1%	16 61.5%	5 62.5%	6 75.0%	4 66.7%	176 46.6%

*Some farms have more than one alternate crop, therefore, figures indicate how many farms in each category has a particular alternate crop. The figures are not mutually exclusive.

Sample size shown in parentheses.

HAVE TO HIRE OUTSIDE HELP?

	0 - 3 Acres		3+ - 5 Acres		5+ - 10 Acres		10+ Acres		
	Mauka	Makai	Mauka	Makai	Mauka	Makai	Mauka	Makai	Total
Sunset Co-op	(135)	(75)	(65)	(49)	(24)	(10)	(8)	(6)	(372)
No	89.6%	92.0%	61.5%	63.3%	41.7%	50.0%	12.5%	16.7%	74.7%
Yes -	10.4%	8.0%	38.5%	36.7%	58.3%	50.0%	87.5%	83.3%	25.3%
Average Number	3.0	4.3	3.0	3.3	4.6	2.6	5.7	9.6	4.1
Average Period (months)	2.5	Peak*	2.1	2.4	4.0	2.4	2.8	3.3	2.6
Average Pay (per bag)	$4.84	$4.75	$4.83	$4.50	$4.54	$4.88	$5.17	$4.80	$4.75
Pacific Co-op	(7)	(12)	(9)	(9)	(9)	(12)	(4)	(3)	(65)
No	85.7%	91.7%	88.9%	66.7%	77.8%	33.3%	0.0%	0.0%	64.6%
Yes -	14.3%	8.3%	11.1%	33.3%	22.2%	66.7%	100%	100%	35.4%
Average Number	4.0	2.0	5.0	3.7	8.0	4.8	7.5	15.3	6.8
Average Period (months)	2.0	1.0	3.0	Peak*	2.0	3.7	4.8	4.0	3.4
Average Pay (per bag)	$5.00	$5.00	$4.50	$4.25	$5.50	$4.72	$5.25	$4.75	$4.87
Industry	(142)	(87)	(74)	(58)	(33)	(22)	(12)	(9)	(437)
No	89.4%	92.0%	64.9%	63.8%	51.5%	40.9%	8.3%	11.1%	73.2%
Yes -	10.6%	8.0%	35.1%	36.2%	48.5%	59.1%	91.7%	88.9%	26.8%
Average Number	3.1	4.0	3.0	3.6	5.8	4.1	6.4	11.75	4.6
Average Period (months)	2.1	1.0	2.1	2.4	3.6	3.0	3.4	3.6	2.7
Average Pay (per bag)	$4.84	$4.80	$4.83	$4.50	$4.67	$4.78	$5.20	$4.79	$4.78

* - During 2-3 mo. of peak picking

( ) = Sample size

the average rate of $4.78 per bag, the attraction on the labor force is very weak. Some farmers have offered free housing to elderly couples in exchange for a guaranteed labor source during the harvesting season.

Age Distribution

There is widespread feeling that there is a greater proportion of elderly in the Kona coffee industry than in either the Kona district as a whole or the County of Hawaii. Survey results (see chart 7) show this to be true. The survey shows those over 55 years as accounting for 32.8% of the coffee farmer population. This figure is much higher than the Hawaii County figure (19.3%) or that of the Kona districts (19.7%). (Source: Elderly Affair, Legislative Reference Bureau, February, 1973, p. 50).

The elderly population is more significant in the Pacific Co-op than the Sunset Co-op, with 44.7% in the elderly category (age 55 to 75+) compared with 30.6% for the Sunset Co-op.

IMPACT OF A COFFEE SHUTDOWN

The possibility of a shut down of one and perhaps two coffee processing mills in the near future is real, and will result in the elimination of the coffee industry in Hawaii. The effects of such a shutdown are examined in the following sections.

Emotional and Psychological

Kona coffee holds a unique place in coffee marketings. It is the only commercially grown coffee in the United States, and being from Hawaii has the appeal of being "Hawaiian".

This uniqueness is a definite plus for the attractiveness of the Kona area for its other major industry, Tourism. On almost every tourist attraction map of the area, "coffee plantings" and/or "the coffee mill" are listed, and the annual Kona Coffee Festival, held in November, adds to the activities available to the tourists.

Coffee has been an integral part of the Kona area, in particular that area along the coffee belt, for over 100 years. Life styles have been

AGE DISTRIBUTION

Age	Pacific Co-op Male	Pacific Co-op Female	Pacific Co-op Total	Sunset Co-op Male	Sunset Co-op Female	Sunset Co-op Total	Industry Male	Industry Female	Industry Total
0 - 4	3 (2.1)	4 (4.1)	7 (2.9)	21 (2.7)	20 (3.3)	41 (3.0)	24 (2.6)	24 (3.4)	48 (3.0)
5 - 9	5 (3.5)	5 (5.2)	10 (4.2)	50 (6.5)	25 (4.2)	75 (5.5)	55 (6.0)	30 (4.3)	85 (5.3)
10 - 14	11 (7.7)	6 (6.2)	17 (7.1)	86 (11.3)	61 (10.2)	147 (10.8)	97 (10.7)	67 (9.6)	164 (10.2)
15 - 19	17 (12.0)	9 (9.3)	26 (10.9)	94 (12.3)	79 (13.2)	173 (12.7)	111 (12.3)	88 (12.6)	199 (12.4)
20 - 24	5 (3.5)	2 (2.1)	7 (2.9)	40 (5.2)	40 (6.7)	80 (5.9)	45 (5.0)	42 (6.0)	87 (5.4)
25 - 29	4 (2.8)	3 (3.1)	7 (2.9)	27 (3.5)	22 (3.7)	49 (3.6)	31 (3.4)	25 (3.6)	56 (3.5)
30 - 34	4 (2.8)	3 (3.1)	7 (2.9)	16 (2.1)	19 (3.2)	35 (2.6)	20 (2.2)	22 (3.2)	42 (2.6)
35 - 39	1 (.7)	2 (2.1)	3 (1.3)	22 (2.9)	32 (5.3)	54 (4.0)	23 (2.5)	34 (4.9)	57 (3.6)
40 - 44	9 (6.3)	9 (9.3)	18 (7.5)	42 (5.5)	39 (6.5)	81 (5.9)	51 (5.6)	48 (6.9)	99 (6.2)
45 - 49	13 (9.2)	10 (10.3)	23 (9.6)	60 (7.9)	56 (9.3)	116 (8.5)	73 (8.1)	66 (9.5)	139 (8.7)
50 - 54	5 (3.5)	2 (2.1)	7 (2.9)	44 (5.8)	52 (8.7)	96 (7.0)	49 (5.4)	54 (7.7)	103 (6.4)
55 - 59	8 (5.6)	15 (15.5)	23 (9.6)	42 (5.5)	45 (7.5)	87 (6.4)	50 (5.5)	60 (8.6)	110 *6.9)
60 - 64	9 (6.3)	9 (9.3)	18 (7.5)	65 (8.5)	29 (4.8)	94 (6.9)	74 (8.2)	38 (5.5)	112 (7.0)
65 - 69	17 (12.0)	6 (6.2)	23 (9.6)	57 (7.5)	27 (4.5)	84 (6.2)	74 (8.2)	33 (4.7)	107 (6.7)
70 - 74	21 (14.8)	5 (5.2)	26 (10.9)	51 (6.7)	24 (4.0)	75 (5.5)	72 (7.9)	29 (4.2)	101 (6.3)
75+	10 (7.0)	7 (7.2)	17 (7.1)	47 (6.2)	30 (5.0)	77 (5.6)	57 (6.3)	37 (5.3)	94 (5.9)

