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**SMALLHOLDER FARMS IN BELIZE: A SURVEY  
PART II**

**FINAL REPORT**

**AGENCY FOR INTERNATIONAL DEVELOPMENT  
UNITED STATES A.I.D. MISSION TO BELIZE  
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## EXECUTIVE SUMMARY

### A. Introduction

Belize is a small agriculture country with an open economy. The country is endowed with extensive natural resources, such as arable land, water, and timber, although it lacks mineral resources and has an undersupply of skilled human resources. The output of the Belizean economy in 1987, as measured by the gross domestic product (GDP), was BZ\$433 million. The agricultural sector is the most important sector of the national economy with agriculture products representing the largest sectoral component of the country's export trade. In 1987 the agriculture sector accounted for 22.2 percent of the GDP. Belizean agriculture and related farm activities provides employment for 30 percent of the national labor force. The per capita GDP for Belize was BZ\$2,468 in 1987.

According to the 1988 Belize Abstract of Statistics, Belize has a population of 175,153 residents. The rural population account for approximately half of the total population. The country has a population density ratio of 19.9 persons per square mile.

Agriculture, as one of Belize's most important resources, offers tremendous promise in the country's efforts to achieve self sufficiency in food needs and to increase foreign exchange earnings. Smallholder farming, however, oftentimes is met with some disdain as the importance of this sector in employment stabilization, food production for home consumption, and farm income is not always fully appreciated. The importance of the smallholder farms is also indicated by the size of the sector. Some 72.8 percent of all farm holdings (11,011 holdings) in Belize are between one-eighth of an acre and in excess of one-hundred acres of land.

In spite of size of the small farm sector and the potential promise that smallholder farming offers in the development of Belizean economy, there is a continuing need to develop and target new policy approaches to encourage and strengthen this sector. This is also necessary in order to spread the benefits of providing credit and technical assistance to the broadest segments of the small farming community. The United States A.I.D. Mission to Belize (U.S.A.I.D./Belize) recognizes such a need and, through the commissioning of this survey, seeks not only to better understand the requirements of the agricultural sector, but also to develop effective and efficient policy initiatives for meeting the specific needs of smallholder estate owners. In order to accomplish these tasks, the following objectives were set forth by U.S.A.I.D./Belize in the Scope of Work as the basis for guiding the survey research.

## B. Objectives of the Survey

The objectives of this survey of smallholder farms are set forth in four specific areas of research. The objectives are to:

1. Compile a comprehensive profile of smallholder farms.
2. Describe and analyze the inputs needed for the development of these sectors.
3. Estimate the extent to which credit and technical assistance needs are being met and by whom.
4. Recommend A.I.D.'s role in meeting the needs of this sector.

This survey was part of a country-wide effort undertaken on behalf of U.S.A.I.D./Belize. The survey was conducted for the purpose of developing a comprehensive profile of the type and level of assistance needed in the areas of farm credit and technical assistance in order to strengthen the smallholder farm sector. The information obtained from the survey research and the resulting scope for policy intervention is intended to assist U.S.A.I.D./Belize in the preparation of its Country Development Strategy Statement of Belize for 1990. This survey was conducted along with a companion national survey of micro-enterprises and small-scale enterprises. The companion survey is reported on as Part I of this research under the title, "Small-Scale Enterprises in Belize: A Survey, Part I".

The survey field work was conducted in Belize from November 6th through November 14, 1988 with the assistance of the National Development Foundation of Belize (NDF/B), the Ministry of Agriculture, and the Toledo Agricultural and Marketing Project. The field work consisted of conducting sample surveys of smallholder farms in each of the six administrative districts in Belize. The districts surveyed included Belize, Cayo, Corozal, Orange Walk, Stann Creek and Toledo. Interviews were conducted with 160 owners of small farms involving all types of farming activities.

The term smallholder farm is used interchangeably with the terms "small farms" and "smallholder estates" throughout this report for ease of reference. No distinction between the terms is either intended or implied by this usage. The definition of a smallholder farm was based on information provided in the 1984 Agricultural Census of the Ministry of Agriculture. Following consultations with the staff of U.S.A.I.D./Belize, it was agreed that in the absence of a formal definition of a smallholder farm by the Ministry of Agriculture, it is acceptable to use the range in 1984 Agricultural Census. Landless farms and those farms in excess of fifty acres were also excluded from the survey sample. For purposes of this research, smallholder farms

are defined as all farm holdings with acreage between one-eighth of an acre and fifty acres of land. This definition is also consistent with many empirical studies indicating that most small farms in low-income countries are between five to ten acres of land, but can be as small as less than half an acre, (Stevens and Jabara, 1989)

### C. Main Findings of the Survey

The main findings of the survey are presented in the following sections. The research results reported below are based on field interviews conducted in Belize with 160 smallholder estate owners.

#### 1. Background Characteristics

Smallholder farming, like any other sector or subsector of the Belizean economy, has peculiarities that are only unique to smallholder farms. This section provides a summary of the farm credit needs and technical assistance requirements of smallholder farms in Belize.

Mixed farming, consisting of farms producing crops both for home consumption and for sale, represented the largest share of the farms surveyed. Mixed farms were 66.7 percent of all small farms surveyed. Mixed farms were followed by sugar cane farming which was 10.6 percent of all small farms surveyed. Citrus growing and poultry raising accounted for a 7.1 percent and a 3.6 percent share of the small farms, respectively.

Small farmers tended to have the most farm experience in the districts of Belize, Corozal and Toledo. Small farmers in these districts had respectively 20, 18, and 21 median years of farming experience.

The average size of a small farm was 19.0 acres of land. Smallholder farms in the districts of Corozal and Orange Walk tended to be larger on the average than in other districts. The districts of Corozal averaged 23.7 acres of land and Orange Walk averaged 22.0 acres of land. Small farms in the district of Cayo was third in size with average farm sizes at 20.2 acres of land. Farms in the district of Toledo and Stann Creek had lower than average farm sizes at 15.1 and 13.6 acres of land respectively. Small farms with irrigated land averaged approximately three acres of irrigated land per farm.

Some 52.1 percent of the farms surveyed had received a farm loan from a commercial lending institution. Institutional lenders such as commercial banks, the National Development Foundation, the Development Finance Corporation, and credit unions, etc. provide about 100 percent of the farm credit to smallholder farms. The Development Finance Corporation and the National Development Foundation provided respectively 40.9 percent and 7.6 percent of the farm credit to the small farmers surveyed. The median loan that small farmers received

was BZ\$2,400. The districts of Corozal, Stann Creek, and Toledo received higher median loans. The median loans received in these districts were respectively BZ\$5,000, BZ\$3,500 and BZ\$3,250. Belize district received the lowest median loan amount at BZ\$500. Short-term or crop loans to small farmers represented the largest share of all credit assistance to small farmers with a 54.7 percent share.

Approximately 35.0 percent of the small farmers surveyed indicated that they had received technical assistance for their farms in the past. Of those farms receiving technical assistance, the Ministry of Agriculture provided 46.6 percent of the assistance. Farm management represented the largest share of all types of technical assistance received by small farmers at 13.6 percent. This was followed by pest control and planting methods at a 9.1 percent share each.

## 2. Farm Credit Demand

The need for farm credit assistance is one of the main areas smallholder estate owners identified as important to improving their farm operations. Such assistance can aid the ability of small farmers to improve farm efficiency, increase production and move away from a subsistence form of agriculture. Although there has been a sizable increase in the supply of farm credit assistance in recent years, the supply continues to lag behind demand. According to the Ministry of Agriculture, commercial banks and the Development Finance Corporation (D.F.C.) had in excess of BZ\$33,500,000 in total loans outstanding in 1985. While the percentage share of commercial bank lending has shown a downward trend in recent years, commercial bank lending continues to be an important source of farm credit in Belize. The National Development Foundation of Belize (NDF/B) through 1987 alone has provided BZ\$142,000 to small farmers. Additionally, a variety of international sources (e.g., U.S.A.I.D./Belize, Foundation for International Training, and I.A.F. etc.) continue to provide farm credit assistance to small farmers.

The results of the survey reveal that 74.3 percent of all small farms will seek a farm loan in 1989. The median size farm loan that will be sought is estimated at approximately BZ\$3,000. The average size farm loan needed is estimated to be BZ\$5,885. This is almost twice the median demand for a farm loan. The average loan demand is approximately three and two-thirds times the average size loan disbursed by NDF/B (BZ\$1,608) in 1987.

The total demand for farm credit assistance by smallholder farms in Belize is estimated at about BZ\$17,865,000. The aggregate credit demand estimate is based on the total number of small farm holdings (8,015 x 74.3%) desiring a loan times the median loan demand of BZ\$3,000 per smallholder farm. Based on the expressed source of seeking a farm loans, it can be expected that small farmers will seek about 21.5% of their loan needs from NDF/B. To meet the demand for farm credit

assistance NDF/B will have to increase its farm credit loan portfolio to BZ\$3,841,000.

Smallholder estate owners reported a number of ways in which they intend to use their loan funds, if granted a farm loan. Some 18.9 percent of the smallholder farms specifically indicated that they would use their loan funds for land clearing and crop planting. Land clearing and crop planting were followed by the purchase of livestock and poultry with about 15.9 percent of the farmers indicating this as the intended use of their farm loan.

The extent to which the assets of the small farmers could be used to collateralize their farm loans was also investigated. Some 22.7 percent of the small farmers indicated that they had used their land in the past to secure their farm loans. In addition to land, small farmers also used their crops and their property to collateralize their farm loans with a 9.1% share of the farms reporting such. The average net worth of small farmers was estimated at BZ\$21,171. Without commenting on the quality of the assets and given the average loan demand of BZ\$5.885, it appears that the average net worth of small farmers is more than sufficient to cover the average farm loan.

#### Technical Assistance Requirements

Small farmers have also indicated a need for technical assistance, involving such agricultural extension services as farm management, crop production, planting methods, etc. Small farmers also indicated a need for assistance in the use of factor inputs to improve the efficiency of their farm operations and increase their production. Some 66.9 percent of the small farmers reported that they intend to seek technical assistance for their farms in the coming year. Small farmers in the districts of Stann Creek, Toledo and Cayo intend to seek technical assistance at rates exceeding the country-wide average of 66.9 percent. The need for technical assistance represented 80.9 percent, 85.7 percent, and 68.2 percent of all small farmers in these districts respectively.

The results obtained from the survey indicate that small farmers will require technical assistance in two areas in the coming year. These include technical assistance involving agricultural extension services in such areas as farm management, crop production and training in the use of factor inputs (e.g., fertilizers, herbicides, insecticides, and farm machinery and equipment, etc.). Farm extension services also refer to such areas as farm management techniques, farm budgeting, crop planting methods and soil sampling. Training in the use of factor inputs relate to those inputs that can improve the production capacity of the farm. They include assistance for training in the use of fertilizers to improve yields, herbicides and insecticides for disease and pest control, the use of improve seed and plant varieties.

The type of agricultural extension services cited most often by small farmers as most important to help in expanding their production was assistance in farm management at 11.5% of all respondents. Some 24.1% of the small farmers indicated that assistance with crop production and planting methods involving the use of fertilizers were the second most important area of technical support.

The need for assistance in use of factor inputs was expressed by many of the farmers surveyed. The factor inputs cited most often as requiring assistance in their usage were farm equipment and machinery. Five percent of all small farms reporting indicated that assistance in the use of farm equipment and machinery were needed to expand their production.

#### D. Recommendations and Scope for Policy Intervention

The agricultural policies of The Government of Belize has set forth its agricultural policies in the publication entitled Food and Agriculture Policy. These wide-ranging policies offer a sound basis upon which U.S.A.I.D./Belize can provide assistance the agricultural sector. Belize's broad agricultural policies are market driven and as such are compatible with the Government of the United States policies regarding the market approach to development. It is within this broad policy context that the recommendations below are presented.

The results of this survey have led to a number of recommendations and policy actions that might aid in ameliorating some of the factors inhibiting the output of smallholder farms in Belize. The recommendations are set forth below with the expressed purpose of assisting U.S.A.I.D./Belize in shaping its role and strengthening its support in the area of smallholder agriculture development. The recommendations are presented in three main policy areas. The policy areas include farm credit support, technical assistance and farm extension services, and institutional linkages. Because of all the attendant factors constraining the development of the export markets for agricultural products, U.S.A.I.D./Belize policy intervention measures should focus on those areas that are likely to have the most impact. The broad policy context in which U.S.A.I.D./Belize should seek to intervene should be based on a policy aimed at increasing domestic food production in Belize. It is recommended that the United States A.I.D. Mission to Belize undertake the following:

##### 1. Farm Credit Support

A. Increase its grant support to non-governmental financial intermediaries (e.g, NDF/B) that provide farm credit assistance. U.S.A.I.D./Belize should provide about BZ\$1,500,000 per year over the next five years to meet the small farmers credit demand. Such assistance should be targeted mainly for those smallholder farmers that produce crops and raise

livestock for domestic consumption, particularly rice farmers, and pig, poultry and cattle, etc.

B. Encourage the various associations of farmers (e.g, citrus growers, rice farmers, sugar cane farmers, etc.) to form credit unions to provide for some of their own credit needs and support for other smallholder farms such as crop loans and other short-term farm credit needs. Provide the technical assistance as needed in order to assist the farmers' associations to better meet their own credit needs.

## 2. Technical Assistance and Farm Extension Services

A. Provide additional financial support to the Ministry of Agriculture and Central Farm to enable it to increase its farm extension programs to small farmers. Farm extension services are needed in the areas of farm management, crop planting methods and farm technology (fertilizer and herbicide usage, etc.). The delivery of such extension services is likely to require additional personnel including foreign agricultural experts and support to the Ministry of Agriculture should take this factor into consideration.

B. Undertake a national agriculture market study in conjunction with the Ministry of Agriculture of the extent to which production of certain food crops (e.g, rice, beans, ground foods, fruits and vegetables. etc) can satisfy domestic food consumption. The study should focus specifically on the factors inhibiting domestic production, how to improve domestic output and evaluate how markets can be better structured so as to facilitate the supplier-buyer relationship. The study should also determine if the Toledo Agricultural and Marketing Project is an appropriate model for use in other districts.

## 3. Institutional Linkages

A. Promote the cooperation and coordination of non-governmental farm credit and technical assistance organizations, the D.F.C. and the Ministry of Agriculture in the delivery of farm credit assistance and farm extension services to small farmers. An inter-cooperation council should be established to serve as a clearinghouse to exchange information through regular meetings, joint publications and joint information dissemination.

B. Sponsor an annual agricultural conference of small farmers, as well as governmental and non-governmental agencies and organizations providing support to the small farm sector to enable wider participation, discussion, and coordination of farm credit policies.

## I. INTRODUCTION

### A. Background to the Survey

This survey was commissioned by United States A.I.D. Mission to Belize (U.S.A.I.D./Belize). The survey was part of a country-wide effort conducted for the purpose of gathering information on smallholder farms in the areas of credit, technical assistance, and marketing. This information is intended to provide a background profile and a scope for policy intervention in the agricultural sector to assist U.S.A.I.D./Belize in the preparation of its Country Development Strategy Statement of Belize for 1990 and beyond. Additionally, this survey was conducted along with a companion national survey on small-scale enterprises and micro-enterprises. The companion survey is reported on under the title, "Small-Scale Enterprises in Belize: A Survey", Part I.

The Scope of Work which is presented in its entirety in Appendix A was discussed during the survey team's presentation to U.S.A.I.D./Belize on the plan of work after arrival in Belize. Following these discussions, the definition of a smallholder farm was developed. Additionally, modifications were made to the survey questionnaire to include household information of the smallholder estate owners. This resulted in five additional questions being added to the original survey instrument. The final survey questionnaire is presented in Appendix C.

The survey field interviews were conducted in Belize over a one-week period from November 6th to November 14th. The work of the survey team was facilitated by the support provided by the management and staff of the National Development Foundation of Belize who provided logistical, administrative, and technical support during the survey period. Additional field support was provided by the District Agricultural Officers of the Ministry of Agriculture and by the Toledo Agricultural and Marketing Project. The survey methodology and procedures used to conduct the survey are presented in Appendix B of this report.

The main focus of this chapter is to present a summary of the background characteristics of the different types and level of farming activities carried on by small farm holders in Belize. The results reported on here are based on a country-wide survey of the six administrative districts in Belize. The districts surveyed included Belize, Cayo, Corozal, Orange Walk, Stann Creek, and Toledo.

The survey findings are based on a total sample of 160 interviews conducted with smallholder estate owners in all categories of

agricultural activities. Although small farmers were encouraged to do so, they in many cases either chose not to answer, did not know the answer or could not remember the answer to each and every question in the survey questionnaire during their interviews. Additionally, some questionnaires could not be tabulated because the size of the farm holding exceeded the criterion established at the outset of the survey. This problem could have been alleviated through an expanded survey but the logistical, resource, and time constraints during the survey field work made this approach impractical. The net effect, given the factors cited above, is that the final survey results for each question in the survey do not equal the total number of interviews conducted.

