



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

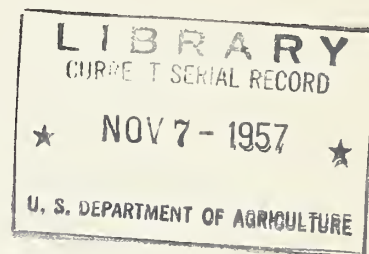
No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

A31.3
R31AC
cop. 3

AN ECONOMIC SURVEY OF FAMILY FARMS ON ST. CROIX,
VIRGIN ISLANDS, 1953



ARS 24-2

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

November 1954

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Office of Experiment Stations
Territorial Experiment Stations Division

ARS 24-2

AN ECONOMIC SURVEY OF FAMILY FARMS ON ST. CROIX,
VIRGIN ISLANDS, 1953

by

Troy Mullins

NOVEMBER 1954

SUMMARY

More than 90 percent of the operators on St. Croix Island owned all or a part of the land they farmed. About 25 percent of the farms were under 15 acres in size, and 60 percent were less than 40 acres. Sugarcane, the major cash crop, was grown on all but one of the farms, 8 acres being the average crop cultivated, with 25 percent of the families farming less than 5 acres and 70 percent less than 10 acres. Most families grew a variety of "short" crops for home use and kept poultry for egg production. Cattle raising, the major livestock enterprise, was important on the farms of adequate size.

Total cash income averaged about \$2,200 per family of which \$1,600 were from the sale of farm products. Cash operating expenses were about \$700, leaving net cash income per family of about \$1,500, plus farm privileges estimated at about \$500 per family. After allowing for non-cash costs in the form of unpaid family labor and interest on capital invested in the business, the operator's returns to labor and management averaged about \$1,400. These income and expense estimates varied in relation to the size of farms.

Including cash from nonfarm sources and farm privileges, the total earnings of families with 10 acres or more of sugarcane compared favorably with the earnings of nonfarm employed individuals living on St. Croix. Families with 5 to 10 acres of sugarcane earned as much as did lower paid nonfarm employed individuals. However, if nonfarm income is deducted and an allowance made for noncash costs (unpaid family labor and interest on capital invested in the business), the operator's earnings for labor and management were lower for the group of farmers included than the average earnings of individuals in other occupations.

In sugarcane production small farmers use simple methods which involve much hand labor. About 240 hours of labor per acre are needed for all of the preharvest operations on plant cane and almost 110 hours per acre on ratoon cane. With an average yield of 21 tons, cutting cane requires about 60 hours per acre. The total cost of growing and harvesting sugarcane on small farms averaged (weighted for ratoon and plant acreage) about \$114 per acre. At 1953 prices the gross value of sugarcane averaged about \$184 per acre, and the net returns above total operating costs averaged about \$70 per acre.

About 60 percent of the small farmers graze cattle on the less desirable parts of their farm. The number of brood cows per farm grazing cattle averaged about 12 head, and at 1953 prices the value of estimated production from units of this size averaged about \$700. Since practically no feeding is done cash expenses on cattle were about \$30 per farm, exclusive of unpaid family labor valued at about \$300.

A study of alternative plans for family-operated farms of 50 acres shows about how much income families may earn with varying acres of

sugarcane. With 8 acres in sugarcane (about the acreage a family can work during preharvest) and 14 brood cows, estimated income above operating expenses would average about \$2,000 based on usual sugarcane yields and 1953 prices. After meeting fixed payments on real estate and the capital invested in brood cows, the estimated income available for family living would average about \$1,400.

If the operator hires outside labor and grows 15 acres of sugarcane the cash income above cash operating expenses is estimated at about \$2,500, and the income available for family living after meeting fixed payments is about \$1,900.

Expansion of sugarcane to 25 acres and relying on outside workers to cultivate about 65 percent of this acreage, results in cash income above direct operating expenses of about \$2,900 per family, and in income available for family living of about \$2,400.

As the acreage of sugarcane per family is increased problems attached to financing production and to variable weather and prices are increased, and possibly at a somewhat more rapid rate. The acreage of sugarcane which the operator and his family can cultivate appears to be a useful guide to the desirable size of family-operated farms. Additional land for miscellaneous crops or for grazing cattle will be needed to provide other sources of income and to permit effective use of year-round labor.

AN ECONOMIC SURVEY OF FAMILY FARMS ON ST. CROIX, VIRGIN ISLANDS, 1953

By Troy Mullins 1/

CONTENTS

	Page		Page
Summary	II	Description and economic	
Introduction	1	analysis of farms--Continued	
Scope and method of study . .	2	Operator's returns to labor	
Description of families surveyed	3	and management	20
Age distribution and size of		Comparison of farm incomes	
families	3	with earnings in other	
Occupational experience of		occupations	21
operators	5	Examination of major enter-	
Attitudes toward farming . . .	5	prises	25
Description and economic		Sugarcane	25
analysis of farms	9	Beef cattle	29
Tenure of operators and size		Some alternative farm plans . .	31
of farms	9	Incomes with average yields	
General land use and farm		and 1953 prices	32
enterprises	11	Incomes with variable yields	
Farm investment and debt load	11	and prices	34
Sources of income	14	General interest in farm owner-	
Farm operating expenses . . .	17	ship and qualifications of	
Noncash income and costs . . .	17	applicants	35
Total family earnings	19	Appendix	38

- - - - -

INTRODUCTION

This study of family farms made in 1953 is a followup of a more general survey of the Virgin Islands made in the fall of 1952. 2/ In that report attention was called to the low level of agricultural productivity of the Islands and the long period of decline in which the population dropped from 43,000 in 1830 to only 50 percent of that number in 1930, and the acres of land harvested dropped from about 30,000 in the early 19th century to less than 6,000 in 1952.

1/ On leave from Production Economics Research Branch, Agricultural Research Service, U. S. Department of Agriculture. The author expresses appreciation to Dr. Kenneth A. Bartlett, former Head, Division of Tropical Agriculture, Office of Experiment Stations, for assistance in planning the study; to Edith Jackson and Morris Henderson, Virgin Islands Research and Extension Service Program, and Darnley A. Peterson, Farmers Home Administration, who participated as enumerators, and to E. L. Langsford, ARS, USDA, for helpful suggestions and criticism.

2/ Finner, Winn F., and Mullins, Troy. Appraisal of Virgin Islands Agricultural Production and Marketing. U. S. Dept. Agr. ARS-24-1. 1954.
[Processed.]

That report also recalls that during this period of decline, numerous programs were initiated to benefit agriculture, many of which were aimed at helping rural families to buy farms of their own. The Danish officials attempted such programs and after 1917 when the Islands were acquired by the United States, the St. Croix Labor Union started a program to make land available to individual families. In later years, about 1930, the Homestead Commission, an agency of the Municipal Government, and finally the Farm Security Administration (now Farmers Home Administration) carried on similar programs.

Although much good was done, these programs fell short of their objectives and were stopped during World War II. Nevertheless, the importance of the family farm to a secure and prosperous rural population is obvious.

Continued interest in helping rural families on St. Croix to buy farms was again demonstrated in June 1953 when the Virgin Islands Corporation allocated 800 acres of land to be divided and sold as family units. Immediately it was felt that a better understanding of production problems and operating practices on present family farms would be useful in carrying out this program. This was in line with the recommendation, in the report cited above, that a study be made of the resource requirements and desirable enterprise combination for family-sized farms. To meet this need records of operations during 1953 were obtained from 46 families, representing about 80 percent of the family-sized units on St. Croix.

Scope and Method of Study

In this study, the family farm is defined as a farm on which the operator and his family make up the principal year-round labor force and which is large enough to provide reasonably full employment and an adequate income for the family (see Appendix).

The 1950 agricultural census reported a total of 508 farms on St. Croix, of which 372, or 73 percent, were under 20 acres in size. An additional 68, or 13 percent, were between 20 and 99 acres. Most of those under 20 acres in size were considered as subsistence and inadequate to support a family from farm income.

General knowledge of farming on St. Croix indicates that most family-sized operations, with income adequate to support a family, are between 20 to 99 acres in size. Using records of the Soil Conservation Service, the Production and Marketing Administration, and the Farmers Home Administration, a list of 52 land ownership units ranging in size from 20 to 100 acres was compiled. It was found that 22 of these units were not operated in 1953, leaving only 30 which met the general specifications assumed for family farm operations. Most of the

operators, on the units not being operated, were fully employed in nonfarm occupation or were Continentals who had retired.

Records were obtained for as many as possible of these farms. Also records were obtained for 14 farms of less than 20 acres and for 6 farms of more than 100 acres in size, which furnished the major employment and source of income for the family. A list of 1953 sugarcane producers provided by the Virgin Islands Corporation was used in selecting these additional farms. A total of 46 operators, representing about 80 percent of all farms regarded as family-sized units, gave information for this study.

Information pertaining to the size of farms, major uses of land, enterprise organization, and estimated expenses and income was obtained for the 1953 season (July 1, 1952 through June 30, 1953). The quality and value of farm products used in the home and of other family privileges incident to living on the farm were also determined as accurately as possible.

Farmers on St. Croix keep few records concerning their day-to-day operations. Except in the case of sugarcane, for which the income is received in relatively large amounts, the operators had difficulty in estimating the income received from various sources. This was particularly true of products that were sold at irregular intervals spread over several weeks or months.