( ) = percent of total

Chart 7

developed around the growing, harvesting, and processing of coffee. For example, the primary and secondary school schedule in existence for 36 years and only recently ended, reflected the importance of coffee harvesting on the community, with "summer vacation" scheduled during the months of October and November instead of during the summer months.

Economic

Economically, coffee being an export crop brings in "fresh" revenues to the State. The significance of the coffee industry in the economic mix of the State can be measured by its impact on the personal income of the State and the County of Hawaii.

The revenue from sales of the coffee crop amounted to $1,883,846 in Fiscal Year 1972 - 1973 (this is from the sale of the marketable form of coffee, green coffee). Assuming a 40% "leakage" from these revenues, the direct impact of these dollars on personal income in Hawaii amounted to $1,130,308. ("leakage" results from money going out of the State for such things as supplies, machinery, etc., and which never becomes income to anyone in Hawaii. The 40% "leakage for Pineapple revenues used by the First Hawaiian Bank, and is probably high considering the nature of the coffee industry. However, neither the resources nor time was available to develop one for coffee.) Applying the Hawaii Regional Multiplier of 1.72 (Dr. Thomas Hitch, "The Impact of Exports on Income in Hawaii: 1971", First Hawaiian Bank) brings the total impact of coffee export income on Hawaii's personal income to $1,944,129 ($718,094 from Pacific Co-op and $1,226,035 from Sunset Co-op).

The total personal income in Hawaii was $3,991,000,000 in 1972. Coffee export income amounted to $1,110,680 in FY 1971 - 1972, or $1,146,222 after adjustments for "leakage" and multiplier had been applied. Coffee export income thus accounted for approximately 0.03% of the State personal income.

The total personal income for the County of Hawaii amounted to $238,900,000 in 1970. Coffee export income amounted to $1,530,822 or $1,579,808 after adjustments in FY 1969 - 1970. This amount was approximately 0.66% of the

Hawaii County's total personal income.

SOCIAL IMPACT AND COSTS

One of the major concerns of the County and State is the social impact from a shutdown of the Sunset Co-op processing mill. The effect on the members of the Co-op would vary, depending on the degree of dependence on their coffee income. Those farmers who are part-time coffee farmers, with other sources of income, would for the most part not be seriously affected by a shutdown, and are not of major concern for the County and the State. However, those whose income would be reduced to a point of requiring governmental assistance, would be facing housing and income problems sufficient to warrant governmental attention.

In order to measure the impact of a shutdown, the composition of the Co-op in terms of part-time/full-time; degree of dependence on coffee income; number of dependents; and age of farmers has been analyzed.

A majority of the Sunset Co-op members are part time coffee farmers. This fact is clearly seen by comparing the Gross Income From Coffee distribution (Chart 8) with the Gross Income distribution (Chart 9). The gross coffee income distribution showed 64.1% of the membership grossing less than $2,000 from coffee. Chart 9 on the other hand shows only 7.9% of the surveyed population of 290 indicating a total gross income of $2,000 or less. This would indicate a weak reliance on coffee income for Sunset members as a whole, an inference supported by the survey finding that 77.3% of the surveyed Sunset Co-op members received less than 50% of their income from coffee.

Question #4 of the questionnaire, "Why do you farm the land?", gives a subjective measure of the number of full-time farmers in the Co-op. Only 20.8% (79/379) of the Sunset farmers responded that it is a primary source of income. Transposing this result to the entire Co-op, this reflects approximately 111 full-time coffee farmers. This corresponds closely to the figure of 100 given by the Sunset Co-op management as the number of full-time farmers in the Co-op.

GROSS INCOME FROM COFFEE

	Pacific Co-op	Sunset Co-op
$ 0 - 499	4 (4.1)	140 (26.1)
500 - 999	5 (5.1)	88 (16.4)
1,000 - 1,999	12 (12.2)	116 (21.6)
2,000 - 2,999	8 (8.2)	73 (13.6)
3,000 - 3,999	10 (10.2)	37 (6.9)
4,000 - 4,999	11 (11.2)	27 (5.0)
5,000 - 5,999	5 (5.1)	24 (4.5)
6,000 - 6,999	9 (9.1)	11 (2.0)
7,000 - 7,999	5 (5.1)	4 (0.7)
8,000 - 8,999	5 (5.1)	3 (0.6)
9,000 - 9,999	4 (4.1)	5 (0.9)
10,000 -10,999	3 (3.1)	3 (0.6)
11,000 -11,999	1 (1.0)	2 (0.4)
12,000 -12,999	2 (2.0)	1 (0.2)
13,000 -13,999	0 (0.0)	0 (0.0)
14,000 -14,999	2 (2.0)	1 (0.2)
$15,000 +	12 (12.2)	2 (0.4)
Total	98	537

( ) = Percentage

Chart 8

INCOME DISTRIBUTION

Sunset Co-op

Gross Income	-10%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
	---- Percent From Coffee ----											
$ 0 - $ 499	0	0	0	0	1	0	0	0	0	1	1	(3)
500 - 999	0	0	2	0	0	0	1	1	0	1	2	(7)
1,000 - 1,999	0	1	1	2	0	0	2	1	1	1	4	(13)
2,000 - 2,999	1	3	1	3	4	3	2	1	1	0	6	(25)
3,000 - 3,999	3	3	3	3	1	3	1	2	0	0	1	(20)
4,000 - 4,999	1	4	4	4	3	1	4	0	0	0	0	(21)
5,000 - 5,999	0	1	4	2	3	1	1	0	0	1	2	(15)
6,000 - 6,999	5	5	4	3	1	2	2	0	0	0	2	(24)
7,000 - 7,999	3	1	1	2	3	0	0	0	0	1	0	(11)
8,000 - 8,999	4	4	1	1	0	1	1	0	0	0	1	(13)
9,000 - 9,999	5	7	3	1	0	0	1	0	0	1	0	(18)
10,000 - 10,999	3	4	2	2	2	2	1	1	0	0	0	(17)
11,000 - 11,999	4	4	3	1	0	0	0	0	0	0	0	(12)
12,000 - 12,999	6	3	2	3	0	0	0	0	0	0	0	(14)
13,000 - 13,999	5	2	0	0	0	0	0	0	0	0	0	(7)
14,000 - 14,999	4	2	1	0	0	0	0	0	0	0	0	(7)
15,000 +	33	16	6	4	0	0	2	1	0	1	0	(63)
	77	60	38	31	18	13	18	7	2	7	19	290

Chart 9

These 111 full time farmers would be the most severely affected group in any shut down of the processing plant. In addition to these full time farmers, those farmers with income near or below the poverty line, regardless of the degree of dependence on coffee, must be considered. As shown earlier, the age distribution of the coffee farmer population is more skewed on the elderly side of the spectrum than the State or County averages, and many of these senior citizens would be greatly affected by a change in the coffee industry.