## B. The Target Population

One of the main charges of this study, as specified in the Scope of Work in Appendix A, was to estimate the target population of smallholder farms in Belize. As it turns out, there does not appear to be a uniform definition of what type of farm activity or what size of farm constitutes a smallholder farm. The recent Census of Agricultural, 1984-1985 of the Ministry of Agriculture does not address the issue of a definition of a smallholder farm. The Ministry of Agriculture's publication Food and Agricultural Policy of the Government of Belize uses a size criterion to distinguish between farms. The Ministry of Agriculture defines farms of between 0 to 9.9 acres of land as primarily subsistence or rural residences. Farms between 10 to 49.9 acres of land and between 50 to 99.9 acres of land are classified as family farms. Farms in excess of 100 acres of land are considered commercial farms. For purposes of this research, however, smallholder farms were defined according to size. All farm holdings between one-eighth of an acre and fifty acres of land were defined in the survey as a small farm. The definition of a small farm was determined in consultation with the U.S.A.I.D./Belize Mission staff and is consistent with the definition of the Ministry of Agriculture and the many empirical studies that classify a small farm as having from 0 to 50 acres of land, (Stevens and Jabara, 1989). The type of farm organization, crop type, crop production level, and farm income were not used as criteria to exclude farms from the survey.

Smallholder farms or subsistence farms, as they are usually referred to, are characterized by their use of low levels of technology and low yield ratios relative to farms of larger sizes. According to the Ministry of Agriculture, "these farms while relatively unimportant in terms of total farm production and commercial sales, are important because of the large number of people employed".

Based on discussions with the staff of U.S.A.I.D./Belize, the target population has been defined as all small farm holdings between one-eighth of an acre and fifty acres of land. This definition is well within the size criterion used by the Ministry of Agriculture to classify farms. Smallholder farms are typically family holdings producing primarily for subsistence. Farm holdings under one-eighth

of an acre were not included in the survey because such farms are considered by the Ministry of Agriculture to be landless farms. Farm estates in excess of fifty acres were also excluded from the survey because these farms were considered to be too large to represent a smallholder estate, although the Ministry of Agriculture classifies such farms as family farms.

The Census of Agriculture reports that there are some 11,011 farm holdings throughout Belize with acreage between 0 acres to in excess of 100 acres of land.

## II. THE SMALLHOLDER FARM SECTOR

### A. Type and Size of Smallholder Farms

This section present information on the type of smallholder estates in terms of major crops produced and also on the size of small farms by districts. Additional documentation is provided on the number of acres of irrigated land per farm.

#### 1. Type of Smallholder Farms

Smallholder farming in Belize is predominately mixed farming whereby farmers produce crops and or raise livestock for both home consumption and to earn income. As Table II-1 reveals, mixed farms accounted for more than two-thirds of all small farms in the survey out of fifteen farm categories. Mixed farms were followed by sugar cane farming at 10.6 percent of all small farms. Citrus growing and poultry raising as the third and fourth largest number of small farms in the survey had only a 7.1 percent and a 3.6 percent share respectively. Both sugar cane and citrus have the potential to increase Belize's foreign exchange earnings, while poultry can potentially increase domestic food production for local consumption.

#### 2. Farm Size

The size of smallholder estates varied from district to district. The average farm size of all farms surveyed consisted of 19.0 acres of land. Smallholder farms tended to be larger farms in the districts of Corozal with 23.7 acres of land and Orange Walk with 22.0 acres of land. Farming in these two districts is largely made up of sugar cane estates and therefore on the average this tends to push the average farm size up. Small farms in the district of Cayo was third in size with average farm sizes at 20.2 acres of land. Farms in the district of Toledo and Stann Creek, where rice and citrus is the main cash crops, had lower than average farm sizes at 15.1 and 13.6 acres of land respectively.

When the size of small farms are analyzed by type of farm, sugar cane estates tended to have the highest average number of acres in the estate. The average size of a coconut and sugar cane estate was 35.0 and 26.8 acres of land, respectively. Coconut and sugar cane estates were followed by mixed farms as the third largest average estate size at 21.1 acres of land. As we have already observed, mixed farming estates accounted more that two-thirds of all farms in the survey.

TABLE II-1: SMALLHOLDER FARMS BY TYPE AND SIZE

FARM TYPE	AVERAGE ACREAGE	STANDARD DEVIATION	SAMPLE VARIANCE	FREQUENCY DISTRIBUTION	PERCENT OF TOTAL
Cacao	5.0	N.A.	N.A.	1	0.7%
Sugar Cane	26.8	11.552	133.444	15	10.6%
Cassava	2.3	2.363	5.583	3	2.1%
Citrus	11.6	8.848	78.286	7	5.0%
Coconut	35.0	21.213	450.000	2	1.4%
Corn	7.0	N.A.	N.A.	1	0.7%
Fruit Trees	11.8	15.982	255.438	3	2.1%
Milpa System	9.5	7.550	57.000	4	2.8%
Mixed Farms	21.1	14.728	216.924	94	66.7%
Pig Farms	0.3	N.A.	N.A.	1	0.7%
Plaintain	6.0	N.A.	N.A.	1	0.7%
Poultry Farms	1.0	2.449	6.000	5	3.5%
Rice	14.5	14.849	220.500	2	1.4%
Sour Sap	1.5	N.A.	N.A.	1	0.7%
Vegetables	15.0	N.A.	N.A.	1	0.7%
ALL FARMS	19.0	14.760	217.852	141	100.0%

Note: N.A. means Not Applicable

TABLE II-2: SMALLHOLDER FARM LAND CHARACTERISTICS

DISTRICT	NUMBER OF FARMS	AVERAGE ACRES OF LAND	AVERAGE ACRES IRRIGATED	AVERAGE ACRES OWNED	AVERAGE ACRES RENTED
Belize	33	18.7	1.8	22.2	4.5
Cayo	23	19.6	5.3	23.5	1.9
Corozal	22	24.5	3.7	24.6	8.8
Orange Walk	26	21.5	1.8	22.4	6.2
Stann Creek	22	17.4	4.0	16.7	5.2
Toledo	15	8.9	1.1	8.9	7.0
All DISTRICTS	141	19.0	2.9	20.9	5.3

Other smallholder farms that were well below the average farm estate for were cacao (5 acres), citrus (11.6 acres), fruit trees (11.8 acres), and rice (14.5 acres). These farms produce cash crops but in farm size they are below the average farm size of mixed farm estates that produce for both home consumption and to earn farm income.

### 3. Irrigated Farm Land

Although rainfall does not present a problem for agriculture in general, because most districts get adequate rainfall, some areas of the country because of the terrain require irrigation for their crops. As Table II-2 reveals, slightly less than three (2.9) acres of the land per farm of all small farms in the six districts had land that was irrigated. The ratio of average farm acres irrigated to total farm acres across all farm districts is 2.9 to 19.0 or 15.3 percent.

Smallholder farms in the districts of Cayo and Stann Creek tended to have higher average number of irrigated acres of land than the average for all districts. Cayo and Stann Creek district had 4.0 acres and 3.5 acres of irrigated land per farm, respectively. Smallholder farms in the district of Toledo, on the other hand, tended to be well below the average acres of irrigated land per farm at 1.1 acres per farm.

### B. Demographic Characteristics of Small Farmers

Demographic data on small farm owners were gathered to provide information as to the personal characteristics of small farmers. The survey collected demographic information in the areas of age, sex, and the education levels of the small farmers. The results of these data are discussed in the following sections.

#### 1. Sex

Smallholder farming in Belize for the most part is a predominantly male occupation. Women-owned or managed farms account for only 12.1 percent of the small farming sector, as revealed in Figure II-1. Additionally, the results of the survey further revealed that a third of the districts surveyed did not have any women-owned farms. Only the districts of Belize, Cayo, Stann Creek and Orange Walk had small farms that were owned or managed by women.

Women-owned small farms, like their male counterparts, were predominantly mixed-farms, although a large percentage (29.1 %) of the farms raised poultry as their principal farming activity. The remaining women-owned farms produced such items as vegetables, ground foods, sugar cane and citrus. With the exception of poultry raising, smallholder farms owned or managed by men tended to be more evenly distributed across the farming spectrum. Of the farms surveyed, poultry raising was essentially a female occupation. Based on the

TABLE II-3: IRRIGATED FARM ACREAGE BY NUMBER OF FARMS

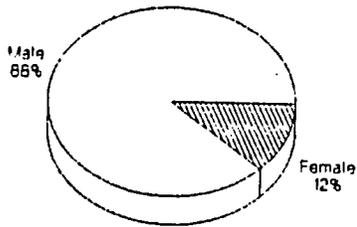
DISTRICT	0 ACRES	0 TO 2.5 ACRES	2.5 TO 1 ACRES	1 TO 5 ACRES	6 TO 10 ACRES	11 TO 25 ACRES	26 TO 50 ACRES	FARMS IN SAMPLE
Belize	22	1	3	3	3	1	0	33
Cayo	11	0	0	6	4	2	1	24
Corozal	13	1	0	5	0	1	2	22
Orange Walk	18	2	2	1	0	3	0	26
Stann Creek	7	3	0	6	4	2	0	22
Toledo	13	0	1	0	0	1	0	15
ALL DISTRICTS	84	7	6	21	11	10	3	142

TABLE II-4: SHARE OF IRRIGATED FARM LAND BY DISTRICT

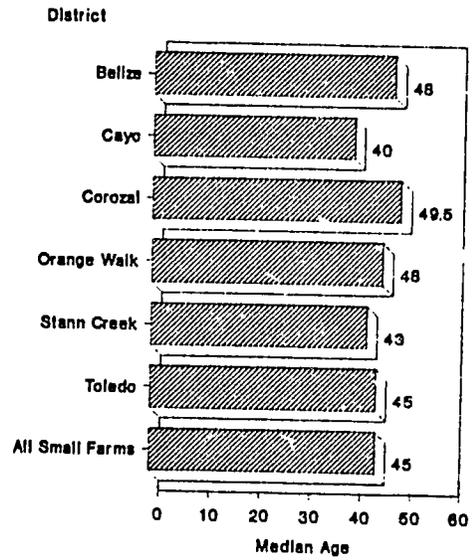
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DISTRICT	0 ACRES	0 TO 2.5 ACRES	2.5 TO 1 ACRES	1 TO 5 ACRES	6 TO 10 ACRES	11 TO 25 ACRES	26 TO 50 ACRES	FARMS IN SAMPLE
Belize	66.7%	3.0%	9.1%	9.1%	9.1%	3.0%	0.0%	100.0%
Cayo	45.8%	0.0%	0.0%	25.0%	16.7%	8.3%	4.2%	100.0%
Corozal	59.1%	4.5%	0.0%	22.7%	0.0%	4.5%	9.1%	100.0%
Orange Walk	69.2%	7.7%	7.7%	3.8%	0.0%	11.5%	0.0%	100.0%
Stann Creek	31.8%	13.6%	0.0%	27.3%	18.2%	9.1%	0.0%	100.0%
Toledo	86.7%	0.0%	6.7%	0.0%	0.0%	6.7%	0.0%	100.0%
ALL DISTRICTS	59.2%	4.9%	4.2%	14.8%	7.7%	7.0%	2.1%	100.0%

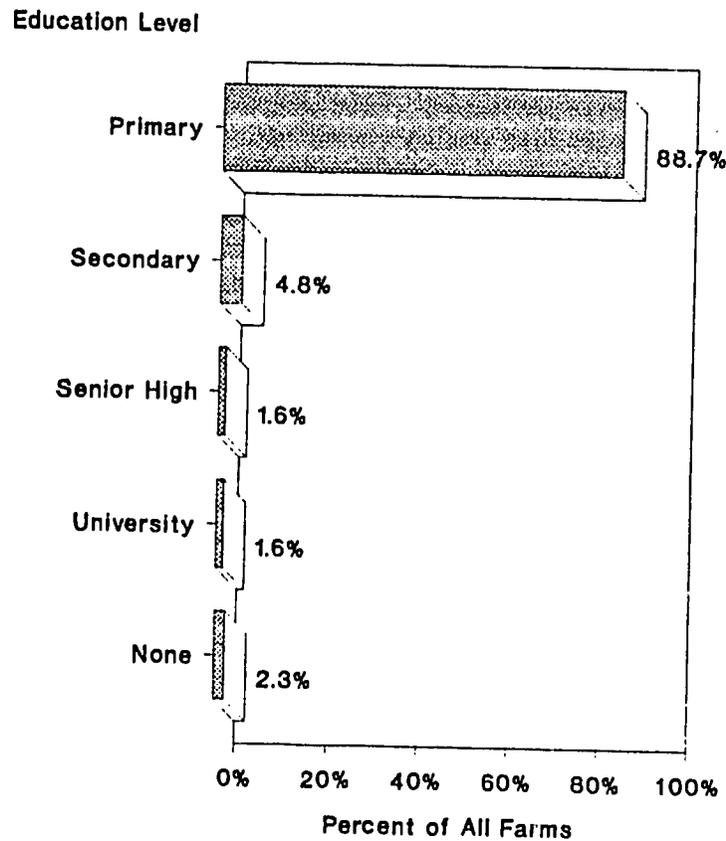
**FIGURE II-1: SMALLHOLDER FARMS BY SEX OF OWNERS**



**FIGURE II-2: MEDIAN AGE OF SMALLHOLDER FARM OWNERS**



**FIGURE II-3: EDUCATION LEVELS OF SMALLHOLDER FARM OWNERS**



percentage share of small farms owned by men (87.9 %), it was not unexpected that such farms would be more uniformly distributed by the different types of farms than women-owned farms.

## 2. Age

The age distribution of small farm owners not only seems to indicate a rather mature population but also tended to be fairly evenly distributed across the six districts surveyed. As Figure II-2 shows, the median age of all smallholder estate owners surveyed was 45 years of age. By way of comparison, the median age on a district basis indicates that the districts of Belize and Corozal tended to have slightly older farmers with the median ages at 49.5 years of age and 48 years of age respectively. The district of Cayo, on the other hand, had younger farmers with a median age of 40 years of age.

## 3. Education

As shown in Figure II-3, the education levels of small farmers for each of the districts surveyed reveal that 88.7 percent had completed at least primary schooling. Some 4.8 percent of the small farmers had completed secondary schooling, while only 1.6 percent had completed university training. Such results are not entirely surprising giving the type and nature of farming carried on in this sector. Farming by most smallholder estate owners is essentially subsistence farming requiring little or no formal schooling.

## C. Household Characteristic of Small Farmers

The demographic characteristics of the smallholder estate owners were discussed above in terms of the small farmers' age, sex and education. This section focuses on the household characteristics of small farmers and examines such features as household size, household employment and home consumption of farm output.

### 1. Farm Household Size

The average farm household size as shown in Table II-5 for all small farms surveyed was 6.06 persons per household. This figure is well within the range reported in the 1988 Belize Abstract of Statistics for communities with more than 200 persons. With the exception of Toledo and Stann Creek districts, the average household size for farm households tended to be rather evenly distributed across all districts. Toledo and Stann Creek had an average of 7.0 and 7.05 persons per farm household respectively. Small farms in the district of Orange Walk had farm households that were significantly below the average number of persons per household of all farm households in the survey at 5.04 persons per household.

TABLE II-5: EMPLOYMENT CHARACTERISTICS OF SMALLHOLDER FARM

DISTRICT	AVERAGE EMPLOYEES	YEAR- ROUND	SEASONAL EMPLOYEES	SIZE OF HOUSEHOLD	MEMBERS WORKING
BELIZE	0.55	1.00	1.80	6.21	2.29
CAYO	0.55	1.00	1.67	5.39	1.35
COROZAL	0.52	1.00	1.80	6.68	1.77
ORANGE WALK	0.39	1.00	1.00	5.19	1.35
STANN CREEK	0.39	1.00	1.00	5.95	1.91
TOLEDO	0.36	1.00	1.00	7.20	3.20
ALL DISTRICTS	0.30	1.00	1.00	6.02	1.89

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## 2. Farm Household Employment and Livelihood

The number of farm household members employed are presented in Table II-5. The results obtained from the survey indicate that the average number of farm household members employed across all small farms is 1.86 persons per farm household. Although several of the districts surveyed had higher than average rates of household members employed, the district of Stann Creek was the highest at 2.5 persons employed per household. The Stann Creek district was followed by the Belize district at 1.94 persons per farm household employed.

As Table II-6 shows, about 61.5 percent of all smallholder farmers surveyed said that they received their principal means of livelihood from farming full-time. This figure compares with 23.0 percent of the small farmers who farm on a part-time basis and 6.8 percent who hire their labor out to other farms. Only 7.4 percent of the small farmers were engaged in non-agricultural activities as their principal means of livelihood.