DESCRIPTION OF FAMILIES SURVEYED

Twenty-nine of these 46 families interviewed were native Crusans, predominately Negro, and 17 were of Spanish ancestry, predominately Puerto Rican. Fairly complete information on the size of family, farming experience, and attitude toward farming was obtained from 41 of the 46 farm operators.

Age Distribution and Size of Families

The number of persons per household averaged 5.3 for the 41 families (table 1). This includes the operator, his wife, children living in the home, and any other persons regularly domiciled with the family. Thirty-nine of the family heads were men and 2 were women. The average age of the operators was 53 years. About 65 percent was over 50, and only 16 percent was younger than 40 years of age. The 35 wives of operators from whom the enumerators obtained information concerning age, averaged 49 years. Sixty percent of the women was over 50 and 20 percent was under 40.

Table 1.--Age distribution of family members, and average size of household, family-farm survey, St. Croix, 1953 1/

Age groups	Number	Percent
Family heads <u>2/</u>		
Under 29	1	2
30 - 39	5	12
40 - 49	8	20
50 - 59	15	37
60 - over	12	29
Total	41	100
Average age--years	53	xxx
Wives of family heads <u>3/</u>		
Under 29	3	9
30 - 39	4	11
40 - 49	7	20
50 - 59	17	49
60 and over	4	11
Total	35	100
Average age--years	49	xxx
Boys at home		
Under 12 years	14	24
12 to 17 years	24	41
18 and over	21	35
Total	59	100
Boys per family	1.4	xxx
Girls at home		
Under 12 years	15	39
12 to 17	9	24
18 and over	14	37
Total	38	100
Girls per family	.9	xxx
Other persons per family	1.0	-
Average size of household	5.3	-
Average number assisting family heads with farming operations		
12 to 17 years	.9	-
18 years and over	1.1	-
Total	2.0	-

1/ Data obtained for 41 of the 46 operators included.

2/ Includes two women who have no husbands.

3/ Age of the wife was not obtained from four of the operators.

Ninety-seven children were living with their parents, 38 girls and 59 boys. Boys and girls under 12 years were reported in about equal numbers, whereas in the 12- to 17-year group there were 24 boys and only 9 girls, and in the 18-or-over group 21 boys and 14 girls. This distribution suggests that girls may leave the home of rural families at a somewhat earlier age than do boys.

Occupational Experience of Operators

The years of farming experience and the other occupations or jobs held by the operators in earlier years were recorded for as many of the family heads as possible. Forty-two operators reported the number of years they had farmed (table 2).

Although the previous occupational experience was obtained for only two-thirds of the family heads, a total of 17 different kinds of nonfarm employment was reported. Only three of the operators had never been employed in a nonfarm occupation.

Attitudes Toward Farming

It is said that the natives of St. Croix hold an unfavorable attitude toward farming. To answer this question, information was obtained concerning attitudes toward rural life, factors which the operators felt were limiting their success, and the desires of parents about the future occupation of their children. However, only 5 of the 40 operators from whom replies were obtained indicated that they would like to move from the farm (table 3). Ill health was the reason for two of these replies.

About two-thirds of the operators were not interested in buying more land. Most of them felt that their farms were large enough, considering the problem of finding satisfactory workers and other difficulties. Several operators pointed out that they now hold undeveloped land which should receive first consideration in any attempt to expand their operation. Land clearing costs, establishment of water supplies for livestock, and the cost of improving pastures were often mentioned as limiting conditions to fuller use of their land. Age and poor health of the operator were often mentioned as an explanation to underutilization of the land.

Sixteen, or 30 percent, of the operators expressed a desire to buy land either to establish themselves as owners or to add to their present holdings. Ten of these were interested in buying less than 100 acres and 6 felt they would need 100 acres or more. Most of the latter group were primarily interested in cattle raising.

Table 2.-- Occupational experience of farm operators

Item	Number reporting
Years of experience as farm operator:	
0 to 9	8
10 to 19	14
20 to 29	9
30 or more	<u>11</u>
Total	<u>42</u>
Previous jobs or occupations:	
Farm laborers	6
Storekeeper	4
Fisherman	4
Blacksmith	3
Carpenter	3
Mason	2
Construction laborer	2
Law enforcement	2
Dock worker	2
Other <u>1</u> /	8
Operators reporting previous occupations other than farming	26
Operators reporting farming as only occupation	3
Total operators not reporting on previous occupation	13

1/ Includes the following, each reported by one operator: Plumber, sugar boiler, accountant, postal clerk, butcher, iceman, yardman, and dressmaker.

A majority of the family heads expressed the beliefs that the farm is a more desirable place to rear their children; they also showed an interest in their children selecting farming as an occupation (table 3). Almost half of the family heads felt that their children should remain on St. Croix rather than to migrate elsewhere for permanent employment. However, a summary of the present occupation and residence of children away from home indicates that in these matters the desires of their parents generally have not been carried out (table 4). More than half of the children away from home were residing off the island. For the boys this is explained in part by entry into the Armed Services. None of the sons away from home were operating farms of their own. The other occupations reported indicate that a good part of the sons had gained considerable skill or professional ability in their chosen lines of work.

Table 3.--Expressions concerning interest in farming and
attitude toward children becoming farmers

Item	:	Number
	:	
	:	
Questions:	:	
	:	
Would you presently like to move from the farm	:	
Operators reporting yes	:	5
Operators reporting no	:	35
	:	
Do you prefer the farm as a place to rear your children	:	
Operators reporting yes	:	35
Question not applicable <u>1/</u>	:	5
	:	
Would you like your children to become farmers	:	
Operators answering yes	:	21
Optional to children	:	9
Question not applicable <u>1/</u>	:	11
Operators answering no	:	2
	:	
Do you feel that your children should remain on St. Croix	:	
Operators answering yes	:	21
Optional to children	:	7
Operators answering no	:	4
Question not applicable <u>1/</u>	:	11

1/ Generally applies to operators with no children or whose children are already away from home.

Table 4.--Present place of residence of children away from home, and
occupation of sons, family farm survey, St. Croix, 1953

Item	Daughters		Sons	
	Number	Percent	Number	Percent
Family heads reporting children away from home:	24	xx	30	xx
Number of children included	47	100	52	100
Present address of children				
New York	12	26	9	17
Other States	9	19	4	8
Puerto Rico	3	6	3	6
Armed services	0	0	14	27
Total off-island	24	51	30	58
In St. Croix	23	49	20	38
In St. Thomas	0	0	2	4
Occupation of sons:				
Farm laborers			5	10
Auto mechanics			5	10
Virgin Islands Corp.			3	6
Electricians			2	4
Carpenters			2	4
Masons			2	4
Factory workers 1/			2	4
Hotel workers 1/			2	4
Professional 1/			2	4
Other 2/			7	13
Occupation not determined			6	11
Armed services			14	26
Total			52	100

1/ These are Stateside employed sons. The two classed as professional were an assistant factory superintendent and a broker.

2/ One son reported in each of these occupations: Storekeeper, stevedor, captain of schooner, hospital worker, truck driver, chauffeur, and air base employee.

The farms included in this study are located throughout the cultivated areas of central, western, and northern St. Croix (fig. 1). Although the annual rainfall and evaporation rates vary widely, these sections normally receive enough moisture for crop production. The land surface of these sections is uneven. The northern and a part of the southern coasts are made up of steep, hilly terrain. Between these are the comparatively level valleys of the central sections. More than half of the farms included are located in the hilly areas which, as compared with the valleys, are less suited to cultivated crops. Inaccessibility is a serious problem to a few and an important one to a third or more of the operators.

Tenure of Operators and Size of Farms

About 75 percent of the operators were owners and an additional 17 percent were part owners. Only four, or 9 percent of the operators, rented all of the land they farmed (table 5).

Table 5.--Tenure of operators, size of farms, and land used for sugarcane

Item	Number	Percent
Tenure of operator:		
Owners	34	74
Part-owners	8	17
Renter	4	9
Total	46	100
Total land in farm:		
0 to 19 acres	14	30
20 to 39 acres	14	31
40 to 59 acres	6	13
60 to 99 acres	6	13
100 or more acres	6	13
Total	46	100
Land in sugarcane:		
0 to 4.9 acres	11	24
5.0 to 9.9 acres	21	46
10.0 or more acres	14	30
Total	46	100

Sixty-one percent of the farms were less than 40 acres in size. The smallest units were 9 acres (two farms), and almost 25 percent were under 15 acres. The largest of the family farms ranged in size from 40 to 100 acres or more. The largest farm comprised 380 acres, of which 125 were owned and 255 were rented. This operator devoted attention largely to cattle raising and did not use any land for cultivated crops.

As sugarcane is the most common crop grown and the major source of income, it is used in this study as a measure of size of the farm business. The farms were divided into three groups and were arrayed according to acres in sugarcane. This grouping of farms is maintained throughout the analysis. The sugarcane grown per farm averaged 8.1 acres for all farms. Only 5 operators grew as much as 15 acres, and the largest acreage reported was 21.5.

General Land Use and Farm Enterprises

The major uses of land and farm enterprise organizations are summarized by farm size groups in table 6. Farms with less than 5 acres of sugarcane had an average of 8 acres of cropland, of which 4 acres were used for crops. The farms with 5 to 9.9 acres of sugarcane had an average of 10 acres of cropland with 8 acres used for crops, and those with 10 acres or more in sugarcane had 18 acres of cropland of which 15 acres were used for crops. The farms in each size group had an appreciable acreage in pastures as well as an additional acreage of undeveloped land (locally referred to as "bush.") In many instances the undeveloped land is not well adapted for pastures or for cultivated crops.