Examination of the Sunset Co-op income distribution (Chart 9), particularly the reliance on coffee as a source of income, gives a better indication of the impact, in terms of numbers, from a shut down of the processing facility. The impact has been measured by using the $3,000 to $3,500 gross income level as the Poverty Threshold. The figure was arbitrarily selected, however, has as its basis the $2,910 figure used for a two person family, head 65 and older as the Poverty Threshold for Older Families (Source: Bureau of the Census, Special Committee on Aging, U.S. Senate, a Pre-White House Conference on Aging, Summary of Development Data, Washington, D.C., 1971). Any farmer whose reported income would drop below $3,500 per year as a result of a coffee shut down was considered to be in the poverty category, and also included under our "full time farmer" category.

Out of a surveyed population of 381 Sunset Co-op members, 95 were identified as having a reliance on coffee to the extent that elimation of this source of income would lower their total income below $3,500. 87% of these farmers were in the elderly category (55 and older), with the median falling in the 65 to 69 category (Chart 10). As might be expected from the age of these full time farmers, the number of dependents was relatively low. 18 or 18.9% of the surveyed population had no dependents, and the median was in the "1" dependent category. Projected to the Co-op as a whole, the number of full time farmers for the Sunset Co-op is estimated at 134 (24.9% X 537 members in the Sunset Co-op). With a median farm occupancy of 2 (including the farmer, a shutdown of the Sunset processing plant would result in approximately 268

CHARACTERISTICS OF FULL TIME FARMERS*

	Pacific Co-op	Sunset Co-op
Age		
Less than 55	3 (9.7%)	12 (13.0%)
55 - 59	2 (6.5%)	5 (5.4%)
60 - 64	6 (19.4%)	17 (18.4%)
65 - 69	10 (32.3%)	21 (22.8%)
70 - 74	7 (22.6%)	20 (21.7%)
75+	3 (9.7%)	17 (18.4%)
Median Age	66 yrs.	"65-69" category
Sample Size	31	92
Number of Dependents		
0	0 (0.0%)	18 (21.4%)
1	20 (64.5%)	32 (38.1%)
2 - 3	7 (22.6%)	17 (20.2%)
4 - 5	2 (6.5%)	14 (16.7%)
5+	2 (6.5%)	3 (3.6%)
Median number	1	"1" category
Sample Size	31	95
Laborers (age)**		
Less than 55	1 (8.3%)	3 (25.0%)
55 - 59	0 (0.0%)	2 (16.6%)
60 - 64	0 (0.0%)	0 (0.0%)
65 - 69	1 (8.3%)	2 (16.6%)
70 - 74	5 (41.7%)	3 (25.0%)
75+	1 (8.3%)	2 (16.6%)
Median Age	70	"65-69" category
Number per Farm	.5	.1
Sample Size	31	95

* Full Time Farmers - those whose income would drop below $3,500 if coffee was phased out
**Those laborers living on farm

persons placed in a poverty category, and requiring some sort of outside assistance.

The degree of State assistance, in general, would be based on the income and number in the household of the affected farmer. Effective January 1, 1974, those individuals 65 years old and older, will fall under Federal income assistance, with the State's contribution estimated at $30 to $40 per individual. 58 farmers in the "full time farmer" category were 65 or over, and projecting this to the Co-op as a whole, it is estimated that 84 (58/92 X 134) farmers in the Sunset Co-op are 65 and older, and dependent on coffee. The total Co-op impact would be 168 (84 X 2 per farm). The State's share of financial assistance is estimated at not more than $5,000 per month for this category of farmers.

Those farmers 64 years old and below constitute 37.1% of the "full time farmer" category. It is estimated that 50 (37.1% X 134) farmers in the Co-op are 64 years old and younger, and dependent on coffee. As stated earlier, the amount of State assistance given is based on the income and family size. Using the median family size of 2, $219.25 is the maximum allowable by the Department of Social Services and Housing ($131.00 for monthly standard allowance; $76.00 for rent; and $12.25 for utilities). 22.5% of the sample would have zero income if coffee were eliminated; 30.3% would have less than $109.63 per month (one-half of $219.25); 32.6% would have more than $109.63 but less than $219.25 per month, and 14.6% would have more than $219.25. State financial assistance is estimated at $5,020 per month ($\sqrt{50}$ families X 22.5% X $219.25 + $\sqrt{50}$ X 30.3% X $109.63 + $\sqrt{50}$ X 32.6% X $54.81).

In addition, the survey showed 12 laborers living on the 95 surveyed farms. This represents .1 laborers per farm. Projecting this to the Co-op as a whole, the amount of laborers affected by a shut down of coffee is projected at 68. The availability of work for these laborers is not considered a problem, for other crops in the area have labor requirements. However, the housing and age problem is considerable. All of these laborers live on the farm in

workers cottages, and housing is received in return for a guaranteed source of labor for the picking of coffee. While most landlords indicated that they would keep the laborer on even if coffee were ended, on lease lands where the farmer himself is unable to satisfy the terms of the lease, these laborers would undoubtedly become a group requiring State assistance. 58.2% of these laborers were 65 and older, and projected to the Co-op, represents 40 individuals. State income assistance share for these elderly laborers is estimated at $1400 per month. The number of laborers 64 and below is estimated at 28. Since most are single, and since DSSH policy is that able-bodied individuals below 64 without dependents are not eligible for welfare, the assumption is made that no State assistance will be given to this group, and other employment will be available.

If coffee were to be eliminated as a source of income after this coffee season, the impact on the State in terms of welfare requirements is estimated at $60,200 per year, or that amount required for income assistance to those full time farmers 64 and younger. The amount required for those 65 and older is not included since this would be required whether coffee died or not, because of the advance age of this group.

The Pacific Coffee Cooperative is not in immediate danger of collapsing, and could continue operating even if the Sunset Co-op mill shut down. The examination of possible impacts will therefore not be as detailed as that for the SCC, nor will as many runs through the PCC sampled group be made.