## 3. Household Consumption of Farm Output

Small farm households, as Table II-7 indicates, consumed an average of BZ\$2,356 worth of their farm produce and livestock last year. The districts of Toledo and Corozal had the highest average home consumption levels of farm output valued at BZ\$5,194 and BZ\$3,307 respectively. Some 61.3 percent of all small farm households responding indicated that they consumed less than one-quarter of their farm output, while 6.7 percent said they did not use any of their farm production for home consumption. The remaining 32.0 percent of farm households consumed between one-quarter and all of their farm production.

Small farms in the Toledo district had the highest rate of household consumption between one-quarter and one-half of farm output with 50 percent of all small farm household consumption by districts in this quartile. Overall, as the share of farm output increased, the level of home consumption tended to decrease on a percentage basis, with the exception of the quartile between three-quarters and all of the farm production. In the three-quarters to all farm output quartile, the share of home consumption begins to increase both across districts and within the districts. It is difficult to know what accounts for such a reversal in home consumption in this range, although one might suppose that in certain areas of the districts and for certain type of farm production might be only for subsistence.

TABLE II-6: FARM HOUSEHOLD EMPLOYMENT CHARACTERISTICS

DISTRICTS	FARMING FULL-TIME	FARMINNG PART-TIME	AGRIC. EMPLOYMENT	NON-AGRIC. EMPLOYMENT	OTHER
BELIZE	50.0%	25.0%	5.6%	16.7%	2.8%
CAYO	60.9%	34.8%	.0%	4.3%	.0%
COROZAL	60.9%	26.1%	8.7%	4.3%	.0%
ORANGE WALK	85.7%	3.6%	10.7%	.0%	.0%
STANN CREEK	63.6%	27.3%	4.5%	4.5%	.0%
TOLEDO	43.8%	25.0%	12.5%	12.5%	6.3%
ALL DISTRICTS	61.5%	23.0%	6.8%	7.4%	1.4%

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TABLE II-7: PERCENT SHARE OF HOME CONSUMPTION  
OF SMALLHOLDER FARM OUTPUT

DISTRICTS	<1/4	1/4 - 1/2	1/2 - 3/4	3/4 - NONE	TOTAL
Belize	24	0	3	4	31
Cayo	12	5	1	1	19
Corozal	6	2	0	2	16
Orange Walk	10	2	1	6	21
Stann Creek	17	2	3	0	22
Toledo	4	5	1	0	10
All Districts	73	16	9	13	119

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DISTRICTS	<1/4	1/4 - 1/2	1/2 - 3/4	3/4 - NONE	TOTAL	VALUE	
Belize	77.4%	0.0%	9.7%	12.9%	100.0%	\$1,565	
Cayo	63.2%	26.3%	5.3%	5.3%	100.0%	\$2,083	
Corozal	37.5%	12.5%	0.0%	12.5%	37.5%	100.0%	\$3,307
Orange Walk	47.6%	9.5%	4.8%	28.6%	9.5%	100.0%	\$1,100
Stann Creek	77.3%	9.1%	13.6%	0.0%	0.0%	100.0%	\$824
Toledo	40.0%	50.0%	10.0%	0.0%	0.0%	100.0%	\$5,194
All DISTRICTS	61.3%	13.4%	7.6%	10.9%	6.7%	100.0%	\$2,356

26.

### III. FARM OPERATIONS

This section examines the operations of smallholder farming in Belize. It seeks to identify: the type and value of farm equipment and machinery owned by small farmers; the value of the factor stocks and supplies held by small farmers; the level of farm employment and farm income of small farmers, and the use and availability of farm extension services by small farmers.

#### A. Farm Equipment, Machinery and Use of Extension Services

##### 1. Farm Equipment and Machinery

Smallholder farming operations in Belize with, perhaps the exception of sugar cane farming, consist mainly of labor-intensive activities carried out the farm household and supplemented, as needed, by other family members and hired labor. Because of this, the number of pieces and the type of farm equipment and machinery used by small farmers is very limited, as Table III-1 reveals. The results obtained from the survey indicate that, with the exception of the categories of trucks, vans, and wagons, and other equipment, less than 10 percent of all small farms own farm equipment and machinery of any type. These results, of course, do not mean that farm equipment and machinery are not used on small farms. On the contrary, while small farming in the main is labor-intensive, small farmers tend to hire farm equipment and machinery on a short-term basis for such purposes as land clearing, harrowing, and haulage, etc.

##### 2. Extension Services to Small Farms

The provision of technical assistance to small farmers through farm extensions service programs to improve farm efficiency does not appear to be adequate to meet the challenge of the small farming sector. As Table III-2 reveals, only 35.0 percent of the small farmers surveyed indicated that they had received any form of technical assistance for their farms in the past. Smallholder farms in the districts of Toledo, Stann Creek, and Orange Walk received technical assistance at rates higher than the average rate for all farms in the survey. In these districts, technical assistance was received by 50.0 percent, 45.5 percent and 38.5 percent of the small farmers respectively.

As revealed in Table III-3, the Ministry of Agriculture and Central Farm combined to provide 46.6 percent of the technical assistance. Farm management, as Table III-4 indicates, represent the largest share of all types of technical assistance received by small

TABLE III-1: SMALLHOLDER FARM EQUIPMENT AND MACHINERY

DISTRICT	TRACTOR DRAWN PLOUGH			OTHER PLOUGH			TRACTORS			TRAILERS			TRUCKS, VANS, WAGONS		
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	
	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	
BELIZE	33	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	2	\$6,500
CAYO	23	0	N/A	N/A	0	N/A	N/A	1	\$14,000	\$14,000	1	\$1,000	\$1,000	1	\$4,000
COROZAL	22	0	N/A	N/A	1	\$5,000	\$5,000	2	\$13,250	\$13,250	2	\$5,000	\$5,000	9	\$10,000
ORANGE WALK	26	2	\$5,750	\$5,750	0	N/A	N/A	3	\$13,000	\$13,167	2	\$3,000	\$3,000	2	\$11,500
STANN CREEK	22	1	\$15,000	\$15,000	0	N/A	N/A	0	N/A	N/A	1	\$4,000	\$4,000	1	\$7,000
TOLEDO	15	0	N/A	N/A	1	\$40,000	\$40,000	0	N/A	N/A	0	N/A	N/A	1	\$1,000
ALL FARMS	141	3	\$10,000	\$8,833	2	\$22,500	\$22,500	6	\$13,500	\$13,333	6	\$3,000	\$3,500	16	\$9,750

DISTRICT	MECH. SPRAY PUMPS			HAND OPERATED PUMPS			OTHER MACH./EQUIP.				
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN		
	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE		
BELIZE	33	1	\$380	\$380	1	\$800	\$800	33	7	\$200	\$1,041
CAYO	23	1	\$300	\$300	3	\$250	\$250	23	4	\$1,500	\$1,500
COROZAL	22	3	\$200	\$193	4	\$500	\$531	22	6	\$155	\$560
ORANGE WALK	26	0	N/A	N/A	2	\$249	\$249	26	2	\$10,075	\$10,075
STANN CREEK	22	0	N/A	N/A	1	\$200	\$200	22	3	\$500	\$867
TOLEDO	15	0	N/A	N/A	0	N/A	N/A	15	3	\$500	\$2,513
ALL FARMS	141	5	\$200	\$252	11	\$300	\$398	141	26	\$500	\$1,877

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TABLE III-2: SMALLHOLDER FARMS RECEIVING  
TECHNICAL ASSISTANCE BY DISTRICTS

DISTRICT	TOTAL	TOTAL RESP.	% TOTAL	TECHNICAL ASSISTANCE			
				NO	% TOTAL	YES	% TOTAL
BELIZE	33	33	100.00%	25	75.76%	8	24.24%
CAYO	23	23	100.00%	14	60.87%	9	39.13%
COROZAL	22	22	100.00%	17	77.27%	5	22.73%
ORANGE WALK	26	26	100.00%	16	61.54%	10	38.46%
STANN CREEK	22	22	100.00%	12	54.55%	10	45.45%
TOLEDO	15	14	93.33%	7	50.00%	7	50.00%
ALL DISTRICTS	141	140	99.29%	91	65.00%	49	35.00%

TABLE III-3: SOURCE OF TECHNICAL ASSISTANCE  
RECEIVED BY SMALLHOLDER FARMS

SOURCE	TOTAL	% TOTAL
Ministry of Agriculture	17	37.78%
Central Farm	4	8.89%
BSI	3	6.67%
DFC	3	6.67%
USAID	2	4.44%
BABCO	1	2.22%
Belize School of Agriculture	1	2.22%
BEST	1	2.22%
Books	1	2.22%
BSI and Agriculture	1	2.22%
Cane Farmers Association	1	2.22%
Company Program	1	2.22%
Cooperative	1	2.22%
Cousin	1	2.22%
Experienced Farmers	1	2.22%
Help for Progress/BEST/Agri. Dept.	1	2.22%
Hopkins Farmers Cooperative	1	2.22%
Menonites	1	2.22%
Official of Cooperative	1	2.22%
Raise Cattle	1	2.22%
TRDP	1	2.22%
TOTAL:	45	100.00%

farmers at 13.6 percent. Farm management as the primary type of technical assistance received by small farmers was followed by assistance in pest control and planting methods at a 9.1 percent share each.

The extent to which the technical assistance provided to small farmers was what they required or felt was useful was addressed directly by the question "was the technical advice useful". Although, only a limited number of responses were gathered (31.9% of all small farms) as Table III-5 indicates, 95.6% of those responding found the technical assistance they received to have been useful.

## B. Farm Income and Farm Employment

### 1. Farm Income

The farming activity which provides the most income to small farmers was the production of domestic crops. As shown in Table III-6, some 31.5 percent of all respondents indicated that domestic farming provided them with the most farm income. This was followed by mixed farming at 25.3 percent and export crops at 16.1 percent. Less than twenty-five percent of the small farmers surveyed indicated that they received the most of their farm income from either dairy, livestock or poultry production.

As Table III-6 indicates, the crop which produced the highest median income for smallholder estate owners was citrus. Citrus growing by small farmers produced BZ\$10,000 in median sales last year. Citrus growing was followed by sugar cane growing as the crop generating the second highest median income of all small farms. The median income derived from growing sugar cane by small farmers was BZ\$7,616.

Small farms which raise livestock or poultry as their principal agricultural activity tended to fare considerably worse, in terms of farm income, than those which produced a cash crop. As shown in Table III-7, the median farm income for livestock production including cattle, pigs, and poultry raising for all small farms was BZ\$1,000. Only on those small farms which had mixed livestock did farm income show an increase above the BZ\$1,000 level. The median income of mixed livestock farms was BZ\$2,200.

### 2. Farm Employment

The average number of persons employed per small farm for all farms was 0.3 persons per farm. The districts of Belize, Cayo and Corozal exceeded the average number of farm employees per farm. They were respectively 0.55, 0.55 and 0.52 employees per farm. Yearround farm employment tended to be evenly distributed across all districts at 1.0 employee per farm. Seasonal farm employment was led by the districts of Belize and Corozal at 1.8 employees each per farm.

TABLE III-4: TYPE OF TECHNICAL ASSISTANCE  
RECEIVED BY SMALLHOLDER FARMS

TYPE OF ASSISTANCE	TOTAL	% TOTAL
Farm Management	6	13.64%
Pest Control	4	9.09%
Planting Methods	4	9.09%
Technical Advice	4	9.09%
Soil Testing	3	6.82%
Weed Control	3	6.82%
Disease Control	2	4.55%
Improve Crop Yields	2	4.55%
Agriculture	1	2.27%
Cattle	1	2.27%
Citrus Management	1	2.27%
Clearing/Seeds/Fert.	1	2.27%
Expand Farming	1	2.27%
Farming Procedures	1	2.27%
Fertilizer	1	2.27%
Grow Cane Better	1	2.27%
How Maintain Crop	1	2.27%
How to Feed Chickens	1	2.27%
How to Work In Partnership	1	2.27%
Insecticide	1	2.27%
Project Costs	1	2.27%
Treat & Care for Chickens	1	2.27%
Treat Pigs	1	2.27%
Variety	1	2.27%
TOTAL:	44	100.00%

TABLE III-5: USEFULNESS OF TECHNICAL ASSISTANCE RECEIVED BY SMALLHOLDER FARMS

DISTRICT	TOTAL		TECHNICAL ASSISTANCE			
	TOTAL	RESP. %	NO	TOTAL	YES	% TOTAL
BELIZE	33	6 18.18%	0	0.00%	6	100.00%
CAYO	23	9 39.13%	1	11.11%	8	88.89%
COROZAL	22	5 22.73%	1	20.00%	4	80.00%
ORANGE WALK	26	9 34.62%	0	0.00%	9	100.00%
STANN CREEK	22	9 40.91%	0	0.00%	9	100.00%
TOLEDO	15	7 46.67%	0	0.00%	7	100.00%
ALL FARMS	141	45 31.91%	2	4.44%	43	95.56%

TABLE III-6: INCOME FROM PRODUCE OF SMALLHOLDER FARMS IN 1987

DISTRICT	CITRUS				CORN			RICE			SUGAR			GROUND FOOD		
	TOTAL	RESP	MEDIAN SALES	MEAN SALES	TOTAL	MEDIAN SALES	MEAN SALES									
BELIZE	33	0	N/A	N/A	1	\$1,820	\$1,820	1	\$1,820	\$1,820	0	N/A	N/A	1	\$3,120	\$3,120
CAYO	23	0	N/A	N/A	5	\$1,500	\$1,258	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
COROZAL	22	0	N/A	N/A	2	\$6,838	\$6,838	0	N/A	N/A	13	\$9,000	\$8,856	0	N/A	N/A
ORANGE WALK	26	0	N/A	N/A	1	\$2,000	\$2,000	1	\$2,000	\$2,000	13	\$4,500	\$6,279	0	N/A	N/A
STANN CREEK	22	5	\$10,000	\$12,076	0	N/A	N/A	0	N/A	N/A	1	\$100	\$100	1	\$200	\$200
TOLEDO	15	0	N/A	N/A	0	N/A	N/A	5	\$2,000	\$1,780	0	N/A	N/A	0	N/A	N/A
ALL FARMS	141	5	\$10,000	\$12,076	9	\$2,000	\$2,643	7	\$2,000	\$1,817	27	\$7,616	\$7,291	2	\$1,660	\$1,660

DISTRICT	COCOA				PINEAPPLE			VEGETABLES			CASAVA			PLANTAIN		
	TOTAL	RESP	MEDIAN SALES	MEAN SALES	TOTAL	MEDIAN SALES	MEAN SALES	TOTAL	MEDIAN SALES	MEAN SALES	TOTAL	MEDIAN SALES	MEAN SALES	TOTAL	MEDIAN SALES	MEAN SALES
BELIZE	33	0	N/A	N/A	2	\$3,500	\$3,500	7	\$2,600	\$2,900	1	\$2,600	\$2,600	2	\$1,250	\$1,250
CAYO	23	0	N/A	N/A	0	N/A	N/A	1	\$400	\$400	0	N/A	N/A	1	\$500	\$500
COROZAL	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
ORANGE WALK	26	0	N/A	N/A	0	N/A	N/A	2	\$2,150	\$2,150	0	N/A	N/A	0	N/A	N/A
STANN CREEK	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	1	\$25	\$25
TOLEDO	15	1	\$510	\$510	0	N/A	N/A	1	\$2,600	\$2,600	0	N/A	N/A	1	\$1,300	\$1,300
ALL FARMS	141	1	\$510	\$510	2	\$3,500	\$3,500	11	\$2,600	\$2,509	1	\$2,600	\$2,600	5	\$1,000	\$865

DISTRICT	HONEY				BEANS			MELON		OTHER MIXED CROPS			OTHER			
	TOTAL	RESP	MEDIAN SALES	MEAN SALES	TOTAL	MEDIAN SALES	MEAN SALES	TOTAL	MEDIAN SALES	TOTAL	MEDIAN SALES	MEAN SALES	TOTAL	MEDIAN SALES	MEAN SALES	
BELIZE	33	1	\$800	\$800	1	\$1,800	\$1,800	2	\$4,050	\$4,050	1	\$500	\$500	4	\$250	\$255
CAYO	23	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	6	\$3,250	\$3,417	2	\$838	\$838
COROZAL	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	3	\$9,135	\$7,545	2	\$1,100	\$1,100
ORANGE WALK	26	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	3	\$2,000	\$2,000	0	N/A	N/A
STANN CREEK	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	4	\$2,000	\$3,250	1	\$500	\$500
TOLEDO	15	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
ALL FARMS	141	1	\$800	\$800	1	\$1,800	\$1,800	2	\$4,050	\$4,050	17	\$3,000	\$3,684	9	\$500	\$599

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TABLE III-7: FARM INCOME FROM LIVESTOCK IN 1987

DISTRICT	CATTLE			POULTRY			PIGS			MIXED LIVESTOCK				OTHER		
	TOTAL	RESP	MEDIAN SALES	MEAN TOTAL SALES	RESP	MEDIAN SALES	MEAN TOTAL SALES	RESP	MEDIAN SALES	MEAN TOTAL SALES	RESP	MEDIAN SALES	MEAN TOTAL SALES	RESP	MEDIAN SALES	MEAN SALES
BELIZE	33	0	N/A	N/A	0	N/A	N/A	3	1440	1180	0	N/A	N/A	1	1872	1872
CAYO	23	2	3250	3250	7	1500	1537	2	850	850	1	2200	2200	0	N/A	N/A
COROZAL	22	2	2250	2250	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
ORANGE WALK	26	2	1000	1000	0	N/A	N/A	1	4500	4500	0	N/A	N/A	0	N/A	N/A
STANN CREEK	22	0	N/A	N/A	1	150	150	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
TOLEDO	15	1	2200	2200	2	540	540	3	180	893	0	N/A	N/A	0	N/A	N/A
ALL FARMS	141	7	1000	2171	10	1000	1199	9	1000	1380	1	2200	2200	1	1872	1872

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## C. Farm Stocks and Supplies

The value of farm stocks and supplies held by small farmers was investigated to provide some indication as to the consumption patterns and the amount of stored food items, grain for livestock, and other farm inputs, such as fertilizers, herbicides, etc., used in the planting and caring for crops and in livestock production.