Sugarcane was grown by all except one of the operators and accounted for from 75 to 90 percent of the acres in crops for the three size groups. Truck crops were raised by 39 of the 46 operators and fruits by 23 of the operators.

Cattle raising is second to sugarcane as a source of income on the farms surveyed, although some units were too small to accommodate this enterprise. Limited capital was a problem for several of the cattle growers. Only 27 operators reported cattle (other than milk cows), with a similar amount raising hogs or poultry. Milk cows, sheep, and goats were grown to a lesser extent.

Farm Investment and Debt Load

Farming as a business requires capital for the land and improvements, for livestock and equipment, and for miscellaneous supplies used in production. The value of farms owned by 38 operators averaged \$5,300 per farm of which almost half was attributable to buildings (table 7). Several operators had recently built homes which were financed with loans from FHA. Operators with less than 5 acres of sugarcane generally could not qualify for such loans and the improvements on such farms were very

Table 6.--Crops and livestock on family farms, by size of farm

Item	Unit	Size of farm (Acres in sugarcane)			All farms
		0 to	5 to	10 or	
		4.9	9.9	more	
Farms surveyed:	No.	11	21	14	46
Proportion of cropland in sugarcane	Pct.	75	86	90	87
Average per farm:					
Total land	Acre	60	41	58	51
All crops	do.	4	8	15	9
Idle land	do.	4	2	3	3
Pasture land	do.	21	16	28	20
"Bushland"	do.	31	15	13	18
Farms reporting:					
Sugarcane	No.	10	20	14	44
Vegetable and truck	do.	9	17	13	39
Fruit crops	do.	7	8	8	23
Workstock	do.	9	17	11	37
Milk cows	do.	4	7	6	17
Beef cattle	do.	8	11	8	27
Sheep	do.	3	5	5	13
Hogs	do.	6	12	11	29
Goats	do.	2	8	5	15
Poultry	do.	6	17	8	31
Average per farm reporting:					
Sugarcane	Acre	3.4	7.2	13.2	8.2
Vegetable and truck	do.	.6	.9	1.2	.9
Fruit crops	do.	.8	1.1	.5	.9
Workstock	No.	2.6	2.1	2.0	2.2
Milk cows	do.	1.2	3.1	2.8	2.6
Beef cattle	do.	22.1 ^{1/}	12.8	14.6	16.1
Sheep	do.	7.3	13.0	20.6	14.6
Hogs	do.	5.3	1.9	3.6	3.2
Goats	do.	6.0	6.6	5.0	6.0
Poultry	do.	26.5	30.5	31.8	30.0

^{1/} This average influenced by two operators who were devoting major attention to cattle raising.

poor. For the 38 owner or part-owner farms, the estimated value of land averaged \$65 per acre, and of land and buildings combined averaged \$124 per acre (table 7).

Thirty-nine percent of the farm owners reported real estate debts, which averaged about \$1,600 per farm. The ratio of debt to the estimated value of these farms was 21 percent. The ratio of debt to estimated value was 28 percent for the farms with 5 to 9.9 acres of sugarcane, the indebtedness averaging almost \$2,500 per farm.

Real estate debts appear to be related to the date of purchase of the farms, and to the type of vendor. The farms were purchased from 1918 through 1952, and about half were bought during the 5-year period 1945-49 (table 8). Eleven operators bought their farms in 1947. The Farmers Home Administration (including FSA), the Municipal Council, and the St. Croix Labor Union, agencies which made the majority of the loans, sponsored programs to assist individual families in acquiring farms.

Table 7.--Average value of family farms and extent of real estate indebtedness ^{1/}

Item	Unit	Size of farm (Acres in sugarcane)			All farms
		0 to 4.9	5 to 9.9	10 and over	
		:	:	:	
Value of buildings	Dol.	1,344	2,950	2,827	2,534
Value of land	do.	2,597	2,751	2,991	2,784
Total	do.	3,941	5,701	5,818	5,318
Value per acre:					
Land	Dol.	67	65	68	65
Land and buildings	do.	101	135	133	124
Operators reporting real estate debts ^{2/}	Pct.	33	33	55	39
Average debt per farm reporting	Dol.	749	2,466	1,135	1,591
Ratio of debt to value of farms	Pct.	15	28	16	21

^{1/} Includes 38 owners and part owners.

^{2/} Fifteen of the 38 operators reported real estate debts, and 11 of these were attributable to special loans for the construction of dwellings.

Table 8.--Operators purchasing land by periods and types of vendors

Item	:	Operators reporting
		<u>Number</u>
Year of purchase:	:	
Prior to 1940	:	7
1940 - 44	:	8
1945 - 49	:	19
1950 - 52	:	5
Total	:	39
Types of vendors:	:	
Farmers Home Administration	:	16
Individuals	:	13
Municipal Council	:	8
St. Croix Labor Union	:	2
Total	:	39

The estimated value of livestock, trucks, miscellaneous equipment, and operating capital averaged about \$1,700 per farm. Added to the value of real estate, this gives a total capital investment of about \$7,000 per farm (table 9). The estimated net worth of the part-owner and owner-operators, after deducting real estate and other debts, averaged \$6,200 per farm. Two operators were devoting attention largely to cattle production and owned comparatively large farms, which explains the higher average net worth of the operators with less than 5 acres of sugarcane.

Sources of Income

Sugarcane was the major source of income for most of the families in each of the size groups. The income from sugarcane, including receipts from molasses and Production and Marketing Administration payments, made up nearly 50 percent of the total income of operators reporting less than 5 acres of cane (table 10). Farm receipts averaged \$775 per farm, and total income from all sources \$957 for the operators in this group. More than half of these operators received income from the sale of livestock (including livestock products), a third sold truck crops, vegetables, and fruits, and about a third received income from the sale of charcoal.

Operators with 5 to 9.9 acres of cane received an average of \$1,417 from farm sales and \$1,972 total income. More than 60 percent of the income of these families was from sugarcane. Almost 50 percent of this group sold

Table 9.--Average value of real estate and chattles and estimated net worth of operators 1/ family farm survey, St. Croix, 1953 1/

Item	Size of farm (Acres in sugarcane)			All farms
	0 to 4.9	5 to 9.9	10 and over	
	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Real estate				
Land	2,597	2,751	2,991	2,784
Buildings	1,344	2,950	2,827	2,534
Sub-total	3,941	5,701	5,818	5,318
Livestock <u>2/</u>	1,814	601	590	885
Transportation and miscellaneous equipment <u>2/</u>	1,146	455	899	747
Operating capital	154	27	72	70
Subtotal	3,114	1,083	1,561	1,702
Total real estate and other farm assets	7,055	6,784	7,379	7,020
Real estate debts	250	822	592	620
Other debts	20	196	332	194
Total	270	1,018	924	814
Net worth	6,785	5,766	6,455	6,206
Number of operators	<u>Number</u> 9	<u>Number</u> 18	<u>Number</u> 11	<u>Number</u> 38

1/ Includes 38 owner and part-owner operators.

2/ Two operators in the 0 to 4.9 acre group were devoting attention largely to production of cattle, each owned an automobile and a truck, and one of these owned a tractor which was not used in his farming operations. Thus the average investment in cattle and miscellaneous equipment was high for this group.

Table 10.--Operators reporting income from various sources and average receipts per farm

Source of income	Size of farm (Acres in sugarcane)			All farms
	0 to 4.9	5 to 9.9	10 and over	
	Number	Number	Number	Number
Operators reporting income from:				
Sugarcane <u>1/</u>	10	21	14	45
Fruits, vegetables, and truck crops:	3	10	7	20
Livestock and livestock products	6	7	9	22
Charcoal	3	3	0	6
Off-farm employment <u>2/</u>	3	12	9	24
Other sources	1	2	5	8
Gross income per farm reporting	Dollars	Dollars	Dollars	Dollars
Sugarcane <u>1/</u>	501	1,253	2,495	1,473
Fruits, vegetables, and truck crops	169	180	79	143
Livestock and livestock products	466	195	222	279
Charcoal	71	95	0	83
Off farm employment <u>2/</u>	616	813	1,298	975
Other sources	150	942	514	578
Gross income per farm surveyed:				
Sugarcane	456	1,253	2,497	1,441
Fruits, vegetables, and truck crops:	46	85	39	62
Livestock and livestock products	254	65	143	134
Charcoal	19	14	0	11
Subtotal	775	1,417	2,679	1,648
Off-farm employment	168	465	834	506
Other sources	14	90	184	100
Total	957	1,972	3,697	2,254
Proportion of income from	Percent	Percent	Percent	Percent
Sugarcane	48	63	67	64
Fruits, vegetables, and truck crops:	5	4	1	3
Livestock and livestock products	26	3	4	6
Charcoal	2	1	0	0
Subtotal	81	72	72	73
Off-farm employment	18	24	23	23
Other sources	1	4	5	4
Total	100	100	100	100

1/ Includes payments for sugar and molasses (taken from records of Virgin Islands Corporation) and PMA payments computed at 80 cents per hundred-weight of sugar.

2/ Only includes off-farm earnings of operator, except in one case where family members assisted with cane hauling for others.

fruits, vegetables, and truck crops, but derived 4 percent of their income from these products. Almost 33 percent sold livestock and livestock products which contributed only 3 percent of the total income.

The operators who grew 10 acres or more of sugarcane received an average of \$2,679 from the sale of farm products and about \$1,000 additional from off-farm employment and other sources. Almost 50 percent of these operators sold fruits, vegetables, and truck crops, which composed 1 percent of their total income, and about 65 percent sold livestock from which 4 percent of their income was received.