Chart 11 shows 27 out of 56 or 48.2% of the surveyed PCC farmers dependent on coffee income to the extent that elimination of that income would lower their total income to lower than $3,000 per year. This, projected to the Co-op as a whole represents 47 farmers.

Chart 10 shows 31 out of 65 or 47.7% of the surveyed PCC members as "full time farmers." The reason for the difference between this figure and that mentioned in the previous paragraph is that those farmers who did not respond to the income question (question#10, What was your gross income last year? What

percent came from coffee?) were not included in chart 9 but were for the "full time farmer" category, as was the case for the Sunset Co-op figures. It is estimated that 48 PCC members are full time farmers, and with an average family size of 2.9, the total number dependent on coffee in the PCC is 140.

Despite the fact that the Co-op is sound financially, the age of the full time farmers (64.6% 65 years old and older), projects a bleak picture for the future.

LAND TENURE SYSTEM

There are three (3) large land holders in the Kona area with coffee farms:

a. Bishop Estate - Owns 6,800 acres in North and South Kona, 2,350 of which are planned to be retained in productive agriculture, and are for the most part presently in coffee.

b. Greenwell Estate (Sherwood Greenwell) - 198.95 acres in coffee. At one time this Estate had 500 acres in coffee.

c. Dillingham Investment Company - 275 acres in coffee.

Of the 381 Sunset Co-op farmers surveyed, 366 responded to Question #3 - "is this land: Leasehold; fee; or do you rent?", and of those, 118 or 32.3% responded that they owned the land, 233 or 63.7% leased, and 15 or 4.1% rented (Chart 12). As can be expected, the largest lessor in the area is the Bishop Estate.

Of the 366 leasing their coffee lands, 72 were identified as having serious housing problems if coffee were terminated. Most leases require that the land be put to productive agricultural use, and these 72 have not diversified to other crops, and their gross income less coffee is under $3,500. There were an average of 2.7 dependents per farm. Projecting these 72 to the Co-op as a whole, it is estimated that 101 families would not be satisfying the terms of their lease if coffee were terminated. The large land holders have shown flexibility in the past, and it is anticipated that lessees would be given fair treatment in putting the land to productive use should coffee suddenly terminate. These 101 families are included in the Social Impact and Costs computation. There were 69 families identified as leasing their coffee lands, and growing only coffee, but having

INCOME DISTRIBUTION

Pacific Co-op

Gross Income	-10%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
	---- Percent From Coffee ----											
$ 0 - $ 499	0	0	0	0	0	0	0	0	0	0	0	(0)
500 - 999	0	0	0	0	0	0	0	0	0	0	0	(0)
1,000 - 1,999	0	0	0	0	0	0	0	0	0	0	1	(1)
2,000 - 2,999	0	0	0	0	0	0	0	0	0	0	0	(0)
3,000 - 3,999	0	1	0	0	0	1	1	0	0	0	2	(5)
4,000 - 4,999	0	0	0	0	1	1	0	0	0	0	4	(6)
5,000 - 5,999	0	0	0	1	1	0	0	0	0	1	2	(5)
6,000 - 6,999	0	0	0	1	1	0	0	1	0	0	1	(4)
7,000 - 7,999	0	0	0	0	0	0	0	1	1	0	2	(4)
8,000 - 8,999	0	1	0	1	0	2	0	0	0	0	0	(4)
9,000 - 9,999	0	1	0	0	0	1	0	0	0	0	1	(3)
10,000 -10,999	1	0	1	1	2	1	0	0	0	0	2	(8)
11,000 -11,999	0	0	0	0	0	0	0	0	0	0	0	(0)
12,000 -12,999	0	0	0	0	2	0	0	0	0	0	0	(2)
13,000 -13,999	0	0	0	0	0	1	0	0	0	0	0	(1)
14,000 -14,999	1	0	0	0	0	0	0	0	0	0	1	(2)
15,000+	1	1	1	1	1	1	2	1	0	1	1	(11)
	3	4	2	5	8	8	3	3	1	2	17	56

Chart 11

other jobs (part-time coffee farmers), and having gross income less coffee of $3,500 or more. Projected to the Co-op, this represents 97 families. Should these part time farmers not wish to convert to another crop, pressures would be placed on the Kona housing market.

Of the 65 Pacific Co-op members surveyed, 65 responded to Question #3, and of those, 29 owned their farmland, 35 leased, and 1 rented. (chart 12)

Of the 35 leasing, 10 were identified as having serious housing problems if coffee were terminated. There were an average of 2.8 dependents per farm. Projecting this to the Co-op, it is estimated that 15 families would not be satisfying the terms of their lease if coffee were terminated. 6 were identified as leasing the land, growing only coffee, and making more than $3,500 in other jobs. For the Co-op as a whole, this would be 9 families.

LAND OWNERSHIP

	Pacific Co-op		Sunset Co-op		Industry
Fee		29 (44.6)		118 (32.2)	147 (34.1)
Leasehold		35 (53.8)		233 (63.7)	268 (62.2)
Bishop Estate	18 (51.4)		107 (45.9)		125 (29.0)
Greenwell Estate	4 (11.4)		41 (17.6)		45 (10.4)
Dillingham	0		28 (12.0)		28 (6.5)
Other	13 (37.1)		57 (24.5)		70 (16.2)
Rent		1 (1.5)		15 (4.1)	16 (3.7)
Total		65		366	431

( ) = percentage

Chart 12

SUMMARY

The Kona coffee industry has been in a steady decline since 1957, with an average 8% per annum decline in production from 1964 to 1972. Characteristics of the industry, as determined by this study, are shown below:

	Pacific Co-op,	Sunset Co-op	Industry
No. of members	98	537	635
No. of Full-Time farmers	48	134	182
Median age of F/T farmers	66	67	
Avg. size of farm (acres)	9.4	6.4	6.8
Avg. No. living on farm	4.2	4.0	4.0
No. living on coffee farms	412	2,148	2,560
Median age (living on farm)	48	41	43
Farms with alternate crops	60%	47%	49%
Production, 1973 (in bags)	10,000	19,000	29,000
Median income from coffee	$5,000	$1,349	
Median gross income*	$8,500	$5,500	

*midpoint of frequency distribution

The industry contributed an estimated $1,944,129 in FY 1972-1973 ($718,094 from Pacific Co-op and $1,226,035 from Sunset Co-op) to the State personal income. A shutdown of the Sunset Co-op will result in an estimated 134 families being below the poverty threshold, and increase the State's income assistance expenditures by $60,200 per year. The State's share of income assistance expenditures for elderly citizens (over 65) will be required earlier than would be the case if the Co-op had not closed, and is estimated at $60,000 per year.