### 1. Food Items

The results obtained from the survey reveal that the food items stored most often by small farm households were rice, beans, and honey. The median value of the food items stored are shown in Table III-8. It is quite apparent that of the small farmers reporting, the tendency is to store staple food items. As Table III-8 indicates, the median value of stored rice, beans, and honey were respectively, BZ\$500, BZ\$220, and BZ\$2,610. The median value for honey stored is quite large relative to the other food items. This may indicate that these small farmers misinterpreted the question and reported their farm inventory as opposed to their farm stock for household consumption.

### 2. Farm Supplies

Farm supplies or factor inputs stored by smallholder farms are shown in Table III-9. Such factor inputs are typically used in the planting of crops and in the raising of livestock. The factor inputs stored most often as shown in Table III-9 were fertilizer, pig feed, broiler feed, layer rations, and shelled corn. With the exception of layer rations which had a value of BZ\$290, the median value of all other factor inputs stored by small farmers were between BZ\$18 and BZ\$154.

TABLE III-8: FOOD ITEMS STORED BY SMALLHOLDER FARMS

DISTRICT	TOTAL	RICE			BEANS			HONEY			OTHER		
		TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE
BELIZE	33	0	N/A	N/A									
CAYO	23	0	N/A	N/A									
COROZAL	22	0	N/A	N/A	0	N/A	N/A	1	\$4,800	\$4,800	0	N/A	N/A
ORANGE WALK	26	2	\$268	\$268	2	\$220	\$220	0	N/A	N/A	1	\$35	\$35
STANN CREEK	22	0	N/A	N/A									
TOLEDO	15	2	\$550	\$550	2	\$223	\$223	1	\$420	\$420	0	N/A	N/A
ALL FARMS	141	4	\$500	\$409	4	\$220	\$209	2	\$2,610	\$2,610	1	\$35	\$35

TABLE III-9: FARM SUPPLIES STORED BY SMALLHOLDER FARMS

DISTRICT	FERTILIZER				PIG FEED			BROILER FEED			LAYER RATION			SHELLED CORN		
	TOTAL	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE
BELIZE	33	4	\$34	\$62	1	\$14	\$14	3	\$14	\$13	0	N/A	N/A	3	\$12	\$34
CAYO	23	5	\$70	\$79	1	\$34	\$34	7	\$30	\$101	1	\$290	\$290	5	\$18	\$137
COROZAL	22	13	\$440	\$683	1	\$400	\$400	1	\$1,000	\$1,000	0	N/A	N/A	0	N/A	N/A
ORANGE WALK	26	8	\$302	\$814	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
STANN CREEK	22	4	\$53	\$174	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
TOLEDO	15	2	\$200	\$200	0	N/A	N/A	1	\$100	\$100	0	N/A	N/A	0	N/A	N/A
ALL FARMS	141	36	\$147	\$476	3	\$34	\$149	12	\$29	\$154	1	\$290	\$290	9	\$18	\$143

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#### IV. MANAGING SMALLHOLDER FARMS

Smallholder farms in Belize tend, in large part, to be family-owned and operated farming activities. As Figure IV-1, shows smallholder farms are mainly owned by a single holder. About 84.0 percent of all farms in the survey were owned by a singleholder. The singleholder, more often than not is a male. This singleholder, although he may be supported by other family members at times as well as by seasonal labor, has the responsibility for land clearing, planting, cultivation, harvesting, marketing, in addition to management for those farms which grow crops. In the case of those farms that raise livestock or poultry, the situation is no different in terms of the farm management responsibilities. The singleholder or owner undertakes the responsibility for purchasing the livestock, providing appropriate feeding areas and shelter, livestock feeding, and marketing. The significance of the fact that smallholder farms are owned, managed, and operated by a singleholder is that it has implications for the ability of the farm to increase its level of productivity. It is doubtful that one person can significantly improve farm productivity without additional factor inputs of land, labor and capital and supported by new farm management techniques and farm technologies.

Farm management data were collected in two main areas to assess farm management (i.e., type of business records maintained, agricultural production statistics, etc.) and the marketing of agricultural products and livestock.

##### A. Farm Management

With some 141 small farms reporting, only about 30.5 percent of the small farmers for all districts indicated that they maintained records of their farm activities. As Table IV-1 reveals, 40.0 percent of the small farmers in the district of Toledo did not keep any records of their farming activities. This is in comparison to some 88.5 percent of the small farmers in the district of Orange Walk who do not keep farm records. Of the overall share of small farmers (30.5%) who keep records of their farm activities in each district, such records were almost evenly distributed between accounts receivables and payables, payroll, stocks/supplies and sales. As can be observed in Table IV-1, records on crop prices, livestock and poultry raising were not as widely kept as other business records. Records kept on crop prices, livestock and poultry raising represented only a 8.0 and 6.8 percent share of the farms that records respectively. Such results suggest a need to provide farm management assistance in the area of record keeping as the farms becoming more productive and require an improved

FIGURE IV-1: OWNERSHIP OF SMALLHOLDER FARMS BY TYPE

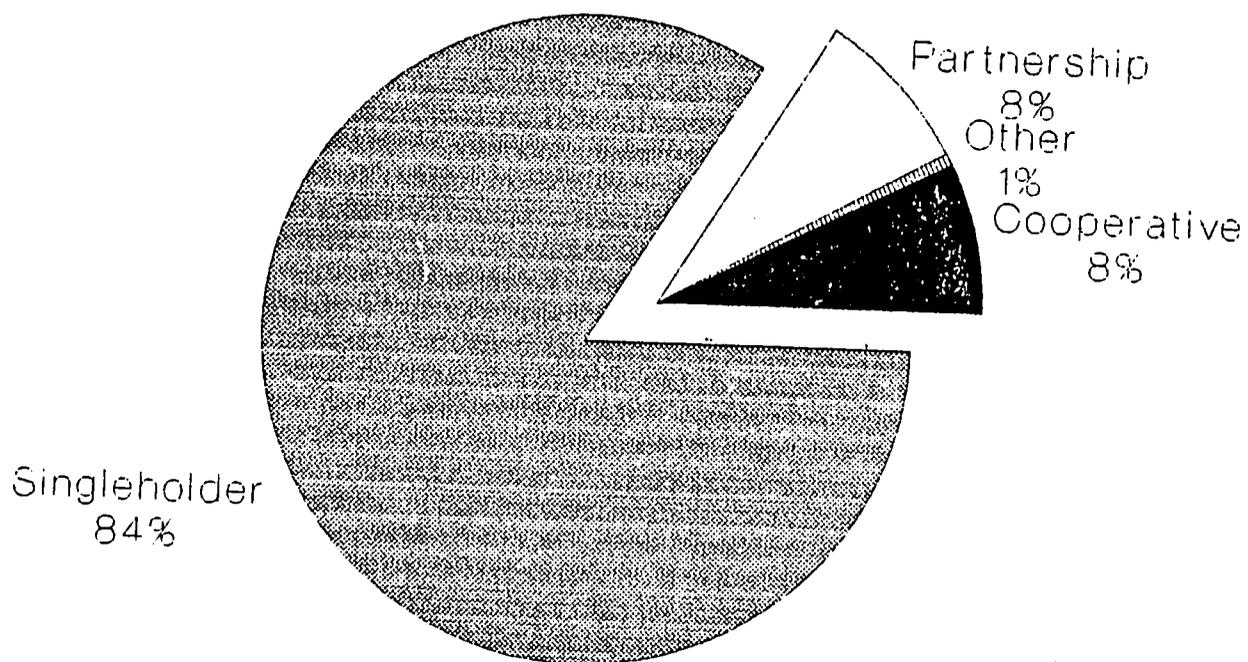


TABLE IV-1: FARM MANAGEMENT RECORDS  
KEPT BY SMALLHOLDER FARMERS

DISTRICT	PAY- ABLES	RECEIV- ABLES	PAY- ROLL	STOCKS/ SUPPLIES	SALE	CROP YIELDS	CROP PRICES	LIVE- STOCK/ POULTRY	NONE
BELIZE	33.3%	0.0%	0.0%	66.7%	0.0%	0.0%	0.0%	0.0%	66.7%
CAYO	13.6%	9.1%	4.5%	18.2%	18.2%	13.6%	4.5%	18.2%	60.9%
COROZAL	0.0%	0.0%	0.0%	20.0%	40.0%	0.0%	20.0%	20.0%	81.8%
ORANGE WALK	20.0%	0.0%	60.0%	0.0%	20.0%	0.0%	0.0%	0.0%	88.5%
STANN CREEK	18.2%	18.2%	12.1%	9.1%	18.2%	12.1%	9.1%	3.0%	68.2%
TOLEDO	20.0%	15.0%	10.0%	15.0%	15.0%	15.0%	10.0%	0.0%	40.0%
ALL DISTRICTS	17.0%	12.5%	11.4%	14.8%	18.2%	11.4%	8.0%	6.8%	69.5%

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TABLE IV-2: SMALLHOLDER FARMS RECORDKEEPER

RECORDKEEPER	TOTAL	% TOTAL
Owner	16	64.00%
Coop	2	8.00%
Farmer	2	8.00%
Chairman	1	4.00%
Husband	1	4.00%
Coop Secretary	1	4.00%
Son	1	4.00%
Wife	1	4.00%
TOTAL:	25	100.00%

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decision-making process.

For those small farmers that reported who kept the records of their farm operations, Table IV-2 reveals that 64.0 percent said that the farm owners maintained the records themselves.

## B. Farm Cultivation and Livestock Production

The number of acres of land under cultivation for both pure stand and mixed stand crops by smallholder farms was investigated to ascertain information regarding the intensiveness of farming activities. This information was further stratified by domestic and export related crops. In addition to crop production, information was also collected on the extent of livestock production of smallholder farms. The crops under cultivation and the type of livestock raised on small farms are presented in the following sections.

### 1. Crop Acres

Small farming in Belize consist of a variety of farm activities as represented by the different type of crops under production. The principal crops under cultivation by small farmers, as Appendix D-1 shows, are corn, rice, beans, vegetables, bananas, plantains, ground food, citrus, mangoes, fruit trees, sugar cane, cocoa and coconut, etc. Cash crops such as sugar cane, fruit trees, and cocoa were cultivated on larger farm acreage than crops cultivated for both home consumption and for market. Sugar cane production in pure stands had the largest number of acres planted at an average of 22.0 acres per farm. Sugar cane was followed by the planting of pure stand fruit trees at an average of 7.6 acres per farm. The planting of cocoa in pure stands was the third largest farm size at 5.7 acres per farm.

Crops planted in mixed-stands were led by coconut, sugar cane, and corn as having the largest number of acres per stand under cultivation. The planting of coconut, sugar cane, and corn were planted in stands averaging 12.5 acres, 10.4 acres, and 6.9 acres per farm respectively.

### 2. Livestock Production

Small farms with livestock production as the principal farm activity raised a wide variety of livestock. As Appendix D-1 indicates, the main types of livestock and other husbandry raised included cattle, pigs, poultry and bees. The average value of the livestock and other husbandry on a small farm ranged from BZ\$58 for piglets to BZ\$3,467 for bees.

## C. The Market For Small Farm Output

Data collected on who purchase the farm output and the livestock of smallholder farms in Belize clearly indicate that smallholder farm

output for sale is purchased mainly by private individuals or households. Table IV-3 shows that some 47.7% of the small farmers said that individuals were the main purchasers of their farm products. With the exception of the category other at a 14.4 percent share, individual purchasers were followed by other businesses at 13.1 percent and the marketing boards at 11.1 percent.

As Table IV-3 shows, traders were also active in the market for farm production and livestock. Local traders accounted for 8.5 percent of the small farm market. The central government institutions comprising schools, hospitals, defense forces, etc, purchased only 5.2 percent of the output produced by the small farming sector.

TABLE IV-3: MARKET FOR SMALLHOLDER FARM OUTPUT

DISTRICT	MAR- KETING BOARD	TRADERS	INDIVI- DUALS	OTHER BUSI- NESSES	OTHER GOVERN- MENT	OTHER	TOTAL
BELIZE	6.1%	9.1%	66.7%	3.0%	0.0%	15.2%	100.0%
CAYO	0.0%	24.1%	62.1%	10.3%	0.0%	3.4%	100.0%
COROZAL	21.7%	0.0%	17.4%	8.7%	26.1%	26.1%	100.0%
ORANGE WALK	7.1%	3.6%	35.7%	21.4%	7.1%	25.0%	100.0%
STANN CREEK	4.8%	4.8%	57.1%	23.8%	0.0%	9.5%	100.0%
TOLEDO	36.8%	5.3%	36.8%	15.8%	0.0%	5.3%	100.0%
ALL DISTRICTS	11.1%	8.5%	47.7%	13.1%	5.2%	14.4%	100.0%

IV-7

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## V. FINANCIAL INTERMEDIATION

This section summarizes the credit histories of small farmers and provide information on the level, type, source, terms and conditions of farm loans. Specific information is provided on the amount of loans received, the loan finance charges, the loan terms and the type of loans disbursed.

### A. Farm Credit Experience

Credit to small farmers in Belize is divided into two categories of lenders, institutional lenders and non-institutional lenders. Institutional lenders include two sub-categories, commercial banks, and non-banks or financial intermediaries such as credit unions, NDF/B and the D.F.C. Non-institutional lenders generally refer to "informal lenders" such as, for example, moneylenders, family members and relatives, and other businessmen, etc.

#### 1. Institutional Farm Credit

Some 52.1 percent of the small farmers, as Table V-1 reveals, indicated that they had obtained a farm loan from a commercial lending institution in the past. Institutional lenders such as the commercial banks provided some 36.4 percent of the farm credit to small farmers. Second-tier institutional lenders, such as the National Development Foundation, the Development Finance Corporation, and credit unions, etc. provided almost two-thirds of the farm credit to smallholder farms, as Table V-2 indicates. Barclays Bank provided the largest share of farm credit assistance to the farmers surveyed with a 24.2 percent share. The Development Finance Corporation and the National Development Foundation led all other institutions in their credit support to the small farm sector. They provided respectively 40.9 percent and 7.6 percent of the farm credit to the small farmers surveyed.

As can be observed in Table V-3, the median loan received by small farmers was BZ\$2,400. The districts of Corozal, Stann Creek, and Toledo received higher median loans than other districts. The median loans received by these districts were respectively BZ\$5,000, BZ\$3,500 and BZ\$3,250. Belize district received the lowest median loan amount at BZ\$500.

#### 2. Non-Institutional Farm Credit

No evidence was found to indicate that non-institutional credit

TABLE V-1: SMALLHOLDER FARMS RECEIVING  
LOANS FROM LENDING INSTITUTIONS

DISTRICT	TOTAL	TOTAL RESP.	% TOTAL	OBTAINED LOAN FROM INSTITUTION			
				NO	% TOTAL	YES	% TOTAL
BELIZE	33	33	100.00%	20	60.61%	13	39.39%
CAYO	23	23	100.00%	11	47.83%	12	52.17%
COROZAL	22	22	100.00%	5	22.73%	17	77.27%
ORANGE WALK	26	26	100.00%	9	34.62%	17	65.38%
STANN CREEK	22	21	95.45%	15	71.43%	6	28.57%
TOLEDO	15	15	100.00%	7	46.67%	8	53.33%
ALL FARMS	141	140	99.29%	67	47.86%	73	52.14%

V-2

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TABLE V-2: SOURCE OF LOANS RECEIVED  
BY SMALLHOLDER FARMS

SOURCE	TOTAL	% TOTAL
DFC	27	40.91%
Barclays Bank	16	24.24%
NDF	5	7.58%
Belize Bank	6	9.09%
Royal Bank	2	3.03%
Agriculture Dept.	1	1.52%
Atlantic Bank	1	1.52%
BSI	1	1.52%
CARE	1	1.52%
CIDA	1	1.52%
Civil Servant Credit Union	1	1.52%
Credit Union	1	1.52%
CUC	1	1.52%
Government	1	1.52%
HRCU	1	1.52%
TOTAL:	66	100.00%

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to small farmers is a source for farm loans. There is considerable evidence in the small farm sector of other low-income countries that money-lenders, relatives and family members, and businesspersons provide significant farm credit to small farmers. However, no such evidence was found in this study.