The total cash income from all families averaged \$2,254. About \$1,650 was from the sale of farm products, of which \$1,441 were derived from sugarcane. Miscellaneous off-farm employment was reported by 50 percent of the operators and made up 23 percent of their cash income. ^{3/} Other nonfarm sources made up 4 percent of the total income. A few of the operators held full-time jobs and hired most of the labor needed during the cultivating and harvest seasons. A number of others worked off the farm part time, operated a truck during the cane-hauling season, or were interested in other businesses which required some attention.

Farm Operating Expenses

Cash operating expenses averaged \$356 per family with less than 5 acres of sugarcane, \$577 for those with 5 to 9.9 acres of sugarcane, and \$1,232 for families with 10 or more acres in this crop (table 11). Hired labor and cane hauling made up over 60 percent of all cash expenses. Cost of operating trucks or automobiles for farm use ranked third among expense items, and contract plowing, taxes, rent, and electricity each made up less than 5 percent of total cash expenses. Very few of the operators used fertilizer and less than half treated their cane with herbicides for the control of weeds.

Noncash Income and Costs

On St. Croix, where cash receipts are low, farm produce used in the home and other noncash benefits make up a large share of the total family earnings. Several semistaple food crops, such as sweetpotatoes, yams, taniers, and pigeonpeas, are grown on most farms; and small quantities are saved for use after the harvest season. A wide variety of fruits and vegetables are grown and used during short seasons, but few families have any facilities for preserving their surplus production. More than half the families produced from five to eight different vegetables and a like number of native fruits. These items make up almost half of the total value of farm perquisites.

^{3/} Applies to the operator in all except one case, where other members of the family assisted with cane hauling for other farmers.

Table 11.--Distribution of cash operating expenses by size of farm

Items	Size of farms								All farms
	(Acres in sugarcane)								
	0 to 4.9		5 to 9.9		10 or more				
	Dol.-Pct.		Dol.-Pct.		Dol.-Pct.		Dol.-Pct.		
Expenditures per farm:									
Hired labor	141	40	223	39	597	48	317	44	
Plowing	11	3	25	4	55	5	31	4	
Hauling	65	18	118	20	173	14	122	17	
Seed <u>1/</u>	9	3	6	1	18	2	10	1	
Fertilizer	1	0	13	2	48	4	21	3	
Herbicides	1	0	10	2	12	1	9	1	
Truck or auto	31	9	47	8	116	9	64	9	
Taxes	17	5	31	5	25	2	26	4	
Rent	30	8	21	4	53	4	33	4	
Electricity	12	3	28	5	39	3	28	4	
Miscellaneous <u>2/</u>	38	11	55	10	96	8	63	9	
Total	356	100	577	100	1,232	100	724	100	

1/ Includes seed cane when purchased.

2/ Includes feed for livestock and poultry, other miscellaneous supplies, fence and building repairs, and interest on borrowed capital.

The families produced a large share of the total meats consumed. Poultry, goat, pork, and mutton ranked in the order mentioned. Fish is an important source of protein, most of which is purchased, but some families caught their own supplies. Small flocks of chickens were found on most farms, and the eggs were used in the home. Less than a third of the families used milk. The total value of farm-produced foods consumed in the home was \$356. House rent was estimated at \$56 per family (table 12).

The shipment of live cattle from St. Croix was restricted late in 1952 and such restrictions continued during 1953. 4/ Because of this situation, and the fact that a few of the farmers were increasing their cattle numbers, an inventory credit was allowed for certain of the farms included. The total credit averaged \$70 per farm surveyed and increased the average noncash earnings to \$482 per family.

The noncash costs incurred on these farms include interest on capital invested in the farm business, which averaged \$310 per farm, and the value of unpaid family labor, which was estimated at \$276.

4/ Puerto Rico, the principal outlet for live cattle, was declared free of Texas fever ticks and, in accordance with Bureau of Animal Industry regulations, shipments from nonfree areas were restricted.

Table 12.--Estimated value of farm privileges and other noncash income and costs

Items	Acres in Sugarcane			All farms
	0 to 4.9	5 to 9.9	10 and over	
	Dollars	Dollars	Dollars	Dollars
Noncash earnings:				
Miscellaneous fruits	92	84	90	88
Vegetables and truck crops	100	91	94	96
Meat, poultry, and fish	75	103	138	106
Eggs	35	37	31	35
Milk	69	22	19	31
House rent	55	64	47	56
Subtotal	416	401	419	412
Increased capital inventory ^{1/}	127	23	94	70
Total	543	424	513	482
Noncash costs:				
Interest on farm capital ^{2/}	339	288	323	310
Unpaid family labor	227	263	334	276
Total noncash costs	566	551	657	586

^{1/} During part of the period covered by this study the sale of cattle for export was restricted because of infestation of Texas fever ticks and a number of the operators did not sell all of their 1952 calf crop. Thus inventory credit was allowed for about 7 operators.

^{2/} Computed at 5 percent and based on average net worth of 38 owner and part-owner operators shown in table 9.

Total Family Earnings

The above income and expense summaries are of interest largely as a step in arriving at the total net income and the net cash income of the families studied. After deducting cash operating expenses, the net cash income shows the amount available for family living costs and to meet fixed annual payments on real estate and other items. Total net income includes cash and noncash earnings and provides a basis for comparing, in a later section, the incomes of farm and nonfarm families.

Total net cash income including that derived from off-farm employment and other sources averaged \$601 for the operators with less than 5 acres of sugarcane; \$1,395 for those with 5 to 9.9 acres; \$2,465 for those with 10 or more acres; and \$1,530 for all farms. Farm receipts exceeded cash expenses by an average of \$924 for all families (table 13).

Table 13.--Summary of total cash and noncash earnings by size of farm

Items	Acres in sugarcane			All farms
	0 to 4.9	5 to 9.9	10 and over	
	Dollars	Dollars	Dollars	Dollars
Total farm receipts <u>1/</u>	775	1,417	2,679	1,648
Cash operating expenses <u>1/</u>	356	577	1,232	724
Receipts less expenses	419	840	1,449	924
Total nonfarm income <u>1/</u>	182	555	1,018	606
Total net cash income	601	1,395	2,465	1,530
Farm privileges and non-cash credits <u>2/</u>	543	424	513	482
Total operator and family earnings	1,144	1,819	2,978	2,012
Total noncash costs <u>2/</u>	566	551	657	586
Operator's returns to labor and management	578	1,268	2,321	1,426

1/ Details shown in tables 10 and 11.

2/ Taken from table 12. Nonfarm credits include farm-produced foods, house rent, and credit for increase in farm capital. Nonfarm costs include the value of unpaid family labor and interest at 5 percent on capital invested in the business.

The value of farm-produced foods, house rent, and noncash credits was equal to more than 80 percent of the total net cash income of the families cultivating less than 5 acres of sugarcane, and increased the total family earnings of this group to \$1,144 per farm. These noncash items were equal to about 30 percent of the net cash income of the families with 5 to 9.9 acres, and to only 20 percent for the families with 10 or more acres. The total family earnings for the last two groups averaged \$1,819 and \$2,978, respectively, and \$2,012 for all families.

Operator's Returns to Labor and Management

Another measure of success that is sometimes applied to farming is the estimated returns to the operator for his individual labor and management wage. It can be compared with the individual earnings of nonfarm workers, whose family does not contribute to his annual earnings and who has no capital invested in the business. In table 13 the value of unpaid family labor and interest on capital invested in land, equipment, and livestock are included in the total operator and family earnings. Adjusting for these noncash costs we have the returns to the operator to labor and management (table 13).

The operators of farms with less than 5 acres of sugarcane received returns to labor and management averaging \$578; those with 5 to 9.9 acres of cane an average of \$1,268; and those with 10 acres or more an average of \$2,321. The estimated returns to labor and management averaged \$1,426 for all farms.

COMPARISON OF FARM INCOMES WITH EARNINGS IN OTHER OCCUPATIONS

Continued improvement in the agriculture of St. Croix is possible only if the incomes and living conditions of rural families can be made to compare favorably with those enjoyed by nonfarm groups. When good farming practices are employed and the farms are sufficiently large, rural families can receive as high incomes and live as comfortably as most nonfarm families.

A summary of earnings of workers in selected occupations shows about how much income rural families must receive to place them on an equal basis with the average nonfarm family (table 14). Certain specialized positions, such as physicians and senior administrative officers and positions usually held by women, were not included in this summary.

About 75 percent of the 67 elementary and high school teachers earned less than \$2,100 per year. Instructors in vocational subjects often earn salaries of \$2,100 or more. About 25 percent of the teachers had completed 4 years of college, and almost 50 percent had 1 year or more of higher education.

The Public Works and Police Departments are next largest in numbers of employees. Fifty-four employees of the Public Works Department were included and 37 earned less than \$1,500 annually, primarily as road maintenance and construction workers. Their earnings were comparable to unskilled workers employed in various activities on an hourly basis. Of the 28 employees of the Police Department, more than half earned less than \$1,500 per year.

Employees of the Virgin Islands Corporation earn somewhat higher salaries than do employees in any of the above departments. The types of services performed vary over a comparatively wide range giving an opportunity for considerable specialization, which may in part account for this difference. About 30 percent of the Virgin Islands Corporation employees included in this summary earned less than \$2,100, about 30 percent earned from \$2,100 to \$3,000, and the remaining 40 percent earned \$3,000 or more. Some of the employees of this agency held college degrees but not as large a percentage as is true of school teachers.