CONCLUSION

Coffee has been an integral part of the Kona community for over 150 years, and the alliteration Kona Coffee has become well known in Hawaii and in other parts of the world. The industry has been faced for many years with the problem of low prices, high labor costs, and a lack of labor. The result has been, as shown by this report, that no new blood is coming into the industry and the age of the farmers is heavily skewed to the older side of the scale; that those larger full time farmers have diversified to other crops; that the smaller farmer are predominantly part time farmers, using coffee as a source of supplementary income or a cheap source of housing; and that the community relies much less on the industry than in the past. If left to itself, the drying-off of the old farmers and absence of younger farmers to replace them would eliminate the industry in perhaps as few as 10 years.

The problem of course, is not as simple as one of old age and declining crops. The crop is a processed one, requiring milling to its final marketable form. This processing requires two steps: one from the cherry to parchment form; and the other from the parchment to green form. The first requires pulping the cherry coffee (removing the pulpy "skin" covering the coffee bean), fermenting it (to remove the mucilagenous matter covering the bean), and drying it to the parchment form. The second requires removing the parchment "shell" from the bean, and sorting it to different grades.

The Pacific Coffee Cooperative members perform the first step at the farm level, sending their parchment to the mill for removal of the parchment, grading, and selling.

The Sunset Coffee Cooperative members sell the cherry form of the coffee to the mill. This means that the cherry coffee has to be picked up daily, for coffee should be pulped the same day it is harvested, and within 12 hours if

possible. Pulping should never be delayed more than 48 hours. One bag of cherry coffee (approximately 125 pounds) will make about 30 pounds of parchment coffee. The centralized processing of the cherry form of coffee requires higher transportation costs, for the coffee must be picked up daily, while parchment coffee can be stored at the farm for long periods of time, and cherry has greater volume and weight, so less coffee can be hauled per trip.

Because coffee is a processed crop, the mill plays an essential role. The high operating expenses for the Sunset mill has resulted in net expenses over charges for the four years prior to 1972 - 1973 (Illus. 5). Last year, a combination of increased milling charges and high crop volume resulted in a net charge over expense. This is not expected to be the case for future years, as operating expenses continue to increase.

The management of the Sunset Co-op feels that the combination of the drought and resulting low crop volume, fewer farmers to pick the existing crop, and increased operating expenses will result in a deficit operation this production year (1973 - 1974). It is their feeling that unless some outside assistance is rendered, the mill will be closed. Once closed, it is highly unlikely that it will be re-opened.

The problems facing the industry can be divided into the immediate and intermediate/long range problems:

Immediate Problem The immediate problem is that faced by the Sunset Coffee Cooperative. At present methods of operation and with present staffing expenses, operating costs will increase while volume of crop falls, resulting in an untenable situation. Either the processing fee will have to be raised, or other sources of funding will have to be found, or deficit operations will result, causing a shutdown of the mill. Those farmers able to will convert to parchment processing, but most will give up coffee farming. State income assistance program expenditures

will increase by an estimated $60,200 per year for those 64 years old and below, and be accelerated for those 65 and above.

Intermediate/Long Range Problems Production is declining at a steady rate, and with the age of farmers being as advanced as it is, attrition will result in a rapid reduction of production within the next five to ten years. Data reveals that the young coffee farmer population is small, and that no new blood is entering the coffee industry. The combination of attrition and no new blood entering the industry will result in both co-ops being reduced significantly, and having inefficiencies in operation through underutilization of facilities and personnel. This will be true regardless of what the outcome of the immediate problem is.

RECOMMENDATIONS

Immediate Problem

A deficit condition in FY 1974 has to be met by an increase in processing fee or utilization of the line of credit available to the Sunset Coffee Cooperative. The former would place a great deal of pressure on the already hard pressed income of the coffee farmer. Many indicated in the survey that they would quit picking coffee if the fee were raised, without an increase in price. The Co-op has not maximized its line of credit, and it is recommended that it be used to ease the immediate problem.

Government assistance in the form of subsidy is not equitable, and would be fought by the other co-op. Proposals to subsidize only one co-op have been strongly opposed by the other in the past, and have failed.

Intermediate/Long Range Problems

Both co-ops should be strongly urged to re-enter into negotiations for a merger, with State and/or County assistance. A merger, to form the Kona Farmers Cooperative, was near fruition in 1971 when personality and financial problems terminated hopes for a one-coffee-cooperative industry. The financial problems can be settled equitably, and the passing of time and the condition of the industry hopefully have mellowed the differences to the point where meaningful negotiations can be resumed. Reasons for a merger are:

a. It is commonly known that the industry has excess capacity in its milling operations, and that one mill is sufficient to handle the volume of the entire industry;

b. Some overhead costs would be eliminated, such as one milling plant, personnel costs, utilities, etc.;

c. The benefits of cooperating and acting as one have been seen in the marketing agreement entered into with Superior Tea and Coffee Company. One voice representing the entire industry carries much more weight in negotiations;

d. The By-Laws and Articles of Incorporation of the Kona Farmers Cooperative have been worked on by the counsel for the Berkeley Bank of Cooperatives, and if the merger goes through, the merged co-op would be in line for credit from the Bank;

e. A coffee merger would in all likelihood result in the merger of the two macadamia nut cooperatives, Sunset and Kona Macadamia Nut. Failure of the merger may result in a splitting up of the Kona mac nut farmers into several factions as well as the demise of the Sunset macadamia nut operation. This would be a situation similar to that experienced by coffee in its turbulent history;

f. Once a merger has been effected, government assistance can be offered in the form of operations review and possible subsidy.

The operations of both cooperatives would be subject to review by the government if assistance is given. In any case, areas which should be of concern to the industry are:

a. Costs for full time employees. Coffee is a seasonal crop, requiring peak manpower during the harvesting months of September to February, and down time during the remaining months. Serious consideration should be given to maximizing seasonal hires and minimizing full time employees;

b. The number of pick up stations. The coffee area, from Palani Junction to Honomalino, is some 25 miles long. With the fuel crisis expected to worsen, pick up costs will have to be cut to the minimum. Duration of pick up service should be lessened also;

c. The merged cooperative should be strongly encouraged to move the cherry processing back to the farm level. Those farmers who have dormant pulping facilities should be offered loans to reestablish that capability, and for those who do not have the capability, arrangements should be made with someone who can do it. In those instances where small satellite pulping stations need to be established,

loans can be offered.

If the operations do incur a deficit due to uncontrollable circumstances, and reserves are insufficient, a subsidy may be in line.

This offers a status-quo solution, without providing any long term answers. The questions concerning the economic viability of this labor intensive industry must be explored and answered, or the present conditions of the industry will not change i.e. no new farmers will be attracted to start farming coffee, and the old farmers will be reduced by attrition. The methods of mechanizing the coffee farm and a determination of the returns from a mechanized operation must be developed, and it is recommended that funding to develop an effective uniform ripening chemical as well as techniques on its application be appropriated. The chemical, with existing mechanical shaker and other techniques should demonstrate what can be done with the latest technology, and whether the resulting operation is more profitable than the present method. More important, it will demonstrate whether the industry can be attractive enough to bring in new blood and provide a long term future for Kona Coffee.