## B. Finance Charges

The interest rates charged by commercial institutions on farm loans to small farmers do not appear to indicate any particular pattern, as Table V-4 indicates. Such loans were disbursed over a twenty year period from 1968 to 1988 and represent a wide range of interest rate charges. Interest rate charges ranged from about 1 percent to 25 percent for some loans. The largest share of loans (about 29.8%) were in the interest rate range from 12.0 percent to 13.0 percent.

### 1. Loan Terms

The loan period for farm loans, as Table V-5 reveals, ranged from 6 months to 240 months. However, the majority (about 57.9%) of such loans had terms ranging from 12 to 24 months.

### 2. Loan Type

The loans disbursed to small farmers by the commercial institutions were largely short-term loans or what can be characterized as crop loans. Short-term loans, as Table V-6 indicates, represented some 54.7 percent of all loans disbursed to small farmers. Long-term loans, on the other hand, which may have been used for example, to purchase farm equipment and machinery, additional land, etc., represented the second largest share of loan types at 32.8 percent.

TABLE V-3: AMOUNT OF LOANS RECEIVED BY SMALLHOLDER FARMS

DISTRICT	TOTAL	TOTAL RESP.	% TOTAL	MEDIAN LOAN	MEAN LOAN	MINIMUM LOAN	MAXIMUM LOAN
BELIZE	33	11	33.33%	\$500	\$964	\$100	\$3,000
CAYO	23	9	39.13%	\$2,000	\$3,356	\$600	\$15,000
COROZAL	22	17	77.27%	\$5,000	\$8,069	\$600	\$25,000
ORANGE WALK	26	17	65.38%	\$1,000	\$1,684	\$200	\$5,000
STANN CREEK	22	6	27.27%	\$3,500	\$9,033	\$200	\$31,000
TOLEDO	15	8	53.33%	\$3,250	\$16,000	\$1,000	\$100,000
ALL FARMS	141	68	48.23%	\$2,400	\$5,682	\$100	\$100,000

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TABLE V-4: INTEREST RATES ON LOANS  
TO SMALLHOLDER FARMS

INTEREST RATES	NUMBER OF LOANS	% TOTAL
12.00%	12	25.53%
10.00%	6	12.77%
8.00%	4	8.51%
14.00%	4	8.51%
16.00%	3	6.38%
18.00%	3	6.38%
20.00%	3	6.38%
1.00%	1	2.13%
2.00%	1	2.13%
5.00%	1	2.13%
6.00%	1	2.13%
9.00%	1	2.13%
12.50%	1	2.13%
13.00%	1	2.13%
15.00%	1	2.13%
16.50%	1	2.13%
19.00%	1	2.13%
22.00%	1	2.13%
25.00%	1	2.13%
TOTAL:	47	100.00%

TABLE V-5: LOAN PERIOD OF LOANS RECEIVED  
BY SMALLHOLDER FARMS

LOAN PERIOD	TOTAL	% TOTAL
12	15	39.47%
24	7	18.42%
60	6	15.79%
6	3	7.89%
7	1	2.63%
8	1	2.63%
36	1	2.63%
48	1	2.63%
120	1	2.63%
240	1	2.63%
1 Season	1	2.63%
TOTAL:	38	100.00%

TABLE V-6:TYPE OF LOANS RECEIVED  
BY SMALLHOLDER FARMS

TYPE OF LOANS	TOTAL	% TOTAL
Short Term	35	54.69%
Long Term	21	32.81%
Financial	2	3.13%
Crop Loans	4	6.25%
Long/Short	1	1.56%
Overdraft	1	1.56%
TOTAL	64	100.00%

## VI. FARM CREDIT DEMAND

The demand for farm credit is the main focus of this report section and is one of the most critical areas under investigation in this survey. The attempt to ascertain information from small farmers on the demand for farm credit was represented in a number of questions contained in the survey questionnaire. Small farmers were asked to indicate if they intend to seek a loan for their farm in the coming year. And if so, what would be the source of the loan, in what amount, and for what purpose. The results of the data obtained from these questions are reported in the following sections. Additional information is provided on the size of the smallholder farm sector, the use of farm credit loan, and the availability of collateral to secure farm loans.

### A. The Size of the Smallholder Farm Sector

The size of smallholder farm sector was estimated on the basis of the data contained in the 1984-1985 Agriculture Census. Applying the criterion of a smallholder farm used in this study to the information presented in the Census of Agriculture, we have determined that there are 8,015 farm holdings that can be classified as smallholder estates. These are farm holdings with acreage between one-eighth of acre and fifty acres of land. Such small farms, as we have observed in earlier sections of this report, represent a variety of farm types, although they have similar needs for farm credit and technical assistance. In the following sections we will explore the type and level of assistance needed to improve farm efficiency and increase farm production on these farms.

### B. Level of Farm Credit Assistance Needed

Although a number of private, governmental, and non-governmental organizations offer credit to small farmers, there is continuing need to provide additional credit support. Farm credit assistance has been received from a variety of international funding sources including U.S.A.I.D./Belize, the Foundation for International Training, and I.A.F. etc.). Additional assistance has come from the D.F.C. and a number of non-governmental organizations such as the NDF/B and credit unions. However, the demand for farm credit continues to outpace the supply as more small farmers seek credit assistance to improve and expand their farm output. The median loan demand for all small farms surveyed was estimated at BZ\$3,000 per farm, as presented in Table VI-1. The average size farm loan is estimated to be BZ\$5,885 or about twice the amount estimate at the median.

TABLE VI-1: FARM CREDIT DEMAND BY LOAN AMOUNT

DISTRICT	TOTAL	TOTAL RESP.	% TOTAL	MEDIAN LOAN	MEAN LOAN	MINIMUM LOAN	MAXIMUM LOAN
BELIZE	33	20	60.6%	\$2,250	\$5,100	\$300	\$30,000
CAYO	23	17	73.9%	\$3,000	\$4,882	\$1,000	\$20,000
COROZAL	22	12	54.5%	\$4,500	\$5,933	\$1,000	\$12,000
ORANGE WALK	26	18	69.2%	\$2,000	\$3,072	\$300	\$10,000
STANN CREEK	22	14	63.6%	\$3,000	\$13,386	\$400	\$60,000
TOLEDO	15	11	73.3%	\$3,000	\$3,864	\$200	\$16,000
ALL DISTRICTS	141	92	65.2%	\$3,000	\$5,885	\$200	\$60,000

VI-2

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Table VI-2 shows the demand for farm credit by district. As can be seen in Table VI-2, Corozal district has the highest median demand for farm credit at BZ\$4,500 per farm. This is not entirely surprising since sugar cane is the principal crop produced in this district. Although there are economies of scale in production, sugar cane farming tends to be capital intensive. Small farms in the districts of Stann Creek, Toledo and Cayo report the same level of need for farm credit assistance at about BZ\$3,000. While each of these districts vary in the type of principal crops produced (i.e., rice in Toledo, citrus in Stann Creek and poultry and livestock production in Cayo) their need for farm credit assistance is at the same level.

#### C. Aggregate Credit Demand

Apart from the demand for farm credit in each district, there is also a need to determine what the total requirement for farm credit assistance is throughout the country for smallholder farm development. The number of smallholder estates, as have been defined in this research, was estimated to be 8,015. Taking the total number of small farms (8,015) times the median loan demand (BZ\$3,000) yields the aggregate demand that the farm credit programs will have to support. It is not very likely that every small farm seeking a loan will be granted one. However, were each of the 8,015 smallholder farms to seek a loan, a total BZ\$24,045,000 would be required in loan funds to meet this farm credit demand. As presented in Table VI-2, the survey results indicate that only about 74.3 percent of the small farms have intentions of seeking farm credit assistance. Should such results hold, the aggregate farm credit demand would amount to an estimated BZ\$17,865,000.

#### D. Use of Farm Loans

The intended use of farm loans is shown in Table VI-3. Some 18.9 percent of the smallholder farmers said that they would specifically clear land and plant crops were they able to secure a farm loan. This figure would be significantly higher were the categories of crop planting or land clearing added to this total. These two categories would add an additional 32 percentage points to the land clearing and crop planting total. Nonetheless, it is clear from the results of the survey that farm credit assistance is need primarily for land clearing and crop planting.

The next most important purpose for which farm credit assistance is required is for the purchasing of poultry and livestock. About 15.9 percent of the farms indicated purchasing of livestock as their intended use of a farm loan. Farm equipment and machinery were not very significant in terms of the need for farm credit. Only about 5 percent of the small farmers said that they would use their farm loan to purchase farm equipment and machinery.

TABLE VI-2: FARM CREDIT DEMAND OF SMALLHOLDER FARMS

DISTRICT	TOTAL	TOTAL RESP	% TOTAL	SEEK LOAN NEXT YEAR			
				NO	% TOTAL	YES	% TOTAL
BELIZE	33	32	96.97%	10	31.25%	22	68.75%
CAYO	23	23	100.00%	4	17.39%	19	82.61%
COROZAL	22	22	100.00%	9	40.91%	13	59.09%
ORANGE WALKER	26	26	100.00%	5	19.23%	21	80.77%
STANN CREEK	22	18	81.82%	3	16.67%	15	83.33%
TOLEDO	15	15	100.00%	4	26.67%	11	73.33%
ALL DISTRICTS	141	136	96.45%	35	25.74%	101	74.26%

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## E. Collateral

The aggregate demand for credit assistance to smallholder farms was estimated at BZ\$17,855,435. The ability of the small farmers to use their assets to collateralize their farm loan was also investigated. Some 22.7 percent of small farmers used their land in the past to secure their farm loan. In addition to land, small farmers used their crop and property title to collateralize their farm loans with a respective 9.1% share. It is unlikely that the use of land, crops, and personal property by small farmers as collateral to secure a farm will vary much in regards to future farm credit assistance.

The type of land tenure system in place in Belize whereby many farms are leasehold or communal tenure in stead of outright freehold may, unless concessionary terms can be structured, restrict the ability of many small farmers to secure farm credit. According to the Census of Agriculture only 2,410 smallholder estates country-wide, as defined in this research, are freehold estates. This effectively means that farm credit programs will have to look for sources other than the land title, as the source of collateral to secure the farm loan, if they intend provide assistance to these small farmers. In the past, many institutions (e.g. Atlantic Bank, Holy Redeemer Credit Union, and Belize Bank, etc.) which provided farm loans have used the farmer's crop to secure the farm loan. Such an approach is likely to be the most practical one in the future in terms of a way to secure short-term farm loans.

TABLE VI-3: PURPOSE OF SMALLHOLDER FARM LOANS

LOAN PURPOSE	TOTAL	% TOTAL
Clearing/Planting	18	18.95%
Develop Farm	9	9.47%
Planting	7	7.37%
Buy Livestock	5	5.26%
Buy Poultry	5	5.26%
Pig Rearing	5	5.26%
Plant Cane	5	5.26%
Plant Citrus	5	5.26%
Fertilizer	4	4.21%
Buy Tractor	2	2.11%
Buy Water Pump	2	2.11%
Plant Beans/Corn	2	2.11%
Plant Cocoa	2	2.11%
Plant Corn	2	2.11%
Plant Peanuts	2	2.11%
Seeds	2	2.11%
Build House	1	1.05%
Buy More Land	1	1.05%
Buy Trailer/Truck	1	1.05%
Buy Tractor/Tractor	1	1.05%
Cattle Fatteners	1	1.05%
Crop Lien for Cocoa	1	1.05%
Cultivate Rice/Beans	1	1.05%
Cultivation	1	1.05%
Drain Farm	1	1.05%
Equipment	1	1.05%
Fence Farm	1	1.05%
If He Has To	1	1.05%
Pay Old Loan/Invest in Veg.	1	1.05%
Plant Papaya	1	1.05%
Shed	1	1.05%
Start Crop	1	1.05%
Tools	1	1.05%
Vegetables	1	1.05%
TOTAL:	95	100.00%

## VII. TECHNICAL ASSISTANCE REQUIREMENTS

In addition to the need for farm credit assistance cited above, the smallholder farms also requires technical assistance, involving a wide reange agricultural extension services to improve the efficiency of their farm operations and increase farm production. As indicated in Table VII-1, just over a third (35.0 percent) of the small farmers surveyed indicated that they had received technical assistance for their farms in the past. The districts of Stann Creek and Toledo received technical assistance at rates higher than other districts surveyed. Some 45.6 percent and 50.0 percent respectively of the small farmers in these two districts indicated that they had received technical assistance for their farms. Small farmers in the districts of Belize and Corozal had the lowest rate for receiving technical assistance at 24.2 percent and 22.7 percent respectively.

Of those small farms receiving technical assistance, the Ministry of Agriculture, as revealed in Table VII-2, provided 46.6 percent of the assistance. Farm management represented the largest share of all types of technical assistance received by small farmers at 13.6 percent. This was followed by pest control and planting methods at a 9.1 percent share each, as can be seen in Table VII-3.

As Table VII-4 indicates, some 66.9 percent of the small farmers reported that they intend to seek technical assistance for their farms in the coming year. Small farmers in the districts of Stann Creek, Toledo and Cayo intend to seek technical assistance at rates exceeding the country-wide average of 66.9 percent. The need for technical assistance represented 80.9 percent, 85.7 percent, and 68.2 percent of all small farmers in these districts respectively.

The results obtained from the survey and presented in Table VII-5 indicate that two principal areas of technical assistance will be required by small farmers in the coming year. These include technical assistance involving agricultural extension services in such areas as farm management and crop production and in the use of factor inputs. The extension services refer to such areas as farm management techniques, crop planting, uses of fertilizers to improve farm yields and herbicides for disease and pest control, soil sampling, and agricultural training, etc. Training in the use of factor inputs relate to those inputs that can improve the production capacity of the farm. They can include training in the use of for example, fertilizers, herbicides, insecticides, farm equipment and machinery, etc.

TABLE VII-1: SMALLHOLDER FARMS RECEIVING  
TECHNICAL ASSISTANCE BY DISTRICTS

DISTRICT	TOTAL	TOTAL		NO	TECHNICAL ASSISTANCE		
		RESP.	% TOTAL		% TOTAL	YES	% TOTAL
BELIZE	33	33	100.00%	25	75.76%	8	24.24%
CAYO	23	23	100.00%	14	60.87%	9	39.13%
COROZAL	22	22	100.00%	17	77.27%	5	22.73%
ORANGE WALK	26	26	100.00%	16	61.54%	10	38.46%
STANN CREEK	22	22	100.00%	12	54.55%	10	45.45%
TOLEDO	15	14	93.33%	7	50.00%	7	50.00%
ALL DISTRICTS	141	140	99.29%	91	65.00%	49	35.00%

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TABLE VII-2: SOURCE OF TECHNICAL ASSISTANCE  
RECEIVED BY SMALLHOLDER FARMS

SOURCE	TOTAL	% TOTAL
Ministry of Agriculture	17	37.78%
Central Farm	4	8.89%
BSI	3	6.67%
DFC	3	6.67%
USAID	2	4.44%
BABCO	1	2.22%
Belize School of Agriculture	1	2.22%
BEST	1	2.22%
Books	1	2.22%
BSI and Agriculture	1	2.22%
Cane Farmers Association	1	2.22%
Company Program	1	2.22%
Cooperative	1	2.22%
Cousin	1	2.22%
Experienced Farmers	1	2.22%
Help for Progress/BEST/Agri. Dept.	1	2.22%
Hopkins Farmers Cooperative	1	2.22%
Menonites	1	2.22%
Official of Cooperative	1	2.22%
Raise Cattle	1	2.22%
TRDP	1	2.22%
TOTAL:	45	100.00%

TABLE VII-3: TYPE OF TECHNICAL ASSISTANCE  
RECEIVED BY SMALLHOLDER FARMS

TYPE OF ASSISTANCE	TOTAL	% TOTAL
Farm Management	6	13.64%
Pest Control	4	9.09%
Planting Methods	4	9.09%
Technical Advice	4	9.09%
Soil Testing	3	6.82%
Weed Control	3	6.82%
Disease Control	2	4.55%
Improve Crop Yields	2	4.55%
Agriculture	1	2.27%
Cattle	1	2.27%
Citrus Management	1	2.27%
Clearing/Seeds/Fert.	1	2.27%
Expand Farming	1	2.27%
Farming Procedures	1	2.27%
Fertilizer	1	2.27%
Grow Cane Better	1	2.27%
How Maintain Crop	1	2.27%
How to Feed Chickens	1	2.27%
How to Work In Partnership	1	2.27%
Insecticide	1	2.27%
Project Costs	1	2.27%
Treat & Care for Chickens	1	2.27%
Treat Pigs	1	2.27%
Variety	1	2.27%
TOTAL:	44	100.00%

## A. Agricultural Extension Services Needed

One of the best ways to systematically deliver needed farm assistance to small farmers is through a coordinated farm extension service program. As Table VII-5 shows, the type of agricultural extension services cited most often by small farmers as most important to help in expanding their production was assistance in crop production. More than a third (40.3%) of the small farmers indicated that assistance with crop production involving planting methods and related agricultural training was the most important area of technical support needed. Farm management with a 11.5 percent share represents the second largest area of technical assistance that small farmers said they needed. Other significant areas requiring outside technical assistance include soil testing (6.9%), disease and weed control (8.1%). Technical assistance in livestock rearing and animal husbandry represents only about a 3.4 percent share of the technical assistance needs of small farmers.