A large number of workers are employed on an hourly basis on publicly financed housing and school building projects. Also, private construction and miscellaneous work with the Virgin Islands Corporation furnish employment on an hourly basis. Probably 75 percent of such workers are unskilled

Table 14.--Approximate distribution of workers in selected nonfarm occupations by range in annual earnings ^{1/}

Employment basis and agency	Range in Annual Earnings--Dollars								
	1 to 500	500 to 999	1,000 to 1,499	1,500 to 1,999	2,000 to 2,499	2,500 to 2,999	3,000 to over	All Emp.	
	No.	No.	No.	No.	No.	No.	No.	No.	
Employees on salary :									
Dept. of V.I. Govt. :									
School teachers ^{2/} :									
Total :	0	0	15	30	11	7	4	67	
Elementary school :	0	0	13	18	2	0	2	35	
High school :	0	0	2	12	9	7	2	32	
Welfare and health :	0	1	4	1	0	1	2	9	
Police :	0	0	16	6	6	1	0	29	
Public works :	0	1	36	10	5	0	2	54	
Finance and other :	0	0	0	0	0	2	4	6	
All Government employees :	0	2	71	47	22	11	12	165	
Virgin Islands Corp.: :									
Accounting ^{3/} :	0	0	0	8	5	4	5	22	
Ag. Dept. ^{4/} :	0	0	1	7	3	2	8	21	
Engineering ^{5/} :	0	0	0	1	5	4	10	20	
Subtotal :	0	0	1	16	13	10	23	63	
V.I. Agri. Prog. ^{6/} :	0	0	0	0	0	3	2	5	
V.I. Bank :	0	0	0	5	2	0	0	7	
Hourly wage earners: :									
Repub. Const. Corp. ^{7/} :	0	0	120	62	0	12 to 48	0	200/	

- ^{1/} This summary compiled from payrolls of various agencies and is intended to indicate the earnings of nonfarm workers with reasonably comparable background and education as that of most farm operators. The heads of agencies, of major departments, physicians, nurses, and stenographic employees were not included.
- ^{2/} Sixteen of these teachers have the equivalent of 4-year college courses, 5 have 2 or 3 years, 9 have 1 year, and all others have high school diplomas or special training courses.
- ^{3/} Two accountants have the equivalent of 4-year college courses.
- ^{4/} Includes field operators. One employee had 4-year college course.
- ^{5/} Includes employees in electric shop, machine shop, and rolling stock operations.
- ^{6/} Four of these are graduates of senior colleges.
- ^{7/} Numbers based on average workers shown on weekly payrolls during period Feb. 11 to March 11, 1953. Unskilled workers earned 50 to 55 cents per hour and semiskilled up to 70 cents per hour. If employed full-time (40 hour week) the annual earnings of these workers would be about \$1,000 and \$1,400, respectively. Skilled workers earned 90 cents to \$1 per hour, or the equivalent of about \$2,000 annually, and specialized workers (carpenters, foremen, bricklayers, plumbers, and electricians) earned \$1.50 to \$2 per hour or about \$3,000 annually. The Virgin Islands Corporation also employs a considerable number of workers (other than seasonal) on an hourly basis and the predominant wage rates are 50 to 55 cents per hour.

or semiskilled, and wages are 45 to 55 cents and 65 to 75 cents for these respective classifications. The annual earnings of these groups average considerably less than \$1,500 assuming average employment of 40 hours per week.

Skilled workers in construction and service occupations usually earn 90 cents to \$1 per hour and if employed an average of 40 hours per week would receive about \$2,000 annually. Workers in specialized skills such as bricklayers, carpenter foreman, plumbers, and electricians commonly earn \$1.50 to \$2 per hour. Assuming approximately full-time work, the annual earnings would range from \$3,000 to \$3,600. During normal times opportunities for specialized craftsmen are comparatively limited.

Because of the various ways in which the income from farming is derived some problems arise in comparing the earnings of farm and nonfarm groups. The farm family derives both cash and noncash benefits which reflects the combined earnings of the family labor force, as well as returns for the use of capital invested in the business. In contrast, the earnings in other occupations are in terms of a salary or wages for each individual.

It may be helpful to consider the total income of families in agriculture compared with the total income of families in other occupations on St. Croix. This comparison can be made with accuracy only if the earnings we have shown for individuals in other occupations represent total family incomes. No doubt this is not true in every case.

However, a comparison is made on this assumed basis in the first two sections of table 15. Of all farm families surveyed about 25 percent received total family incomes within the \$1,000 to \$1,499 range, and more than 50 percent received incomes of \$1,500 or more. Of the families who farmed 10 acres or more of sugarcane, 29 percent were in the \$2,000 to \$2,499 bracket, and 42 percent made incomes of \$2,500 or more. It is only this group whose incomes on the whole compared favorably with the incomes of families in other occupations. However, the families with 5 to 10 acres of sugarcane received incomes comparable with those earned by policemen and employees of the Public Works Department.

If it is held that the incomes shown for the nonfarm group should be considered as incomes of individuals rather than the total income of families, then some adjustments are necessary to make the income of farm families comparable. These adjustments, which include deductions for interest on farm capital and for the unpaid family labor (same as last item in table 13), were made and the resulting distribution of operators by income ranges is shown in the third section of table 15 under operator's total net earnings. The incomes used for this distribution still include earnings from off-farm employment and other nonfarm sources. On this basis almost a third of the operators surveyed earned less than \$500, another third earned between \$500 and \$999, and a little less than a third earned between \$1,000 and \$1,999. Again the incomes received by

Table 15.--Comparative distribution of selected nonfarm employed persons and of operators of family farms arranged according to different measures of income and by range in annual earnings

Dollars received annually	Selected nonfarm groups			
	School teachers	Police force	Public works	Virgin Islands Corporation
	Per cent	Per cent	Per cent	Per cent
0 - 499	0	0	0	0
500 - 999	0	0	2	0
1000 - 1499	22	55	67	2
1500 - 1999	45	21	18	25
2000 - 2499	16	21	9	21
2500 - 2999	11	3	0	16
3000 and over	6	0	4	36
Total	100	100	100	100
Farm operators by acres in sugarcane				
	0 - 4.9	5 to 9.9	10 and over	All farms
	Per cent	Per cent	Per cent	Per cent
Family net cash and noncash inc. ^{1/}				
0 - 499	0	5	0	2
500 - 999	64	5	0	18
1000 - 1499	27	33	7	24
1500 - 1999	0	24	21	18
2000 - 2499	0	19	29	17
2500 - 2999	0	9	7	6
3000 and over	9	5	36	15
Total	100	100	100	100
Operator's total net earnings ^{2/}				
0 - 499	55	14	0	31
500 - 999	27	24	7	33
1000 - 1499	9	19	36	17
1500 - 1999	0	24	14	13
2000 - 2499	0	14	7	4
2500 - 2999	9	0	14	0
3000 and over	0	5	22	2
Total	100	100	100	100
Operator's net farm earnings ^{3/}				
0 - 499	64	29	7	20
500 - 999	27	33	36	20
1000 - 1499	0	29	14	22
1500 - 1999	9	9	22	15
2000 - 2499	0	0	14	8
2500 - 2999	0	0	0	7
3000 and over	0	0	7	8
Total	100	100	100	100

^{1/} Includes farm receipts less cash expenses, farm privileges and other non-cash income and income from off-farm employment and other nonfarm sources.

^{2/} Includes cash and noncash income from all sources less cash expenses and an allowance for unpaid family labor and interest on total capital invested in the business.

^{3/} Only includes cash and noncash income from the farm (earnings from off farm employment and other non-farm sources excluded) less cash expenses and noncash costs attributable to earnings on capital invested in the business (at 5 per cent) and to unpaid family labor.

operators of farms with 10 acres or more of sugarcane compare reasonably well with the incomes from nonfarm employment. It should be noted that the average age of farm operators probably is much higher than that of the nonfarm group. Several of the farm operators had retired from non-farm occupations.

A further refinement in our comparison is made by subtracting the amount received from nonfarm sources which leaves the operators' net earning from farming only (table 15). On this basis about 60 percent of the farm operators earned less than \$1,500, and 75 percent earned less than \$2,000. The operators of the larger farms, 10 acres or more of sugarcane, received somewhat larger incomes than did the average for all operators. However, after making allowance for unpaid family labor used during the year, and a moderate return to capital invested in land, livestock, and equipment, the earnings from the farm alone averaged somewhat lower than the earnings of nonfarm employed individuals.

EXAMINATION OF MAJOR ENTERPRISES

The major uses of land on the farms included in this survey conform to the general pattern of agriculture on St. Croix as a whole. Sugarcane, beef cattle, and subsistence crops rank in this order. Since sugarcane and beef cattle comprise the major sources of cash income a summary of the usual production practices, the materials and labor used, and the estimated returns for these enterprises is presented.

Sugarcane

From the standpoint of adaptability of physical resources St. Croix is at a disadvantage with other domestic areas in the production of sugarcane. ^{5/} Largely because a ready market is available for sugar, this crop has continued as the leading enterprise. ^{6/} For this report examination of physical resources was limited to a comparison of soils and rainfall conditions on the farms surveyed with that found on nearby farms or producing areas.