And finally, much research has been conducted over the years in methods of pruning, fertilizing, and growing coffee, and it is recommended that these existing material be collected for reference for the farmers.

A-T-T-A-C-H-M-E-N-T-S

KONA COFFEE STUDY

GENERAL SITUATION

Coffee has been a major part of the economic mix of the Kona area for some time with large plantings started in the 1830's and reaching a peak of 13,947 acres in 1897. Acreage has been on a steady decline since, with estimates for 1973 being 2,300 acres. The product is an export commodity, with an estimated value of sales of $1.1 million in 1973.

The industry provides income for approximately 800 farmers of the Kona district, with an estimated 100 farmers devoting their full time to the farming of coffee.

There are two cooperatives that mill all of the Kona Coffee. These are the Pacific Coffee Cooperative and the Sunset Coffee Cooperative, with their share of the industry at 30% and 70% respectively.

REASONS FOR ATTENTION AT THIS TIME

The 1973 crop (harvesting will begin in August) is estimated by the Sunset Cooperative as being one-third of the 1972 crop. To cover their fixed costs, this low volume will require the cooperative to charge a processing fee of $20 per 100 pounds of green coffee, as compared to $13.65 per 100 pounds in 1972. This fee is considered by the manager of the Sunset Cooperative as being looked upon as being too high by the farmers, and will result in a stoppage of harvesting. If this occurs, the processing plant will be shut down, and in the opinion of the manager, be permanently closed.

The impact of this would be the elimination of a source of income for the approximately 700 farmers of the Sunset Cooperative, of which, nearly 100 are full-time coffee farmers. The social impact on the area, county, and state would be serious, with unemployment, housing, welfare and other social services pressures being placed on the county and state.

Data on the composition of the industry, such as family units, age, size of farms, as well as others, such as reasons for farming, are lacking, and a true assessment of the situation, as well as consideration of alternative courses of action cannot be made without this data.

TARGET GROUP

Coffee growers in the Kona district.

BENEFICIARY GROUP

Coffee growers in the Kona District, citizens of the Kona district, and citizens of the State.

PROGRAMS INVOLVED

Department of Research and Development, County of Hawaii; Department of Agriculture, State of Hawaii; Sunset Coffee Cooperative; and Pacific Coffee Cooperative.

ALTERNATIVES

A. Do nothing, let the industry resolve its own problems.

B. Use existing data for decision on government intervention.

C. Gatheredata using key personnel in the coffee industry as sources.

D. Gather data using a survey method.

RECOMMENDATION

Recommend alternative D, utilizing a stratified sampling technique. Stratification will be:

A. By Cooperative

B. By geographical area (mauka, makai, distance from mills)

C. By part-time or full-time farmers

Methodology will be by personal, on-farm survey as the primary means, and telephone survey as a supplementary means.

Sample size - to be determined by resources available. Alternative sample

sizes are presented with a preliminary budget for each, as attachments.

Data to be gathered:

A. Acreage of farm

B. Age of farmer

C. Income (% of income from coffee)

D. Family unit

E. Land tenure system

F. Reason for farming; future plans;

G. Capital investment in farm

H. Feelings on merger of two cooperatives

I. Cost of production data

J. Labor requirements

K. Transportation problems and capability

L. Willingness to go to an alternative crop

M. Estimate of this year's crop

ALTERNATIVE SAMPLE SIZES

Basic Constraints: 1) Figures below reflect the use of an estimated time of one hour per farm (30 minutes conducting the survey, 30 minutes travel time). Therefore, coverage per person will be 8 farms per day. 2) There is a time constraint of 2 weeks for the conduct of the survey - July 18 through July 31.

Sample Size 160 farms (20% of the estimated population)

Time required: 2 weeks

Personnel requirements: 2 men

Possible personnel sources: Department of Research and Development, County of Hawaii; Department of Agriculture - $30/day per diem

HCOEO - Community Action Aides (3); Operation Mainstream (2)

Committee on Aging - Homemaker's aides (2); Assistants (2)

Contractual Hire at $2.00 per hour

Equipment Requirements: 2 vehicles (4-wheel drive)

Possible vehicle sources: Department of Agriculture (4)

HCOEO (2)

Committee on Aging (1)

Commercial Sources at $30 per day

Sample Size 320 farms (40% of the estimated population)

Time required: 2 weeks

Personnel requirements: 4 men

Vehicle requirements: 4 vehicles (4-wheel drive)

Possible vehicle sources: Same as for sample size 160

Sample Size 640 farms (80% of the estimated population)

Time required: 2 weeks

Personnel requirements: 8 men

Possible Personnel sources: Same as for sample size 160

Equipment requirements: 8 vehicles (4-wheel drive)

Possible vehicle sources: Same as for sample size 160

POTENTIAL PROBLEMS

Location of farms

Language (Filipino/Japanese)

SURVEY OF KONA COFFEE FARMERS

Farmer_____ Location_____

Surveyor_____ Date_____

1. How many acres do you have on your farm? Acres_____

   a. How many acres of coffee do you have on your farm? Acres_____

   b. How many acres did you harvest last season? Acres_____

      How many acres do you plan to harvest this season? Acres_____

   c. How many bags did you harvest last season? Bags_____

      How many bags do you plan to harvest this season? Bags_____

   d. Do you have any other income producing crop?

      Yes_____ No_____

      If yes, what crops? Crop_____ Acres_____

      Crop_____ Acres_____

2. How many persons live on this farm? Number_____

	Relationship	Age	- - How many Farm - - Full Time	Part Time	Other Job?
Self					
Others					

3. Is this land: Leasehold; fee; or do you rent? (circle one)

   a. If lease, which estate? Bishop; Greenwell; State; other _____ (circle one)

   b. What is the lease rent? $_____

      If you rent, what is the rent? $_____

4. Why do you farm the land?

For primary source of income _____
To supplement earnings _____
To stay on the land _____
To pass on the land to my children _____
Other _____

If you own this land, would you continue farming coffee? Yes_____ No_____

How much longer do you expect to farm the land? Years_____
(Note: if you have sons, must include their plans also)

5. What is the value of the farm buildings and equipment on this farm?

	Age	Present Value*	Life	Paid	Maintenance
_____	___ yrs	$_____	____	____	_____/year
_____	___ yrs	$_____	____	____	_____/year
_____	___ yrs	$_____	____	____	_____/year
_____	___ yrs	$_____	____	____	_____/year
_____	___ yrs	$_____	____	____	_____/year

*For buildings, value is how much more farmer would be willing to pay for land with these buildings as compared to land having no buildings at all. For equipment, how much he could sell them for.