## B. The Use of Factor Inputs

The assistance in the use of factor inputs cited most often as being needed by smallholder estate owners were with farm equipment and machinery. Five percent of all small farms reporting indicated that assistance in the use of farm equipment and machinery were needed to expand their production. The need for training in the use of fertilizers was reported by 4.6% of the small farmers as an important farm input.

More than 46.5 percent of the small farmers reported that they intend to seek their technical assistance needs from the Ministry of Agriculture in the coming year. Only 3.6 percent intend to seek technical assistance from the National Development Foundation. Some 2.4 percent of the small farmers said they intend to seek technical assistance from the Development Finance Corporation.

TABLE VII-4: SMALLHOLDER FARMS INTENDING  
TO SEEK TECHNICAL ASSISTANCE BY DISTRICT

DISTRICT	TOTAL	TOTAL		NO	TECHNICAL ASSISTANCE		
		RESP.	%		%	YES	%
BELIZE	33	32	97.0%	11	34.4%	21	65.6%
CAYO	23	22	95.7%	7	31.8%	15	68.2%
COROZAL	22	22	100.0%	9	40.9%	13	59.1%
ORANGE WALK	26	25	96.2%	12	48.0%	13	52.0%
STANN CREEK	22	21	95.5%	4	19.0%	17	81.0%
TOLEDO	15	14	93.3%	2	14.3%	12	85.7%
ALL DISTRICTS	141	136	96.5%	45	33.1%	91	66.9%

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TABLE VII-5: TECHNICAL ASSISTANCE NEEDS  
OF SMALLHOLDER FARMS BY TYPE

TYPE OF ASSISTANCE	TOTAL	% TOTAL
Farm Management	10	11.49%
Crop Production	9	10.34%
Planting Methods	9	10.34%
Agriculture Training	8	9.20%
Soil Testing	6	6.90%
Disease Control	5	5.75%
Fertilizer Usage	4	4.60%
Farm Maintenance	3	3.45%
How to Grow Vegetables	2	2.30%
Insecticide Usage	2	2.30%
Weed Control	2	2.30%
Cacao	1	1.15%
Cattle Rearing/Management	3	3.45%
Crop Type	1	1.15%
Cultivation Methods	1	1.15%
Develop the Pasture	1	1.15%
Farm Equipment/Machinery	1	1.15%
Farm Rep.	1	1.15%
Farming	1	1.15%
How to Protect Plants	1	1.15%
Irrigation	1	1.15%
Livestock/Pig Rearing	2	2.30%
New Crops	1	1.15%
Same Program	1	1.15%
Seed Availability	1	1.15%
Use of Casava	1	1.15%
Other	9	10.34%
<b>TOTAL:</b>	<b>87</b>	<b>100.00%</b>

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## VIII. SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

### A. Summary and Conclusions

This survey of smallholder farms set out to accomplish four main objectives. These objectives were intended: i) to compile a comprehensive profile of the smallholder farm sector; ii) to describe and analyze the inputs needed for the development of this sector; iii) to estimate the extent to which the farm credit and technical assistance needs are being met, and iv) to recommend U.S.A.I.D./Belize's role in meeting the needs of this sector. The following discussion presents a summary of the survey research results. These summaries were derived from the analysis of the interview responses from 160 small farmers. A general conclusion to be made here is that state of knowledge regarding smallholder farm development clearly points to the need for additional assistance if this sector is to realize its potential in terms of producing additional foodstuffs for domestic consumption and export.

#### 1. Background Characteristics of Small Farmers

This section summarizes some of the most salient background characteristics of smallholder farms in Belize. It provides information on the type and level of farm activities carried out by small farmers in each of the six administrative districts of Belize. The summary results are the following:

##### Type and Size of Small Farms

Mixed farming involving farming for home consumption and for sale to local or foreign markets represents the largest share of all small farms in the survey. Mixed Farms accounted for 66.7 percent of all farms in the survey. Cash crop farming such as sugar cane farming represented 10.6 percent of the small farms surveyed. Citrus growing and poultry raising were respectively 7.1 percent and 3.6 percent of all farms surveyed.

Small farmers tended to have more farm experience in the districts of Belize, Corozal and Toledo. Small farmers in these districts had respectively 20, 18, and 21 median years of farm experience.

The average farm size of the farms surveyed consisted of 19.0 acres of land. Smallholder farms tended to be larger in the districts of Corozal with 23.7 acres of land and Orange Walk with 22.0 acres of land. Small farms in the district of Cayo averaged 20.2 acres of land per farm. Farms in the district of Toledo and Stann Creek had lower

than average farm sizes at 15.1 and 13.6 acres of land respectively.

Approximately three (2.9) acres of the land of all small farms in the six districts are irrigated lands.

The need for assistance in the use of fertilizer was reported by 4.6% of the small farmers as an important farm input.

#### Demographics of Small Farm Holders

Approximately eighty-eight percent of all smallholder farms in the survey were either owned or operated by men. Of those estates that are women-owned, all are concentrated in the districts of Belize, Cayo, Stann Creek and Orange Walk. Women-owned small farms were predominantly mixed-farms, although a large percentage (29.1 %) of the farms raised poultry. The remaining women-owned farms produced such items as vegetables, ground foods, sugar cane and citrus.

The age distribution of small farmers in Belize tended to be rather evenly distributed. The median age of all smallholder estate owners was 45 years old. The median age of small farmers on a district by district basis revealed that Corozal district tended to have slightly older farmers with the median age at 49.5 years, followed by Belize district at 48 years.

At least 88.7 percent of all smallholder farmers had completed a primary level of education, while only 2.3 percent had no formal schooling. Only 1.6 percent had completed a university degree.

#### Household Characteristics

The average household size across all smallholder estate owners in the survey is 6.06 persons per household. Toledo district had the highest average household size compared to all other districts at 7.05 persons per household. The average number of household members employed on the farm is 1.86 persons per household for all small farms. Toledo district had the highest average number of household members employed on the farm at 2.5 persons per household.

#### Home Consumption Of Farm Output

Farm households consumed an average of BZ\$2,356 worth of farm produce and livestock for all farms in the survey. The districts of Toledo and Corozal had the highest average home consumption levels of farm output valued at BZ\$5,194 and BZ\$3,307 respectively. Some 61.3 percent of all small farm households responding indicated that they consumed less than one-quarter of their farm output, while 6.7 percent said they did not use any of their farm production for home consumption. The remaining 32.0 percent of farm households consumed between one-quarter and all of their farm production. Small farms in the Toledo district had the highest rate of household consumption between one-quarter and one-half of farm output with 50 percent of all household consumption by districts in this quartile.

## Credit History of Small Farms

Of the 140 small farms reporting, 52.1 percent had obtained a farm loan from a commercial lending institution. Institutional lenders such as commercial banks, the National Development Foundation, the Development Finance Corporation, and credit unions, etc. provided almost 100 percent of the farm credit to smallholder farms. Barclays Bank accounted for a 24.2 % share of the credit to small farmers. The Development Finance Corporation and the National Development Foundation provided respectively 40.9 % and 7.6% of the farm credit to the small farmers in the survey.

The median loan received by small farmers was BZ\$2,400. The districts of Corozal, Stann Creek, and Toledo received higher median loans than other districts. The median loans received by these districts were respectively BZ\$5,000, BZ\$3,500 and BZ\$3,250. Belize district received the lowest median loan amount at BZ\$500.

Short term loans to small farmers, which are typically crop loans, represented the largest share of all credit assistance to small farmers with a commanding 54.7% share.

## Farm Extension Services

Only 35.0 percent of the small farmers surveyed indicated that they had received technical assistance for their farms in the past. Of those farms receiving technical assistance the Ministry of Agriculture provided 46.6 percent of the assistance. Farm management represented the largest share of all types of technical assistance received by small farmers at 13.6 percent. This was followed by pest control and planting methods at a 9.1 percent share each.

## Farm Income and Farm Employment

The crop which produced the highest median income for smallholder estate owners was citrus. Citrus growing by small farmers produced BZ\$10,000 in median sales last year. Citrus growing was followed by sugar cane growing as the the crop generating the second highest median income of all small farms. The median income derived from growing sugar cane by small farmers was BZ\$7,616.

The average number of persons employed per small farm for all farms was 0.3. Belize, Cayo and Corozal districts exceeded the average number of farm employees per farm. They were respectively 0.55, 0.55 and 0.52 employees per farm. Yearround farm employment tended to be evenly distributed across all districts at 1.0 employee per farm. Seasonal farm employment was led by the districts of Belize and Corozal at 1.8 employees per farm each.

## Food Stocks and Supplies

The results obtained from the survey reveal that the food items stored most often by small farmer households were rice, beans, and honey. It is quite apparent that of the small farmers reporting, the tendency is to store staple food items. The median value of stored rice, beans, and honey were respectively, BZ\$500, BZ\$220, and BZ\$2,610.

The farm supplies or factor inputs stored most often were fertilizer, pig feed, broiler feed, layer ration, and shelled corn. With the exception of layer ration having a value of BZ\$290, the median value of all other factor inputs stored by small farmers were between BZ\$143 and BZ\$154.

## Farm Management

Only 30.5 percent of the small farmers indicated that they maintained records of their farm activities. Of those small farmers who kept records, such records were almost evenly distributed between accounts receivables and payables, payroll, stocks/supplies and sales for all farms in the survey. Records on crop prices and livestock and poultry were not as widely kept as other business records.

## Farm Cultivation and Livestock Production

The planting of sugar cane in pure stands averaged 22.0 acres per stand. The planting of sugar cane was followed by the planting of fruit trees in pure stands at an average of 7.6 acres per stand. The planting of coconut in pure stands averaged 5.7 acres per stand.

Crops planted in mixed-stands or intercropping where the main crop is a cash crop was led by coconut, sugar cane, and corn as having the largest number of acres per stand. The cultivation of coconut, sugar cane, and corn averaged 12.5 acres, 10.4 acres, and 6.9 acres per stand, respectively.

The main types of livestock and other husbandry raised included cattle, pigs, poultry and bees. The average value of livestock and other husbandry on a small farm ranged from BZ\$58 for pigs to BZ\$3,467 for bees.

## Markets For Agricultural Products

Approximately 48% of the small farmers said that individuals were the purchasers of their farm products. Other businesses or retail establishments and the marketing boards accounted for 13.1% and 11.1% respectively of the market for small farm products and livestock.

Local traders or distributors/wholesalers accounted for less

than ten percent(8.5%) of the small farm sales. Government purchased 5.2% of the small farm output.

## 2. Farm Credit Demand

As small farmers seek to improve their farm operations and increase production, additional pressures will be placed on the financial markets to meet the demand for farm credit. While institutional credit markets, comprising commercial banks and non-profit financial intermediaries, continue to be the only significant source of credit to small farmers, there is a growing need to expand their farm credit support to more farmers. The ability of many smallholder estate owners to improve farm efficiency, increase production and move away from a subsistence form of agriculture is likely to rest on their access to institutional farm credit. This situation persists despite the fact that, in recent years, there has been a sizable increase in the availability of farm credit assistance. According to the Ministry of Agriculture, commercial banks and the D.F.C. had in excess of BZ\$33,500,000 in total loans outstanding in 1985, although the percentage share of commercial bank lending in recent years has shown a downward trend. Additionally, a variety of international sources (e.g., U.S.A.I.D./Belize, Foundation for International Training, and I.A.F. etc.) provide farm credit assistance to small farmers. Nonetheless, the demand for credit continues to burden the farm credit system as the credit supply lags behind demand.

The results obtained from the survey reveal that 74.3 percent of all small farms will seek a farm loan in 1988. The estimated median loan demand for a small farm loan will be approximately BZ\$3,000. The average size loan demand is BZ\$5,885, almost twice the median demand for a farm loan. The average loan demand for all small farms surveyed is approximately three and two-thirds times the average size loan disbursed by NDF/B (BZ\$1,608) in 1987.

### Aggregate Credit Demand

The total demand for farm credit assistance based on those small farmers who said they wanted a farm loan is estimated at approximately BZ\$17,865,000. The aggregate credit demand figure reflects the total number of small farm holdings(8,015 x 74.3%) desiring a loan times the median loan demand of BZ\$3,000 per smallholder farm. Based on the share of small farmers who indicated where they will seek their farm loans, about 21.5% will look to NDF/B for their loan needs. Should such a demand for farm credit materialize, NDF/B will have to increase its farm credit loan portfolio to approximately BZ\$3,841,000.

### Use of Loan Funds

Smallholder estate owners indicated a number of ways in which they would use their loan funds, if granted a farm loan. More than

18.9 percent of the smallholder farms specifically indicated that they would use their loan funds for land clearing and crop planting. Land clearing and planting were followed by the purchase of livestock and poultry with about 15.9 percent of the farmers indicating this as the intended use of their farm credit loan.

### Collateral

The aggregate demand for credit assistance to smallholder farms was estimated at BZ\$17,855,435. The ability of the small farmers to use their assets to collateralize their farm loan was also investigated. Small farmers indicated that 22.7 percent used their land in the past to secure their farm loan. In addition to land, small farmers have used their crop and property title to collateralize their farm loans with a 9.1% share of the total farms reporting this fact.

### 3. Technical Assistance Requirements

The small farmers surveyed indicated the need for a range of technical assistance involving agricultural extension services. Such assistance include: farm management, crop production, planting methods, as well as training in the use of factor inputs to improve the efficiency of their farm operations and increase production. The survey results indicate that some 66.9 percent of the small farmers intend to seek technical assistance for their farms in the coming year. Small farmers in the districts of Stann Creek, Toledo and Cayo intend to seek technical assistance at rates exceeding the country-wide average of 66.9 percent. The need for technical assistance represented 80.9%, 85.7 %, and 68.2% of all small farmers in these districts respectively.

Based on the results obtained from the survey, two areas of technical assistance will be required by small farmers in the coming year. These include technical assistance involving agricultural extension services in such areas as 1) farm management and crop production and 2) use of factor inputs. Farm extension services refer to such areas as farm management techniques, crop planting, uses of fertilizers to improve yields and herbicides for disease control, soil sampling, and agricultural training, etc. Assistance in the use of factor inputs relates to those inputs that can improve the production capacity of the farm. They include assistance in the use of such inputs as, fertilizers, herbicides, farm equipment and machinery, improved seed varieties, etc.

### Agricultural Extension Services Needed

The type of agricultural extension services cited most often by small farmers as most important to help in expanding their production was assistance in farm management at 11.5% of all respondents. Some 10.3% of the small farmers indicated that assistance with crop production and planting methods were the second most important area

of technical support needed.

Agricultural training which also entails assistance in the use of fertilizers, herbicides, insecticides was indicated by small farmers as an important type of technical assistance needed to expand their farm output. Some 9.2% of the small farmers responding reported agricultural training as their choice for technical assistance. The need for assistance in the use of fertilizers was reported by 4.6% of the small farmers as important farm to their farm operations.

#### Factor Inputs Needed

Factor inputs which are mainly physical inputs refer to the type of factors of production needed by small farmers. The factor inputs cited most often as being needed by smallholder estate owners were farm equipment and machinery. Five percent of all small farms reporting indicated that farm equipment and machinery was needed to expand their production. Such factor inputs are actually capital requirements and are typically relieved through capital infusions.

#### B. Policy Implications

A number of issues have emerged during the course of this research and from the survey results that have implications for public policy. In keeping with the survey's Scope of Work, these policy implications can be grouped into the following categories: farm credit assistance and technical assistance. The context in which the policy implications are presented in terms of the opportunities and constraints to the development of the small farm sector.

##### 1. Constraints and Opportunities for SHF Development

The small farm sector reviewed in this study offer opportunities for Belize to reduce its dependency on foreign foods by increasing domestic food production, increasing foreign exchange earnings by producing cash crops, and creating farm employment. However the small farm sector, as a whole, continues to produce at the subsistence level because of its use of low levels of technology and inefficient farming methods. Many of the factors that constrain the smallholder farm sector are structural in nature and are symptomatic of farming at such a small level. For example, the inability to move from subsistence agriculture to more efficient methods of farming can be attributed, in part, to their factors of production and method of utilization. This, in turn, can be attributed to their lack of access to commercial credit markets, their lack of knowledge of modern farm management techniques and farm technologies, and an inadequate system of marketing agricultural products, etc. And at this low level of farming activity, much more is needed to overcome such problems. However, very little can be done without the combined support and cooperation of the national government, the private sector, non-governmental organizations, and international development agencies, and indeed the

farmers themselves. It is problematic that, if such support and cooperation is not forthcoming, the small farm sector as a whole will be able to produce beyond the subsistence level.