The farms included in the survey are located in the central, western, and northwestern sections of the Island (fig. 1). The annual rainfall in these sections is about the same as the average for the sections of the Island where practically all of the cultivated crops are grown. Excessive evaporation is a limiting factor to crop production along the coast in the southwestern section (Whim area), where some of the farms are located.

^{5/} SHAW, EARL B. ST. CROIX: A MARGINAL SUGAR-PRODUCING ISLAND. Geog. Rev. 23: 414-422, illus. 1933.

^{6/} In St. Croix, as in other domestic areas, payments are made by the U. S. Government to sugarcane producers.

Examination of farm plan sheets and land classification data compiled by the USDA Soil Conservation Service suggests that the topography and soil conditions on the farms surveyed were somewhat less suited to cultivated crops than is most of the land used for crop production on the Island. Sixteen of the 46 operators were growing sugarcane on land that was in capability Class II (the best class of land found on the Island), 12 were using capability class III land for sugarcane, and 7 were using class IV land for this crop.^{7/} The topography was classed as moderately undulating to distinctly rolling (3- to 12-percent slope) for a greater part of the land used for sugarcane. However, 3 operators were growing cane on land with 12- to 20-percent slope and 3 were using land between the 20- and 40-percent slope. The degree of erosion was noted and in most instances was identified as slight to moderate.

In general, the growers were not using good farming practices in sugarcane production. Only 11 of the 46 operators used commercial fertilizer. Most of this was applied to plant cane. In order to avoid buying seed cane most of the operators plant new cane during the spring, obtaining seed from the tops of cane that is being sold. For this reason the first crop from plant cane is harvested about 10 to 11 months after seeding. Fall-seeded cane, which is the recommended but a more expensive practice, has a growing period of about 16 months and produces higher yields.

About 30 percent of the acreage of sugarcane harvested on the farms surveyed was from plant cane, 28 percent from first ratoon, 29 percent from second and third ratoon, and 13 percent from ratoons of 4 years or more.

In 1953 the farms surveyed produced an average yield of 21.2 tons of sugarcane per acre compared with the 5-year average yield of 19.4 tons per acre (table 16). The average yields on these farms were consistently higher than the average yields on all small farms during the 1949-53 period, but were lower than the average yield for the total acres of sugarcane on St. Croix for every year except 1949. The 1949-53 period included three very good years and two unfavorable seasons. The total rainfall was only about 35 inches during 1949 when the surveyed farms produced only 14 tons per acre, compared with about 50 inches during each of the favorable seasons, 1950, 1952, and 1953.

Simple cultural practices are used in the production of sugarcane. Machinery for land preparation is hired on an hourly basis from the Virgin Islands Corporation. Small growers cannot control the timeliness of these operations since the equipment is not always available when needed.

With the exception of hauling, all other production and harvesting operations are performed by hand and require considerable labor. Only

^{7/} The remaining 11 operators did not have working agreements with SCS.

Table 16.--Comparison of average yields for the total sugarcane acreage on St. Croix, the acreage on all small farms, and the acreage of the farms surveyed, by seasons

Year	Average per acre yield for:		
	Total acres on St. Croix	Total acres on small farms	Total acres on farms surveyed
	Tons	Tons	Tons
1949	11.7	11.0	14.0
1950	24.4	19.8	21.4
1951	18.9	12.9	16.3
1952	25.4	17.6	22.0
1953	27.2	16.1	21.2
1949-53	22.0	15.4	19.4

three of the farmers used horse-drawn equipment for the cultivation of cane. Less than half of the operators used herbicides for controlling weeds. Usually, one pre-emergence and one later application were made on plant cane. Only a few operators used herbicides on ratoon cane.

A summary of the usual operations performed, labor used, and the approximate direct costs per acre for producing sugarcane on small farms is presented in table 17. About half of the farmers gave information for this summary.

The pre-harvest operations on plant cane require about 240 man-hours of labor, exclusive of the land preparation operations. Cutting, preparing, and planting seed cane (usually obtained on the farm) requires about 80 hours per acre and about 160 hours are devoted to supplying, weeding, stumping, and clearing borders. On ratoon cane the first operations toward the next crop is "hauling" the trash (raking the leaves left from the last crop to alternate middles), and plowing or raking dirt around the cane stools (mold up). Later it is weeded once or twice.

In cane harvesting the grower is concerned only with the cutting operation which, with yields of about 21 tons, requires an average of about 60 hours per acre. The loading and hauling operation is contracted, and arrangements are usually made by the mill for "draughting" each individual growers crop. Some of the small farmers located in the more inaccessible areas "head" or cart their cane to the edge of the field or to the nearest road to facilitate the loading and hauling operation.

The estimated operating cost of growing and harvesting an acre of cane averaged about \$114. The labor, materials, and contract services for plant

Table 17.--Usual operations, labor required and estimated per acre direct costs of growing sugarcane on family farms 1/

Operation	Date	Labor: Total direct cost per acre <u>2/</u>		
		: per acre	: Including hired and family labor <u>3/</u>	: Only including hired labor <u>3/</u>
		: Hours	: Dollars	: Dollars
Plant cane:		:		
Land preparation <u>4/</u>	2/1-5/15	: -	12.50	12.50
Cut seed, haul, and plant <u>5/</u>	2/1-5/15	: 78	31.20	10.92
Pre-emergency spray	2/1-5/15	: 10	4.00	1.40
Supplying	6/15-9/15	: 20	8.00	2.80
Weed, stump and border	7/1-10/1	: 131	52.40	18.34
Fertilizer and herbicides		: -	5.00	5.00
Total pre-harvest		: 239	113.10	50.96
Ratoon cane:		:		
Haul trash and mold	4/15-6/15	: 45	18.00	5.40
Weeding	8/1-10/1	: 62	24.80	7.44
Total pre-harvest		: 107	42.80	12.84
Weighted average pre-harvest costs <u>6/</u>		: 147	63.89	24.28
Harvesting operation <u>7/</u>		:		
Cutting		: 62	27.56	19.29
Load and haul		: -	20.78	20.78
Miscellaneous		: 5	2.00	1.40
Total harvest		: 67	50.34	41.47
Total direct costs		:	114.23	65.75
Value of sugarcane <u>8/</u>		:	184.01	184.01
Income less total direct costs		:	66.98	-
Income less total cash costs		:	-	118.26

- 1/ Data for plant cane supplied by nine operators and data for ratoon cane by 18 operators.
- 2/ Prevailing minimum wage of 40 cents per hour used in computing labor costs. Hired workers on small farms commonly receive slightly higher wages, but the family labor includes women and children whose performance rates probably are somewhat less than the average for hired workers.
- 3/ Ratio of hired to family labor is 35 per cent in pre-harvest and 70 in harvest operations (except hauling) and is based on the relationship of hired to family labor on farms with 10 or more acres in sugarcane. Family labor comprised a larger share of the total labor on farms with less than 10 acres of cane.
- 4/ Obtained from Vicorp at custom rates.
- 5/ Usually cut from ratoon cane on same farm.
- 6/ Ratio of plant cane to total acreage grown on all farms surveyed (30 percent) used in computing average pre-harvest costs.
- 7/ Based on 1953 average yield of 21.2 tons per total acre included in survey. Cost of cutting figured at \$1.30 per ton (2.75 tons cut per 8 hour day) and hauling (including loading) at \$0.98 per ton.
- 8/ Value of cane figured at \$6.92 per ton (10% sucrose yield), molasses at 16 cents per ton of cane and PMA payments at 80 cents per cwt. of sugar.

cane during the pre-harvest period averaged \$113 per acre and \$43 per acre for ratoon cane. The weighted average pre-harvest costs, based on the acres of plant and ratoon cane grown on the farms surveyed, was \$64 per acre. Harvesting costs averaged about \$50 per acre.

On the farms with 10 acres or more in cane about 35 percent of the pre-harvest work and 70 percent of the labor for cutting was done by hired workers. When labor costs are adjusted to include only the expenditures for hired workers the total cash operating costs are reduced to an average of \$66 per acre, of which about \$25 apply to pre-harvest operations and \$41 to cutting and hauling.

The gross value of sugarcane including PMA payments and the income from molasses averaged \$184 per acre in 1953. This leaves a net return above total direct costs of about \$67 per acre, and a net return above all direct cash expenditures (excluding family labor) of \$118 per acre.

It should be noted that the above estimates of costs and returns for sugarcane are based on average yields for one season only. Weather conditions on St. Croix often cause yields to vary widely from year to year. Also the farming practices of small growers were comparatively poor. Careful supervision of farming operations combined with assistance in obtaining materials and services when needed should tend to stabilize production and incomes from sugarcane somewhat above these estimated returns.

Beef Cattle

About 60 percent of the farmers included in the survey (most of whom operated the larger units) were raising beef cattle. The extensive nature of this enterprise, even on the family-type farms on the Island, is indicated by the fact that about 3 acres of open pastureland and 2 acres of uncleared land were available for each mature animal reported. Cattle are usually carried the year round on pastures, with supplemental feeding practiced only during drought periods.

Information on practices and production rates was obtained from 15 beef cattle growers. The average herd was composed of about 12 cows, 4 heifers, 2 yearlings, and 8 to 10 calves (table 18). The farmers estimated that 80 percent of their cows produced a calf each year and that average death losses were about 5 percent among calves and 2 percent for mature animals. The animals are usually marketed at about 10 months of age, but it is not uncommon to market them at 15 to 18 months. The average weight of calves and yearlings sold was estimated at 600 pounds, and cows at an average of 800 pounds. The owners of small herds usually sell to local butchers or to brokers who export cattle to Puerto Rico. An average price of 14 cents per pound was reported by farmers. 8/

8/ The Office of Price Stabilization maintained a ceiling of 14 cents per pound of live beef until about April 1, 1953.