6. Do you have to hire outside help?

	How Many*	How Long	Rate	Total Amount Paid Last Season
For Maintenance	_____	_____	$___/hr.	$_____
For Harvesting	_____	_____	$___/bag	$_____

*Out of this, how many live on land? _____

7. Do you know the cost of producing your coffee? Yes_____ No_____

If yes, how much per bag? Per Bag $_____

8. Are you in favor of the two cooperative merging? Yes _____ No _____

9. Would you be able to deliver your coffee to the processing plant if pickups were stopped? Yes_____ No _____

10. What was your gross income last year? $ _____

What percent came from coffee? $ _____

11. a. What would you do if the coffee mill raised its fee by 50% over last year? (for SCC growers)

b. What would you do if the coffee mill stopped processing cherry coffee? (for SCC growers)

	(a)	(b)
Keep farming coffee		
Stop picking coffee		
Try to get it pulped by someone who can do it		
Invest in pulping plant		
Go to another crop		
Give up farming		

Other _____

KONA COFFEE REPORT

General Nature of the Problem

Coffee has been a major part of the economy of the Kona district for many years with large plantings started in the 1830's and reaching a peak of 13,947 acres in 1898. The industry has been on a steady decline in recent years, with acreage dropping steadily to an estimated 2,300 acres in 1973, and with the value of the crop at farm level dropping from a high of $6.5 million in 1957 to $1.1 million in 1973.

The industry provides income for approximately 640 farmers of the Kona district, with an estimated 100 farmers devoting their full time to coffee farming.

At one time there were 14 coffee processing plants, however, only two mills remain, the Pacific Coffee Cooperative mill and the Sunset Coffee Cooperative mill. The former processes approximately 30% of the crop, and the latter the remaining 70%.

The County of Hawaii and the State Department of Agriculture have agreed to conduct a joint study of the economic conditions of the Kona coffee industry, and of the outlook for agriculture in the area. This study is to be completed prior to the convening of the 1974 State Legislature, to enable recommendations from the study to be considered by the members of the Legislature. There is also a pressing short range problem which is discussed in the next section of this report.

Reasons for Attention at This Time

Kona has been suffering from a drought for the past six (6) months, and the Sunset Coffee Cooperative management is projecting the 1973 crop (harvesting will begin in September) at one-third of the 1972 crop. The severity of this

Table 1

RAINFALL DATA - KONA
(In Inches)

	Jan	Feb	Mar	Apr	May	Jun
Napoopoo Station Elev: 480 ft.						
34 year average 1939-1972	3.42	2.21	3.54	3.50	3.71	3.74
1973	.73	.46	.33	.28	.95	.72
Middle Holualoa Station Elev: 600 ft.						
33 year average 1940-1972	3.43	1.84	3.07	3.30	4.12	4.52
1973	1.07	0.00	1.13	1.50	2.15	.30
Kainaliu Station Elev: 1500 ft.						
42 year average 1931-1972	4.40	2.98	5.11	5.72	7.21	7.32
1973	4.04	.09	2.07	1.80	1.81	1.96
Lanihau Station Elev: 1500 ft.						
34 year average 1939-1972	4.93	3.84	5.68	6.83	9.12	9.76
1973	.78	.03	2.57	2.86	5.89	2.98
Captain Cook Station Elev: 2100 ft.						
34 year average 1939-1972	4.47	3.65	6.19	7.68	8.17	8.34
1973	1.50	.20	1.60	1.41	3.92	4.90

Source: U.H. Experiment Station, Kona

drought can be seen by the rainfall data for the five (5) measuring stations of the area (Table 1).

This rainfall data is most significant when the distribution is considered. Rainfall distribution is very important for optimum yields because "coffee production is at its best when there is a short, dry period annually, preferably during the winter months. This forces the coffee trees into a state of semi-dormancy. Ideally this dry period should be followed by a rainy period with rainfall increasing gradually as the crop continues to maturity. As the harvesting season approaches, rainfall should decrease, to be followed by a dry period during the winter." (from Coffee: Where and How to Start a Coffee Orchard by Y. Baron Goto and Edward T. Fukunaga, Extension Circular 356, University of Hawaii, July 1956)

The Sunset Coffee Cooperative management feels that as a result of the drought and other conditions, the processing volume will be very low, and to cover their fixed costs, they will have to charge a processing fee of $20.00 per 100 pounds of green coffee this season compared to the $13.65 that they charged last year. If this occurs, the feeling of the Co-op manager is that the farmers will refuse to pick their coffee, since the returns from the crop will be too low. This would result in shutting down the plant, and in the opinion of the manager, once shut, it would be very difficult to start it up again.

The impact of shutting down the Sunset Coffee Co-op processing plant, the only one that processes cherry coffee, would be the elimination of a source of income for the approximately 540 farmers of the Sunset Cooperative, of which approximately 90 are full time coffee farmers. The social impact on the area, county, and state would be serious, with unemployment, housing, welfare and other social services pressures being placed on the county and state.

The immediate problem is therefore to determine:

a. The size of the 1973 coffee crop, considering the drought conditions during the first six (6) months.

b. The impact of this volume on the financial picture of the Cooperative.

c. Whether any government action is required to solve the immediate problem.

Target Group

The target group for this immediate problem is the coffee growers of the Sunset Coffee Cooperative and the processing mill.

Beneficiary Group

Sunset Coffee Cooperative, coffee growers, citizens of the Kona district, and citizens of the State.

Programs Involved

Department of Research and Development, County of Hawaii; Department of Agriculture, State of Hawaii; Sunset Coffee Cooperative; and the Pacific Coffee Cooperative.

Framework for Analysis

To gather the data necessary for the analysis of the immediate problem, as well as for the study which will be presented to the 1974 Legislature, an in person survey of the coffee farms was conducted during the period July 18, 1973 through July 28, 1973.

The area surveyed extended from the junction of the Palani Road and the North Kona Belt Road in the north, to the junction of the City of Refuge Road and the South Kona Belt Road to the South, a straight line distance of approximately 25 miles. The width of the survey area was roughly 3 miles on either

side of the Belt Road.

The population was determined to be all those farmers who received any gross income from coffee during the 1972 crop year. Lists provided by both Co-ops indicated a population of 644 farmers. Of these, 88 were identified as being not reachable, due to inaccessible location of farms (i.e. Pahala, Milolii, etc.), or due to farmers being on vacation.

446 farmers were interviewed, 65 from the Pacific Coffee Cooperative and 381 from the Sunset Coffee Cooperative. This represents 80.2% of the reachable population. 81.3% (65/80) of the Pacific Coffee Co-op members were surveyed, and 80.0% (381/476) of the Sunset Coffee Co-op members were surveyed. The questionnaire used is presented as Appendix 1.