The structural constraints inhibiting small farm development occur primarily in three areas. These include farm management and agricultural training, crop planting methods and pest control or more generically farm technologies, and access to farm credit. Despite the fact that in a recent survey by the Belize Institute of Community Enterprise, Training and Development it was reported that there are more than a dozen public and non-governmental organizations offering technical assistance. Nevertheless, the farm management skills and use of modern farm technology of smallholder estate owners appear to be woefully inadequate. This is evidenced by the need of small farmers to seek more assistance and improve their use of farm technology and farm management skills. What is required, in our view, is a more comprehensive approach to the problem of inadequate farm management skills and low level of farm technology. One in which the institutional support to small farmers is available in each of the districts in Belize instead of just at Central Farm. For example, an institution such as the Toledo Agricultural and Marketing Project, offer tremendous promise in providing advice, and structuring and improving the markets for farm products. Were this example to be duplicated in other districts, such farm support institutions could offer technical advice and a variety of scheduled courses in farm management and farm technologies. This approach, we believe, will be effective in improving the farm management skills and transferring modern farm technologies to small farmers.

Improving farm management skills and providing sufficient farm credit will not in and of itself relieve all of the problems confronting small farmers in Belize. In addition to fluctuating farm prices, the marketing system continues to adversely impact on the ability of small farmers to market their farm products. As a result, the system of marketing farm products needs to be dramatically improved at the domestic level. Additionally, a mechanism needs to be developed to disseminate market information to small farmers. This can be accomplished through the intervention of the various associations of farmers (e.g., Citrus Growers Association, Cane Farmers Association, etc.), financial intermediaries, and with the cooperation of the Belize Marketing Board. Improving the marketing conditions for farm products in the domestic markets will also require careful attention to farm prices, distribution channels and local markets. Many small farmers farm primarily for home consumption.

Courses in agricultural marketing strategies, farm management and training, should be subject to the conditions for granting a farm loan. This will effectively encourage small farmers to learn to anticipate market forces and identify those markets that are accessible and offer promise in terms of potential sales. In addition to promotion, small farmers can be helped enormously with the

cooperation of the public sector. The central government accounts for only about 5.2 percent share of the smallholder farm market. The central government (e.g. schools, hospitals, defense forces, etc.) can be more effective in strengthening the small farm sector if its procurement policies are better focused so as make direct purchases of farm products as opposed to through traders and other businessmen.

A number of public and private non-governmental financial intermediaries (D.F.C., NDF/B and credit unions, etc.) provide farm credit assistance to small farmers. However, the credit supply continues to lag behind demand. This situation has implication for improving farm efficiency and expanding the production of smallholder farms. While the supply of farm credit lags behind demand, this is not the only problem affecting small farmers. Funding for the farm credit system has markedly increased over the past five years and this is expected to continue, particularly, in light of the recent World Bank commitment to fund U.S.\$7.8 million dollars for farm credit assistance. The farm credit system will also have to devise ways and means to better deliver credit assistance to a wider segment of the small farm community, target such assistance to the most critical areas of need and to places in the country yet underserved. With the exception of the D.F.C., many of the farm credit programs of the financial intermediaries are limited to a few areas of the country. This situation, however, is rapidly changing as the financial intermediaries, such as NDF/B, and B.I.M. seek to extend their farm credit and technical assistance programs to new markets.

The expectations are that the results of this survey should provide some general direction to financial intermediaries such, as for example NDF/B, in terms of what the needs are of the small farm sector and how to more effectively meet these needs. The results obtained from the survey suggest three specific areas in which financial intermediaries might seek to intervene. These areas include farm credit support, farm management and agricultural training, and technical assistance.

Financial intermediaries should first concentrate their resources on providing farm credit assistance to those small farmers who hold title to their property free and clear. This will permit the farmers to use their property as collateral to secure the farm loans. Such an approach implies adopting farm credit policies which target or prioritize assistance to farmers.

An alternative approach is to seek to provide farm credit assistance to any farmer which meets the basic credit requirements of the financial intermediary. Such a strategy is not without pitfalls. To begin with, unless other policies are in place that emphasize stimulating demand for farm products, instead of simply focusing on credit supply, it becomes problematic as to the success of providing farm credit assistance to such a large number of small farmers.

## IX. RECOMMENDATIONS AND SCOPE FOR POLICY INTERVENTION

The agricultural policies of the Government of Belize as presented in its Food and Agriculture Policy, offer a sound basis upon which U.S.A.I.D./Belize can provide additional assistance to the agricultural sector. The fundamental basis of Belize's agricultural policies is that they are market driven and as such offer sufficient latitude and conformity with United States policies regarding the market approach to development. It is within this broad policy context that the recommendations below are presented.

A number of opportunities are available through the combined efforts of the national government, the private sector, financial intermediaries, and international agencies to significantly improve the capacity of the smallholder estate owners to increase agricultural production for both domestic consumption and for the export market. What is required in order to realize these opportunities is increased institutional support and cooperation. Specifically, the adoption of a comprehensive farm credit system and the formulation of workable technical assistance and marketing policies towards small farmers will be necessary.

The recommendations and policy actions presented below are intended to assist U.S.A.I.D./Belize in shaping its role and strengthening its support in the area of smallholder farm development. The recommendations are formulated so as to offer approaches that can be used to overcome the structural problems of the small farm sector. Recommendations are presented in three main areas including: farm credit support, technical assistance and farm extension services, and institutional linkages. It is recommended that the United States A.I.D. Mission to Belize undertake the following:

### 1. Farm Credit Support

A. Increase its grant support to non-governmental financial intermediaries (e.g, NDF/B) that provide farm credit assistance. U.S.A.I.D./Belize should provide about BZ\$1,500,000 per year over the next five years to meet the small farmers credit demand. Such assistance should be targeted mainly for those smallholder farmers that produce crops and raise livestock for domestic consumption, particularly rice farmers, and pig, poultry and cattle, etc.

B. Encourage the various associations of farmers (e.g, citrus growers, rice farmers, sugar cane farmers, etc.) to form credit unions to provide some of their own credit needs and

support for other smallholder farms such as crop loans and other short-term farm credit needs. Provide whatever technical assistance is needed in order to assist the farmers' associations to better meet their own credit needs.

## 2. Technical Assistance and Farm Extension Services

A. Provide additional financial support to the Ministry of Agriculture and Central Farm to enable it to increase its farm extension programs to small farmers. Farm extension services are needed in the areas of farm management, crop planting methods and farm technology (fertilizer and herbicide usage, etc.). The delivery of extension services is likely to require additional outside agricultural experts to support the Ministry of Agriculture.

B. Undertake a national agriculture market study in conjunction with the Ministry of Agriculture of the extent to which production of certain food crops (e.g, rice, beans, ground foods, fruits and vegetables. etc) can be satisfied by the domestic production. The study should focus specifically on the factors inhibiting domestic production, how to improve domestic output and evaluate how markets can be better structured so as to facilitate the supplier-buyer relationship. The study should also determine if the Toledo Agricultural and Marketing Project is an appropriate model for use in other districts.

## 3. Institutional Linkages

A. Promote the cooperation and coordination of non-governmental farm credit and technical assistance organizations, the D.F.C. and the Ministry of Agriculture in the delivery of farm credit assistance and farm extension services to small farmers. An intercooperation council should be established to serve as a clearinghouse for exchanging information through regular meetings, joint publications and joint information dissemination.

B. Sponsor an annual agricultural conference of small farmers, as well as governmental and non-governmental agencies and organizations providing support to the small farm sector to enable wider participation, discussion, and coordination of farm credit policies.

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**APPENDIX A: SCOPE OF WORK**

SCOPE OF WORK-SURVEY OF MICRO AND SMALL SCALE ENTERPRISES  
INCLUDING SMALL FARMS

I. Background

The Belizean private sector is traditionally trader/importer dominated. Yet to develop economically, with its limited domestic market and untapped natural and archaeological resources, Belize must develop exports and tourism. The private sector, as a whole, must expand. One way of achieving such goals is to develop the private sector from the "bottom up" in both the agricultural and non-agricultural sectors. There are several thousand micro and small scale enterprises in Belize in a wide variety of areas, including wood-working, food processing, tile manufacturing, services, etc. In addition, there are some 8,000 small farm holdings in Belize. Such numbers represent a potentially powerful force in the private sector of Belize. Yet, these types of businesses have remained underdeveloped, and have not received adequate inputs necessary for development such as credit and technical and marketing assistance. If assisted, micro and small businesses and farms could contribute significantly to the development of the economy, on a broad-scale basis, and in both the domestic and foreign markets. It is A.I.D.'s intention to specifically address the development of these sectors in its Country Development Strategy Statement for 1990 and beyond.

II. Objectives

- A. Through sampling and surveying techniques, compile comprehensive profiles of the micro, and small scale enterprises, including small farms. (higher priority)
- B. Through sampling and surveying techniques, describe and analyze inputs needed for the development of these sectors, focusing especially on the perceived need for credit. (higher priority)
- C. Estimate the extent to which credit and technical assistance needs are being met and by whom. (lower priority).
- D. Recommend A.I.D.'s role in meeting the needs of these sectors. (lower priority)

III. Tasks (To be achieved through a combination of interviewing, gathering existent information, sampling/surveying, extrapolating)

TASK GROUP 1-GENERAL BACKGROUND:

A. Using the survey instrument in the survey entitled A Survey of Micro-Enterprises and Small-Scale Businesses in Belize, prepared by S. Mintz in Nov./Dec. 1983, develop a survey instrument/questionnaire and a methodology to gather information as described below.

B. Through discussion with USAID staff, officers of Government of Belize, the National Development Foundation of Belize (NDFB), the Development Finance Corporation (DFC), for the purposes of the survey, define the terms: micro-enterprise, small-scale enterprise, and small farm. Through discussion with USAID, establish target groups for such businesses. (Presumably operations directly or indirectly producing products related to exports, import substitution or tourism.)

C. Through sampling and interview with the GOB, DFC, Ministry of Agriculture, NDFB, etc. estimate total numbers of each micro-enterprises (ME), small-scale enterprises (SSE) and small farms (SF). Estimate total numbers by district.

D. Through sampling and extrapolation, estimate total numbers of MEs, SSEs, or SFs according to type of business, activity, or product produced.

TASK GROUP 2-

SURVEY THE FOLLOWING AND GENERALIZE TO TOTAL TARGET GROUPS :

E. According to business or activity category describe the following general (non-credit) information: age, sex, education of owner; gross sales, average assets, liabilities, and net worth of business.

F. Through surveying the businesses, and consulting with financial institutions such as NDFB, DFC and commercial banks, etc., gather the following credit related information: loan demand of target groups, average size of loan by business category and loan source, distribution of loans by lending source and borrowers, loan demand by business categories, distribution of loans by use.

G. Describe banking and financing experience of target groups, including terms and source of loans, use and availability of collateral.

H. Describe other important aspects of target groups, such as: quality of management, technical knowledge, support from cooperatives, government.

I. Describe perceived needs of target groups, other than credit: technical assistance, marketing, business guidance/management, etc.

TASK GROUP 3-  
DESCRIBE FINANCIAL INTERMEDIATION THROUGH DISCUSSIONS WITH AND GATHERING INFORMATION FROM FINANCIAL INSTITUTIONS LENDING TO TARGET GROUPS

J. Through obtaining information from the NDFB, DFC and to a lesser extent commercial banks and credit unions describe the following: lending criteria, loan ceilings, minimum loans, finance charges, technical assistance, and staffing and loan administration.

IV. Reports

A. Description: Include information generated from carrying out the tasks into a report. The following chapters are recommended: Executive Summary, Introduction, Survey Methodology, Survey Results and Interpretations, Financial Intermediation, Recommendations to USAID.

B. Timing: USAID expects a draft report to be completed within six weeks of arrival in Belize. Fieldwork in Belize is expected to be completed in three to four weeks and compiling/writing in the U.S. is expected to be completed in two to three weeks.

C. Submission of Reports: Contractor will provide oral reports to the USAID Program and Project Development Office (PPDO) once a week, after arrival in Belize. Contractor is expected to submit the written draft report to USAID/Belize six weeks after the arrival date in Belize. USAID will respond to draft within two weeks. Final report will be due one week later (nine weeks after arrival in Belize.)

APPENDIX B: SURVEY METHODOLOGY

## APPENDIX B: SMALLHOLDER FARMS SURVEY METHODOLOGY

Similar to the procedures for the conducting the small-scale-enterprise survey, several steps were taken before the actual field surveys were executed. Based on the Scope of Work, a structured survey instrument was developed to gather information on smallholder farms in eleven major data categories comprising fifty questions. These data categories used in the survey included: background information on the farm holding; characteristics of the farm holder; business information on the farm; past technical assistance experience of the farm holder; farm credit experience; characteristics of the farm; farm machinery and equipment; farm production; farm stocks and supplies; agricultural labor, and household information of the farm holder.

During discussions with U.S.A.I.D./Belize on the preparation of the final survey instrument, a determination was made that the criteria for establishing whether a farm holding is to be considered small, medium, or large should be based on the actual size of the holding and should not be based on use or farm type. Thus, all farm holdings in Belize between one-eighth of an acre and fifty acres regardless of farm use or crop type were considered candidate farms for the purposes of the survey.

### Sample Size Determination

The sample frame used to develop a population sample of all smallholder farms in Belize was the 1984-85 Census of Agriculture of the Ministry of Agriculture. Based on the criteria of a smallholder farm, a proportional sample was drawn from those farm holdings between one-eighth and fifty acres. This sample frame represented a total of 9,912 farm holdings country-wide. A proportional distribution of small farm holdings of the six administrative districts of Belize yielded a population sample of 150 desirable responses. This population sample represents a 1.4 percent sample of all small farm holdings under fifty acres and larger than one-eighth of an acre.

### Survey Procedures and Field Controls

The next steps taken in executing the survey was the final selection and training of the survey enumerators. The preliminary screening of candidate survey enumerators were undertaken by the National Development Foundation of Belize prior to the Consultant team's arrival in Belize. This effort resulted in the assemblage of an eight-person candidate survey team which greatly facilitated the work of the Consultants by reducing the time spent in the project orientation and hiring phases of the survey. Training of the survey enumerators was held on November 6th at the offices of the National Development Foundation. Each enumerator was given detailed instructions regarding the objectives of the survey, the methods of execution, the schedule of work to be completed, the areas to be

surveyed, and the size of small farm holdings to be surveyed.

After the training of the enumerators was completed, the field survey work of small farm holdings began in earnest on November 7th and was completed on November 14th. Target survey areas were predesignated with the cooperation of the Districts' Agricultural Officer of the Ministry of Agriculture and the National Development Foundation. The predesignated survey areas were primarily selected with a view towards providing the widest selection of small farms in a given district. In each of these areas, the expectation was to intercept potential respondents at their residence. Once the survey areas were determined, the enumerators were transported to that area to begin the interviews. If the enumerator was unable to intercept the intended respondent he/she was to continue to the next interview location. In cases where clusters of farmers live, such as in the villages, it was possible to initiate callbacks or returns when the intended respondent was not available initially.

Field controls were put in place to monitor the progress of the field work and to ensure quality control by verifying the recorded responses for accuracy. The field controls were carried out in the field twice daily through inspections of the enumerators' work and checked again at the end of the work day.

#### DATA REDUCTION

The reduction of the small farms survey data involved transferring recorded responses directly into predesigned data base formats using personal computers. Once the data were entered into data bases the transcription errors were corrected and the data were verified for accuracy, the process of tabulating the results began. The data consisted of 160 observations comprising 50 variables. The survey data produced 8,050 measurements across ten data categories.

APPENDIX C: SURVEY QUESTIONNAIRE



**SECTION 3. BUSINESS INFORMATION**

12. What kind of business records do you maintain of your farm operations?

Payables	<input type="text"/>	Crop Yields	<input type="text"/>
Receivables	<input type="text"/>	Crop Prices	<input type="text"/>
Payroll	<input type="text"/>	Livestock/Poultry	<input type="text"/>
Stocks/Supplies	<input type="text"/>	None	<input type="text"/>
Sale	<input type="text"/>	Other	<input type="text"/>

13. By whom are these records kept?

14. What was your farm income from the sale of produce over the last three years?

Type of Produce Sold	1987	1986	1985
	\$	\$	\$

15. What was your farm income from the sale of livestock over the last three years?

Type of Livestock Sold	1987	1986	1985
	\$	\$	\$

16. Who do you sell your agricultural products or livestock/poultry to?

Marketing Board	<input type="text"/>	Other Businesses	<input type="text"/>
Traders	<input type="text"/>	Other Government	<input type="text"/>
Individuals	<input type="text"/>	Other	<input type="text"/>

17. If you sell in more than one market, what percentage is sold in each market?

Marketing Board	<input type="text"/>	Other Businesses	<input type="text"/>
Traders	<input type="text"/>	Other Government	<input type="text"/>
Individuals	<input type="text"/>	Other	<input type="text"/>

18. Why do sell your products to this(these) market(s)? \_\_\_\_\_

19. Are you a member of a farm cooperative or credit union?

Yes  No

20. If yes, which one? \_\_\_\_\_

**SECTION 4. TECHNICAL ASSISTANCE**

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21. Did you obtain any technical advice on the management or operation of this farm during the past two years?