Table 18.--Average number of animals and estimated income and costs from
small herds of beef cattle 1/

Composition of herd:			
Cows	Numbers		12
Heifers, 1 to 2 years	"		4
Bull	"		1
Steers, 1 year and over	"		2
Calves (about 80 percent calf crop)	"		9
Total			28
Mortality rate:			
Calves	Percent		5
Cows	"		2
Average weight of animals sold:			
Calves and yearlings	Pounds		600
Cows	"		800
Annual sales: <u>2/</u>			
Calves and yearlings (7 calves at 600 pounds)	"		4,200
Cows (1.2 cows at 800 pounds)	"		960
Total	"		5,160
Gross receipts (total sales at 14 cents per pound)	Dollars		722
Direct cash costs:			
Fencing materials	"		20
Veterinary and medicines	"		6
Miscellaneous	"		2
Total	"		28
Income above direct cash costs	"		694
Noncash costs:			
Labor (55 hours per mature animal at 30 cents per hour) <u>3/</u>	"		314
Income above cash and noncash costs			380

1/ Compiled from enterprise practice data obtained for 15 of the operators included in the survey.

2/ Two calves allowed for death losses and for replacement. Cow sales based on 12 percent replacement rate (each cow kept 8 years after reaching breeding age).

3/ Much of the labor devoted to beef cattle is performed by school children who could not earn the minimum wage of 40 cents per hour at other employment.

The direct costs on beef cattle usually are limited to the purchase of fencing materials, dipping supplies, veterinary fees, and similar miscellaneous items. The total costs for these items averaged only \$28 for the 15 herds studied. None of the farmers bought feed for their animals, although the drought of February through May 1953 was rather severe. One operator rented additional pastureland at an annual cost of \$2.50 per mature animal. Some small farmers feed cattle on tops and fodder from the harvested canefields. The labor required for beef cattle on small farms is devoted largely to this job together with hauling water, which often is necessary.

None of the farmers made expenditures in 1953 for improved pastures or for wells or reservoirs for water supplies. A special program to assist farmers in clearing land and in constructing reservoirs is currently operating under joint leadership of the Soil Conservation Service and the Virgin Islands Corporation. However, only a few farmers, perhaps 6 of the 46 included in this survey, have benefited from this program.

The estimated income from these herds is shown in table 18. Assuming the sale of calves in excess of those required to maintain the breeding herd and of cull cows, about 5,200 pounds of beef could be sold each year from the average small farm herd. This would, at 1953 prices, gross the operator about \$725, of which \$25 to \$30 would be required for cash expenses. Thus the net cash income from cattle would be about \$700, before any allowance is made for labor or other noncash costs. The estimated value of family labor would run slightly over \$300 leaving about \$350 as combined returns to capital invested in the herd and to the operator's management.

SOME ALTERNATIVE FARM PLANS

Several operating plans for small farms were studied to find out the probable income families would receive when they farm varying acreages of sugarcane. Also, changes in income caused by variations in yields and in prices received for sugarcane were noted. Summaries of these plans are shown in this section and indicate about the size and relationship of the major enterprises needed to provide a given income for a family. Also, the capital investment and operating funds needed for each plan are shown.

The estimates of production and income shown in this section are based on the approximate soil productivity and rainfall conditions applicable to the land transferred to the Farmers Home Administration for disposition to individual families, and on the farming practices which it is assumed these families will carry out. Although these farms will not be entirely uniform in productivity of the soils, or in the percentage of total area that is suitable to cultivated crops, they should compare favorably on these points, with the total land operated by the Virgin Islands Corporation. Likewise, the farming practices should be reasonably effective, since only the more promising applicants, as indicated by statements of

experience and progress, will participate and will benefit from the advice of the local Farmers Home Administration supervisor. These conditions suggest that in the case of sugarcane the average yields that have been maintained during recent years on the sugarcane acreage farmed by the Virgin Islands Corporation be used as a guide for estimating the production of sugarcane and the estimated returns to these families.

Detailed income and expense summaries were prepared for farms of 50 acres in total size and with varying amounts of the land used for sugarcane and beef cattle. The size of the sugarcane enterprise and the amount of direct operating expenses are influenced by the size of the family labor force. The hiring of additional workers for the pre-harvest operations usually does not present a problem, but during the harvest season a shortage of canefield workers is common. In this section operating plans with 8, 15, and 25 acres of sugarcane are included and represent situations in which it is estimated that about 100, 50, and 33 percent, respectively, of the work for growing cane (pre-harvest) is performed by the operator and his family. Depending upon yields per acre, a somewhat smaller proportion of the harvest work could be performed by the operator and his family.

Incomes with Average Yields and 1953 Prices

For a 50-acre, family-operated unit, with 8 acres devoted to sugarcane and most of the remaining acres used for beef cattle, estimated total receipts were \$2,650 (table 19). Total receipts were estimated at \$4,100 for 15 acres of sugarcane and \$6,100 for 25 acres. With these larger acres of sugarcane, the number of beef cows is reduced to 12 and 8 head, respectively.

Total cash expenses, used largely in connection with the sugarcane enterprise, vary from \$600 for the unit with 8 acres of cane to \$3,200 when 25 acres are included. ^{9/} For each of the farm plans about half of the total operating expenses was used for the purchase of materials and labor during the planting and growing seasons. Assuming that harvesting costs could be met with funds received for cane as it is delivered to the mill, the annual production funds or seasonal credit needed would run about \$250 for operators with 8 acres of cane, \$800 for 15 acres, and \$1,800 for 25 acres of cane. These estimates pertain only to the crop expenditures and do not include funds needed to meet family living costs.

Estimated cash receipts less operating expenses were about \$2,000 for the 50-acre units with 8 acres of sugarcane and 14 head of beef cows. With 15 and 25 acres of sugarcane and proportionally smaller numbers of beef cattle, the receipts above operating expenses were \$2,500 and \$2,900, respectively.

^{9/} Cash expenses on sugarcane are shown in more detail in Appendix, table 1.

Table 19.--Estimated cash income and expenses for 50-acre farm with varying acres of sugarcane and numbers of beef cattle

Acres in sugarcane <u>1/</u> Number of brood cows	8 14	15 12	25 8
	Dollars	Dollars	Dollars
Farm receipts:			
Sugarcane <u>2/</u>	1,805	3,385	5,642
Beef cattle	845	722	484
Total	2,650	4,107	6,126
Cash farm expenses:			
Sugarcane <u>3/</u>			
Pre-harvest:			
Equipment hire	47	88	146
Materials	187	249	583
Hired labor	0	424	1,036
Sub-total	234	761	1,765
Harvesting:			
Cutting	42	279	617
Load, haul, misc.	225	421	702
Sub-total	267	700	1,319
Beef cattle	33	28	19
Other expenses:			
Interest on production funds <u>3/</u>	6	19	44
Taxes	40	40	40
Building and fence repairs	30	30	30
Total cash expenses	610	1,578	3,217
Income less cash expenses:	2,040	2,529	2,909
Annual payments on real estate and cattle loans <u>4/</u> :			
Land and Buildings	408	408	408
Cattle	235	187	134
Total fixed payments	643	595	542
Income available for family living costs	1,397	1,934	2,367

1/ Acres in plant and ratoon cane shown in appendix table 1.

2/ Income from sugarcane based on estimated yield of 26 tons per acre at estimated price of \$8.68 per ton, which includes the price of cane and PMA and molasses payments.

3/ Harvesting costs also based on yield of 26 tons per acre. Details shown in appendix table 1.

4/ Interest at 5% on total pre-harvesting costs, and assumes loans repaid within six month period.

5/ For estimated value of land, building, investment in herd, and computation of annual payments, see appendix table 2.

Assuming that in the disposition of land to individual families the Farmers Home Administration advances loans for the total estimated value of the land and improvements which are amortized over a period of 40 years, the annual payments on a 50-acre farm would run about \$400 (appendix, table 2). Similarly, if funds are advanced for the purchase of brood cows the annual payments, based on a 7-year amortization period, would run from \$135 to \$235 for the three operating plans considered in this section, depending upon the number of cows included. After paying fixed annual payments on land and beef cattle in addition to cash operating costs, the income available for family living is estimated at about \$1,400 for 50-acre units with 8 acres of sugarcane and 14 beef cows; \$1,900 for similar units with 15 acres of sugarcane and 12 beef cows; and \$2,400 for units with 25 acres of sugarcane and only 8 beef cows.

Incomes With Variable Yields and Prices

The above estimated incomes are based on sugarcane yields of 26 tons per acre and on the 1953 prices received for cane, including PMA payments. During years of normal rainfall (about 47 inches), it is believed that yields of 26 tons per acre can be maintained without difficulty. However, normal rainfall on St. Croix is near the critical limits for sugarcane and short period fluctuations often have a marked influence on yields. In 19 years during the period 1892-1938 (25 percent of the time), sugarcane yields were seriously reduced because of inadequate rainfall. ^{10/} In two instances, droughts at the critical period occurred during two to four consecutive years.

The effects of variations in yields and of prices received for cane upon estimated incomes from the various farm organizations considered in this section are shown in table 20. The estimated incomes shown in this table are in excess of direct operating expenses and of fixed payments on capital invested in land and beef cattle. All cost items not dependent on yields and the income from beef cattle were held constant, so that the variations in incomes result entirely from changes in yields and in price received for sugarcane.