Two major assumptions are made in the analysis of the data collected:

a. Statistical inference can validly be made from the surveyed sample.

b. Farmers are appropriate sources for estimating future crop volume.

Findings

The survey results indicate that the 1973 coffee crop will be 79% of the volume of the 1972 crop. (Table 2) The drought does not appear to have affected the Makai farms any worse than the Mauka farms.

Seven farmers of those surveyed indicated abandoning coffee for the 1973 season. This represents 1.5% of the sample. Membership lists from the Co-op for the 1971 and 1972 crop years indicate a 3% drop-out rate. Even if this 3% drop out rate is added to the estimated crop figures, the 1973 crop is still estimated at 76% of the 1972 crop. This conservative figure of 76% will be used to evaluate the effect of the 1973 crop on the financial picture of the Co-op.

Table 2

SUNSET COFFEE COOPERATIVE
EXPECTED 1973 SEASON COFFEE CROP
(As percentage of 1972 Crop)

	Size of Farm			
	0 - 3 acres	3+ - 5 acres	5+ - 10 acres	10+ acres
Mauka Farmers*	83.3% (128)	76.4% (61)	84.3% (21)	79.8% (8)
Makai Farmers*	69.4% (77)	79.1% (33)	89.3% (7)	76.3% (6)
Total Farmers	77.7% (205)	77.3% (94)	85.4% (28)	78.4% (14)

Total Expected Crop for Sunset Coffee Cooperative: 78.8% of 1972

*Farms were stratified by Mauka/Makai of the Belt Road to determine the effect of the drought on the wetter Mauka area and drier Makai area farms.

Sample size are indicated by the numbers in parentheses directly below the percentage figures.

This figure is consistent with estimates of the 1973 crop made by the Pacific Coffee Co-op farmers. The estimates were 79% for the Mauka farmers and 76% for the Makai farmers, or a 78% estimate for all sampled Pacific Coffee Co-op farmers.

Alternatives

a. Government to offer financial assistance to the Sunset Coffee Co-op processing mill to keep it operating with the 1972 processing fee.

b. Government to await taking any action pending the completion of the final coffee study.

Evaluation of the Alternatives

a. Any financial assistance from government would have to be directed at the processing plant because a subsidy or some other type of financial assistance to the Sunset Coffee Co-op farmers, would come under severe criticism by the members of the Pacific Coffee Co-op, and adversely affect possibilities of a merger in the near future.

b. A pro-forma statement of Sales, Expenses, and Patrons' Account for the 1973-1974 crop is presented as Table 3. The following assumptions were used to compute this pro-forma statement:

   1) Sales - 76% of the 1972-73 crop times $56 per bag of green coffee (prices went as high as $73 per bag in 1972-1973 but average was $56 per bag. A sharp increase occurred in the latter part of 1972 and continued into 1973).

   2) Cost of Sales - $10.75 paid to farmers per bag of cherry coffee, the same as for FY 1972, which is equivalent to $53.75 per bag of green coffee. (This price is anticipated by the farmers

Table 3

SUNSET COFFEE CO-OP
Statement of Sales, Expenses, and Patrons Account

	FY 1971-72	FY 1973-74 (Pro Forma)
Sales	$766,061	$730,030
Cost of Sales	746,208	700,695
	19,853	29,335
Retains for Milling	165,351	177,941
	185,204	207,276
Operating Expense	187,420	162,950
	(2,216)	44,326
Other Income - Interest	1,950	1,950
	(266)	46,276
Other Deductions Interest and Other	13,321	13,321
Excess Charges over Expense (Expense over Charges)	$(13,587)	$32,955

Note: Financial Statements for FY 1972-73 are not ready or that information would also be presented.

as shown by the survey)

3) Retains for Milling - $13.65 per bag of green coffee, the same as for FY 1973 which is equivalent to $2.73 per bag of cherry coffee.

4) Operating Expenses - $2.50 per bag of cherry coffee (the average for FY 1970-71 and FY 1971-72, the last two complete financial reports available). Data available does not provide enough information to break out fixed costs from variable costs to determine break even volume.

5) Other Income, Interest - At FY 1971-72 level.

6) Other Deductions - At FY 1971-72 level. Indications are that both Other Deductions and Income have been on a steady decline, but data are not available at this time.

Using the assumptions stated in the Framework for Analysis and from the Pro-Forma Statement, it would appear that the Sunset Coffee Co-op does not have to raise its processing fee for the 1973 coffee crop.

Recommendation

Recommend Alternative b. Recommend also that the findings of this intermediate coffee study be made known to the management of the Sunset Coffee Cooperative prior to the meeting of the Board of Directors when consideration of raising the processing fee will be made.

SUNSET COFFEE COOPERATIVE

Question: Would you continue farming coffee if processing fee is raised 50%?

	Size of Farm							
	0 - 3 Acres		3+ - 5 Acres		5+ - 10 Acres		10+ Acres	
Mauka Farmers	Yes	No	Yes	No	Yes	No	Yes	No
	22.0% (27)	78.0% (96)	48.1% (37)	51.9% (40)	32.0% (8)	68.0% (17)	28.6% (2)	71.4% (5)
Makai Farmers	30.1% (25)	69.9% (58)	39.4% (13)	60.6% (20)	50.0% (4)	50.0% (4)	33.3% (2)	66.7% (4)
Total Farmers	25.3% (52)	74.7% (154)	45.5% (50)	54.5% (60)	36.4% (12)	63.6% (21)	30.8% (4)	69.2% (9)

Total response from Sunset Coffee Cooperative members: 32.6% yes; 67.4% no.

Following responses considered "yes": Keep farming coffee; Try to get it pulped by someone who can do it; Invest in pulping plant.

Following responses considered "no": Stop picking coffee; Go to another crop; Give up farming.

Sample size are indicated by the numbers in parentheses directly below the percentage figures.

PACIFIC COFFEE COOPERATIVE
EXPECTED 1973 SEASON COFFEE CROP
(As percentage of 1972 Crop)

	Size of Farm			
	0 - 3 Acres	3+ - 5 Acres	5+ - 10 Acres	10+ Acres
Mauka Farmers*	93.2% (7)	84.3% (9)	81.6% (9)	67.9% (3)
Makai Farmers*	76.3% (12)	69.6% (8)	74.7% (11)	79.8% (3)
Total Farmers	84.2% (19)	77.8% (17)	78.1% (20)	73.4% (6)

Total Expected Crop for Pacific Coffee Cooperative: 77.6% of 1972 Crop

*Farms were stratified by Mauka/Makai of the Belt Road to determine the effect of the drought on the wetter Mauka area and drier Makai area farms.

Sample size are indicated by the numbers in parentheses directly below the percentage figures.