Obviously, the magnitude of change in incomes attributable to yield or price variations is directly related to the size of the sugarcane enterprise. For example with only 8 acres in sugarcane which yields 26 tons per acre a change of \$1.50 per ton in price received would change estimated incomes for the farm about \$390. For an operator with 25 acres of comparable yielding cane a change of \$1.50 per ton would change the estimated income available for family living about \$975. Likewise, with cane selling at \$7 per ton a change in yield of 6 tons per acre would

^{10/} STONE, ROBERT G. METEOROLOGY OF THE VIRGIN ISLANDS. N. Y., N. Y. Acad. Sci. 1942, 138 pp. (Scientific Survey of Puerto Rico and the Virgin Islands, v. 19, pt. I).

change the estimated income above direct costs and fixed payments about \$300 on farms with 8 acres of sugarcane and about \$1,000 on farms with 25 acres of cane.

Table 20.--Estimated cash income available for family living for 50-acre farm with selected enterprise arrangements and variable yields and prices of sugarcane

Size of major enterprises	:Sugarcane : :yield per : : acre :	:Income with sugarcane at (per ton) <u>1/</u>		
		\$7.00	\$5.50	\$4.00
	Tons	Dollars	Dollars	Dollars
8 acres in sugarcane and 14 beef cows	32	1,746	1,362	978
	26	1,414	1,102	790
	20	1,103	863	623
15 acres in sugarcane and 12 beef cows	32	2,588	1,868	1,148
	26	1,965	1,380	795
	20	1,426	976	526
25 acres in sugarcane and 8 beef cows	32	3,456	2,256	1,056
	26	2,419	1,444	469
	20	1,512	762	12

1/ Estimated income derived in same manner as in table 18 and indicates excess of gross receipts over total cash operating expenses plus annual fixed payments on real estate and on assumed loans for beef cattle.

GENERAL INTEREST IN FARM OWNERSHIP AND QUALIFICATIONS OF APPLICANTS

Farm ownership is held with esteem among rural families on St. Croix. Through the years, the economic and social benefits enjoyed by estate owners have contributed to this attitude. Furthermore, because of better means of travel, the extension of power lines, and the opportunities for using family labor in producing foods that currently are expensive to nonfarm groups, rural living has become more desirable. Higher annual earnings have placed more families in a position to make downpayments on land and to repay outstanding loans.

Immediately upon the announcement of the current program to transfer federally owned land to individuals, both farm and nonfarm families located throughout the Island began making inquiries concerning the necessary qualifications of the applicants, and other aspects of the program. By October 1 (following announcement in June) about 100 families had filed formal applications with the local Farmers Home Administration supervisor. In taking the applications, the supervisor exercised discretion and accepted applications from only those who appeared to be reasonably well qualified.

Table 21.--Selected data summarized from applications of families interested in buying farms

Operators by age groups:			
Under 30	Number		4
30-39	"		12
40-49	"		15
50-59	"		7
60 and over	"		2
Total	"		40
Present occupation:			
Farming, full time	Number		10
Farming, part time	"		17
Other occupations	"		13
Total	"		40
Tenure of operators:			
Owners	"		5
Renters	"		31
Not living on farm	"		4
Total	"		40
Average value of property owned:			
Owners <u>1/</u>	Dollars		6,630
Renters <u>2/</u>	"		1,024
Nonfarm families <u>3/</u>	"		1,076
Estimated 1953 income per family: <u>4/</u>			
Gross farm sales	"		909
Nonfarm income	"		1,165
Total	"		2,074
Estimated expenses per family:			
Cash expenditures for family living	"		1,234
Cash farm operating expense	"		225
Total	"		1,459
Estimated income above total annual expenses	"		615

- 1/ One owner owed \$1,050 on land and livestock and one owed \$4,000 (an FHA home loan). The other 3 were debt-free.
- 2/ Nine of the 31 renters had livestock mortgages and miscellaneous debts outstanding, which averaged \$485 per operator.
- 3/ Only one of these families had bills outstanding, which amounted to \$92.
- 4/ Includes both farm and nonfarm families.

Some of the characteristics of the families who are interested in acquiring farms are shown in table 21. These data were summarized from applications of 40 families, who upon examination of the information provided, appeared to be the most promising of the 100 or so applicants.

The heads of the families varied in age from 26 to 72 and averaged 42 years. Five of the applicants owned some land which was either too small an acreage for an economic unit or poorly suited for farming; 31 were renters; and 4 were not living on farms.

The estimated value of property owned averaged about \$6,600 for the farm owners and slightly over \$1,000 for the renters and nonfarm families.

The reported gross income averaged about \$2,100 per family, of which \$900 was from the sale of farm products, and \$1,200 was from off-farm employment or other nonfarm sources. A few of the applicants with nonfarm income received a total of \$5,000, whereas some who had no off-farm income received only \$400 to \$500. Half of the applicants earned gross incomes ranging from \$1,000 to \$2,000. About 60 percent of the gross farm receipts was from the sale of crops.

Estimated living expenses averaged about \$1,200 per family and cash farm operating expenses averaged \$225. The estimated total income exceeded the farm operating and living expenses by an average of about \$700 per family.

In conclusion, it may be said that (1) rural families are very much interested in farm ownership; (2) family heads who made application (that is the group examined here) were younger than the average age of all farm operators; and (3) the experience of applicants studied and their accumulated assets should contribute to success in a farm purchase program.

APPENDIX

Adequate Incomes for Farm Families

Though important in deciding how much land each family should have, the question of how much income is needed to properly support a farm family on St. Croix was not included as a central objective in this study. The numerous problems which prevent a specific answer to this question are immediately obvious. Any given number of dollars will purchase more during a period of low prices than during a period of high prices. More important, however, is the fact that a good share of family living costs are for educational, social, recreational, and religious purposes which not only vary because of the age distribution of family members but also are highly subjective in nature and vary because of individual preferences.

However, information on food habits and on expenditures for selected items was obtained from 41 of the families included in this survey, and may serve as a basis for estimating the minimum income which under 1953 conditions would provide an adequate living for a family. After checking the variety of farm-grown animal products, truck crops, vegetables, and fruits used in the home and allowing for purchased foods, an appraisal of the diets of each family showed that about 35 percent were receiving only poor to very poor diets; 40 percent were receiving fair diets; and only 25 percent of the families enjoyed good diets. 1/ Reported annual expenditures for foods purchased averaged \$157 per person, clothing costs averaged \$60, and expenditures for drugs and medical and dental services averaged \$9 per person. For a family of 5 these direct costs would average \$1,130 per year. After allowing some additional expenditures for improving the diet, and a reasonable amount for educational, recreational, and religious activities, the total regarded as adequate for a family of 5 persons would run from \$1,400 to \$1,600. This is to be net income for family living and does not include any farm operating costs or fixed annual payments on borrowed capital.

1/ This appraisal by the local Home Extension Agent is based on information obtained at the time of the interview and does not represent an appraisal of meal patterns throughout the year.

Appendix Table 1.--Estimated cash expenses on varying acres of sugarcane

Sugarcane:	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
Plant cane	2.5	4.5	7.5
Ratoon	5.5	10.5	17.5
Total	8.0	15.0	25.0
Seasonal operating expenses:	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
Pre-harvest			
Plant cane			
Machine hire (plowing)	31	56	94
Herbicides	5	9	15
Fertilizer	55	99	165
Hired labor ^{1/}			
Cut seed cane, haul, and plant	0	63	156
Spray weeds	0	8	8
Apply fertilizer	0	3	6
Supplying	0	16	40
Weed, stump, and border	0	104	262
Subtotal	91	358	746
Ratoon cane			
Machine hire (subsoil)	16	32	52
Herbicides	6	10	18
Fertilizer	121	131	385
Hired labor ^{1/}			
Haul trash and mold	0	90	216
Weeding	0	124	297
Spray weeds	0	10	24
Apply fertilizer	0	6	15
Subtotal	143	403	1,007
Harvesting:			
Cutting	42	279	617
Load and haul	204	382	637
Miscellaneous	21	39	65
Subtotal	267	700	1,319
Total	501	1,461	3,072

^{1/} In computing hired labor costs it is assumed that the operator and his family perform all pre-harvest operations on 2.5 acres of plant cane and 5.5 acres of ratoon cane, and harvest about 175 tons during the harvest season. All additional labor required for the varying size enterprises is assumed to be hired. Per hour wage rate of 40 cents, and cutting charge of \$1.30 per ton used for hired labor.

Appendix Table 2.--Estimated value of land and buildings for a 50-acre farm, investment in brood cows, and annual payments required under usual Farmers Home Administration loans

	<u>Dollars</u>
Value of land <u>1/</u>	3,750
Investment in farm improvements <u>2/</u>	4,000
Total real estate	7,750
Investment per brood cow	100
Estimated annual payments on	
Land <u>3/</u>	188
Farm improvements <u>4/</u>	220
Total real estate	408
Beef cattle with <u>5/</u>	
8 brood cows	134
12 brood cows	187
14 brood cows	235

1/ Computed at \$75 per acre.

2/ Assumes home and other improvements established with farm improvement loan from FHA

3/ Based on amortization period of 40 years and interest at 4 percent (payment of \$50 per \$1,000 total loan)

4/ Based on amortization period of 33 years and interest at 4 percent (payment of \$55 per \$1,000 total loan)

5/ Based on amortization period of 7 years with interest at 5 percent