Yes

No

22. If yes,

What was the source(s)?  
When?  
What type of advice?  
For what purpose?


23. Was the technical advice useful to you?

Yes

No

24. If it was not, why not? \_\_\_\_\_

25. Do you intend to seek any technical advice or assistance regarding your farm operations or management in the coming year?

Yes

No

26. If yes, what kind of technical assistance/advice will you seek? \_\_\_\_\_

27. Where will you go to get this advice? \_\_\_\_\_

SECTION 5. FARM CREDIT HISTORY

28. Have you ever obtained any credit or a loan from a lending institution for the operation of your farm?

Yes

No

29. If yes,

When?  
From what source(s)?  
What type?  
What amount?  
For what purpose?


30. What were the basic terms of the credit or loan?

Interest Rate  
Loan Period  
Collateral


Repayment Schedule  
Borrower's Contribution  
Other


31. Do you intend to seek credit or a loan for your farm in the coming year?

Yes

No

32. If yes, From what source?  
 What amount?  
 For what purpose?


SECTION 6. FARM CHARACTERISTICS

33. What is size of the total land operated by you?

34. How many acres of this farm are irrigated?

35. What is the main source of the water used for irrigation?

Surface Water   
 Well   
 Tank

Public Water   
 Micro Dam   
 Not Stated

36. How many acres of this farm do you own?

37. How many acres of this farm are rented?

SECTION 7. FARM MACHINERY AND EQUIPMENT

38. What type of machinery and equipment do you own or lease?

	# Owned	Value	# Leased
Tractor Drawn Ploughs			
Other Ploughs			
Tractors			
Trailers			
Trucks,Vans,Station Wagons			
Animal Drawn Vehicles			
Mechanical Spray Pumps			
Hand Operated Pumps			
Mechanical Reapers			
Mechanical Loaders			
Other Machinery & Equip.			

39. What type of buildings and farm structures do you have?

Type of Building	Age	Sq. Foot	Capacity	Value
Farm House				
Barn				
Storage Shed				
Grain Silo				
Chicken Houses				
Pig Pens				



Other:				

**SECTION 8. FARM PRODUCTION**

40. What type of crops do you have in production?

Type of Crops	Pure Stand		Mixed Stand	
	Acres	Sq. Ft.	Acres	Sq. Ft.
Corn				
Rice				
Beans				
Vegetables				
Bananas				
Plantains				
Ground Food				
Citrus				
Mangoes				
Other Fruit Trees				
Sugar Cane				
Timber				
Other:				

41. What type of livestock and or poultry do you own?

Type of Livestock	Number	Avg. Age	Weight	Value
Bulls				
Cows				
Heifers 2-3 yrs. old				
Heifers 1-2 yrs. old				
Bull Calves				
Heifer Calves				
Steers 2-3 yrs. old				
Steers 1-2 yrs. old				
Rams				
Ewes				
Lambs				
Wethers				
Bucks				
Does				
Kids				
Boars				
Sows				
Gilt				
Young Boars				
Fatteners				
Piglets - Males				
Piglets - Females				
Poultry - Layers				
Poultry - Broilers				
Bee Hives				
Other:				

**SECTION 9. FARM STOCKS AND SUPPLIES**

42. What type of feed stock or supplies do you maintain?

Type of Stock	Quantity	Value	How Often Stored	Bought/Credit
Fertilizer				
Pig Feed				
Broiler Feed				
Layer Ration				
Shelled Corn				
Rice				
Beans				
Honey				
Other:				

**SECTION 10. AGRICULTURAL LABOR**

43. How many people do you employ on this farm ?

Number of Employees	<input type="text"/>
Year-round	<input type="text"/>
Seasonal	<input type="text"/>

44. How much do you pay out for wages annually?

45. What is the size of your household?

46. How many members of your house are working on the farm?

47. How much of what you produce is used by your family?

About 1/4 or less	<input type="text"/>
About 1/4 - 1/2	<input type="text"/>
About 1/2 - 3/4	<input type="text"/>
About 3/4 or more	<input type="text"/>

48. What is the dollar value of what you used from the farm for your family?

49. Where do you purchase your farm supplies?

Community Store	<input type="text"/>
District Store	<input type="text"/>
City Store	<input type="text"/>
Other	<input type="text"/>

50. What was the value of your produce during the past year?

**APPENDIX D: SUMMARY DATA TABLES**

SMALLHOLDER FARM CROP CULTIVATION

DISTRICT	MEAN ACRES PURE STAND CORN ACRES	MEAN ACRES PURE STAND CORN DOMESTIC	MEAN ACRES PURE STAND CORN EXPORT	MEAN ACRES PURE STAND RICE ACRES	MEAN ACRES PURE STAND BEANS ACRES
BELIZE	3.5	0.2	0.8	0.5	0.7
CAYO	6.0	0.3	0.6	2.0	
COROZAL	9.9		1.0		1.8
ORANGE WALK	2.3			1.4	0.9
STANN CREEK	4.0			2.0	
TOLEDO	4.3			7.0	0.4
ALL FARMS	4.5	0.2	0.7	3.8	0.9

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MEAN ACRES PURE STAND VEG. ACRES	MEAN ACRES PURE STAND VEG. DOMESTIC	MEAN ACRES PURE STAND VEG. EXPORT	MEAN ACRES PURE STAND BANANAS ACRES	MEAN ACRES PURE STAND PLANT. ACRES	MEAN ACRES PURE STAND PLANT. DOMESTIC	MEAN ACRES PURE STAND PLANT. EXPORT
2.1	0.1	0.9	1.1	6.6	0.1	1.0
2.0				0.7	0.2	0.6
0.4	0.3	0.8		0.3		
0.6			1.0	0.1		
				1.7		
0.9				6.0		
1.3	0.2	0.8	1.1	3.0	0.2	0.7

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MEAN ACRES PURE STAND GND. FD. ACRES	MEAN ACRES PURE STAND GND. FD. DOMESTIC	MEAN ACRES PURE STAND GND. FD. EXPORT	MEAN ACRES PURE STAND CITRUS ACRES	MEAN ACRES PURE STAND MANGOES ACRES	MEAN ACRES PURE STAND FRT. TREE ACRES	MEAN ACRES PURE STAND FRT. TREE DOMESTIC
0.7				3.0	14.3	
1.1	0.4	0.4	8.0		1.0	0.8
			2.8	1.3	5.0	
0.1				1.0		
3.5			8.3		1.5	
			1.0		2.5	
1.0	0.4	0.4	6.1	1.6	7.6	0.5

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MEAN ACRES PURE STAND FRT. TREE EXPORT	MEAN ACRES PURE STAND SUGAR ACRES	MEAN ACRES PURE STAND SUGAR EXPORT	MEAN ACRES PURE STAND COCONUT ACRES	MEAN ACRES PURE STAND PINEAPPLE ACRES	MEAN ACRES PURE STAND COCOA ACRES	MEAN ACRES PURE STAND PEANUT ACRES
1.0			7.5			
0.4	0.1					1.0
	22.3	1.0	0.3	0.1		0.5
	23.4					1.0
					5.0	
0.7	22.0	1.0	5.7	0.1	5.0	0.8

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MEAN ACRES	MEAN ACRES
PURE STAND OTHER1 ACRES	PURE STAND OTHER1 EXPORT
1.8	
1.1	0.8
0.3	
0.3	
1.2	
1.2	0.8

SMALLHOLDER FARMS MIXED CROP CULTIVATION

DISTRICT	MEAN ACRES											
	MIXED											
	STAND											
	CORN	CORN	CORN	RICE	RICE	RICE	BEANS	VEGETABLES	VEGETABLES	BANANAS	BANANAS	BANANAS
	ACRES	DOMESTIC	EXPORT	ACRES	DOMESTIC	EXPORT	ACRES	ACRES	EXPORT	ACRES	DOMESTIC	EXPORT
BELIZE	4.0	0.5	0.8	3.2	0.5	0.8	1.7	1.7		1.6	0.3	0.8
CAYO	7.6		0.5	1.4			1.0	1.0	0.8	1.0		0.8
COBOZAL												
ORANGE WALK	4.0			1.0								
STANN CREEK				3.0			1.5					
TOLDO								1.0				
ALL FARMS	6.3	0.5	0.6	2.2	0.5	0.8	1.4	1.5	0.8	1.5	0.3	0.8

MIXED STAND PLANT. ACRES	MIXED STAND PLANT. DOMESTIC ACRES	MIXED STAND PLANT. EXPORT ACRES	MIXED STAND GND. FD. ACRES	MIXED STAND GND. FD. DOMESTIC ACRES	MIXED STAND GND. FD. EXPORT ACRES	MIXED STAND CITRUS ACRES	MIXED STAND MANGOES ACRES	MIXED STAND FRUIT TREE ACRES	MIXED STAND FRUIT TREE DOMESTIC ACRES	MIXED STAND SUGAR ACRES	MIXED STAND COCONUT ACRES	MIXED STAND PINAPPLE ACRES	MIXED STAND OTHER ACRES
2.2	0.3	0.8	1.2	0.3	0.8	0.5	0.5	2.9	0.8		12.5	7.5	1
1.2			2.0					1.0					
								10.5		21.0			
						1.0				4.0			
1.5			1.5			7.2				0.8		1.0	
12.0								1.0					
2.7	0.3	0.8	1.5	0.3	0.8	4.6	0.5	4.8	0.8	10.4	12.5	5.3	1.

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SMALLHOLDER FARM LIVESTOCK

DISTRICT	MEAN NUMBER OF KIDS	MEAN NUMBER OF BOARS	MEAN AGE OF BOARS	MEAN WEIGHT OF BOARS	MEAN VALUE OF BOARS	MEAN NUMBER OF SOWS	MEAN AGE OF SOWS	MEAN WEIGHT OF SOWS	MEAN VALUE OF SOWS
BELIZE		1.0	0.4	100.0	\$100	2.0	0.4	200.0	\$200
CAYO		5.3	0.4	295.0	\$375	1.3	1.7	325.0	\$283
COROZAL	5.0	1.0	0.8	200.0	\$230	4.0	2.0	450.0	\$650
ORANGE WALK STANN CREEK									
TOLEDO		5.7	0.9	110.0	\$70	7.7	0.9	190.0	\$210
ALL FARMS	5.0	4.4	0.6	185.0	\$203	4.1	1.3	304.3	\$346

DISTRICT	GILT GNO.	GILT GAGR	GILT GWGT	GILT GVALUE	YOUNG BOARS YNO.	YOUNG BOARS YAGE	YOUNG BOARS YWGT	YOUNG BOARS YVALUE	FATTER- NBRS FNO.	FATTER- NBRS FAGE	FATTER- NBRS FWGT	FATTER- NBRS FVALUE	PIGLETS MALE PMNO.	PIGLETS MALE PMAGR	PIGLETS MALE PMWGT	PIGLETS MALE PMVALUE
BELIZE													5.0	1.2	150.0	
CAYO					10.0	0.2	40.0	\$400					3.5	0.3	40.0	
COBOZAL	6	0.5	375.0	\$725					3.5	0.4	95.0	\$168				
ORANGE WALK													3.3	0.3	300.0	\$665
STANN CREEK																
TULDO					1.0	1.0			10.0	2.0			2.0	0.3	40.0	
ALL FARMS	6	0.5	375.0	\$725	5.5	0.6	40.0	\$400	5.7	1.2	95.0	\$168	3.6	0.6	132.5	\$665

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PIGLETS FEMALES PFNO.	PIGLETS FEMALES PFAGE	PIGLETS FEMALES PFWGT	PIGLETS FEMALES PFVALUE	POULTRY LAYERS PLNO.	POULTRY LAYERS PLAGE	POULTRY LAYERS PLWGT	POULTRY LAYERS PLVALUE	POULTRY BROILERS PBNO.	POULTRY BROILERS PBAGE	POULTRY BROILERS PBWGT	POULTRY BROILERS PBVALUE	BBB HIVES BHNO.	BBB HIVES BHVALUE
2.7	0.9	107.5	\$75	32.6	0.9	80.8	\$75	29.0	0.8	81.0	\$263		
2.0	0.3	40.0		50.0	0.4	4.5	\$500	123.8	0.3	191.5	\$112		
				30.0				3000.0			\$15,000	50.0	\$5,000
2.3	0.3		\$40	25.0		5.0	\$200						
				50.0		1.0		3.0		3.0	\$30		
				30.0	0.7	3.5	\$50	24.7	5.0	1.5	\$540	4.0	\$400
2.4	0.7	85.0	\$58	34.6	0.7	32.6	\$158	208.6	0.8	116.6	\$1,855	34.7	\$3,467

SMALLHOLDER FARM LIVESTOCK

DISTRICT	MEAN NUMBER OF BULLS	MEAN AGE OF BULLS	MEAN WEIGHT OF BULLS	MEAN VALUE OF BULLS	MEAN NUMBER OF COWS	MEAN AGE OF COWS	MEAN WEIGHT OF COWS	MEAN VALUE OF COWS	HIFERS 2-3 YRS H3NO.	HIFERS 2-3 YRS H3AGE	HIFERS 2-3 YRS H3WGT	HIFERS 2-3 YRS H3VALUE	HIFERS 1-2 YRS H2NO.	HIFERS 1-2 YRS H2AGE	HIFERS 1-2 YRS H2WGT
BELIZE	1.0	1.5		\$500	5.0	5.0		\$2,000							
CAYO					7.8	6.0	750.0	\$3,224	6.0	3.0	500.0	\$470	2.0	0.4	112.5
COBOZAL	2.0	4.0	1500.0	\$1,200	12.6	4.0	1000.0	\$2,867							
ORANGE WALK STANN CREEK	2.0	1.0	500.0	\$1,000	6.0	3.0	800.0	\$1,500	6.0				7.0		400.0
TOLEDO	4.0	3.5	750.0	\$1,100	3.5	5.5	500.0	\$400							
ALL FARMS	2.3	2.7	875.0	\$980	8.1	4.5	740.0	\$2,348	6.0	3.0	500.0	\$470	3.8	0.6	181.3

HEIFERS	BULL	BULL	BULL	BULL
1-2 YRS	CALVES	CALVES	CALVES	CALVES
H2VALUE	MEAN NO.	MEAN AGE	MEAN WEIGHT	MEAN VALUE
	2.0	0.7		\$100
\$105				
\$300				
\$200		2.0	100.0	\$100
\$303	2.0	1.3	100.0	\$100

PROFILE OF SMALL HOLDER FARMS  
BY VALUE OF GOODS STORED

DISTRICT	FERTILIZER			PIG FEED			BROILER FEED			LAYER RATION			SHELLED CORN			
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	
	TOTAL	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	
BELIZE	33	4	34	62	1	14	14	3	14	13	0	N/A	N/A	3	12	34
CAYO	23	5	70	79	1	34	34	7	30	101	1	290	290	5	18	137
COROZAL	22	13	440	693	1	400	400	1	1000	1000	0	N/A	N/A	0	N/A	N/A
ORANGE WALK	26	8	302	814	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
STANN CREEK	22	4	53	174	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
TOLEDO	15	2	200	200	0	N/A	N/A	1	100	100	0	N/A	N/A	1	500	500
ALL FARMS	141	36	147	476	3	34	149	12	29	154	1	290	290	9	18	143

DISTRICT	RICE			BEANS			HONEY			OTHER		
	TOTAL	MEDIAN	MEAN									
	TOTAL	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE
BELIZE	33	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A
CAYO	23	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A
COROZAL	22	0	N/A	N/A	0	N/A	N/A	1	4800	4800	0	N/A
ORANGE WALK	26	2	268	268	2	220	220	0	N/A	N/A	1	35
STANN CREEK	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A
TOLEDO	15	2	550	550	2	223	223	1	420	420	0	N/A
ALL FARMS	141	4	500	409	4	220	209	2	2610	2610	1	35

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE FERTILIZER IN STORAGE

ACQUISITION	TOTAL	% TOTAL
BOUGHT	31	86.11%
CREDIT	5	13.89%
TOTAL:	36	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE PIG FEED IN STORAGE

ACQUISITION	TOTAL	% TOTAL
BOUGHT	4	100.00%
TOTAL:	4	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE BROILER FEED IN STORAGE

ACQUISITION	TOTAL	% TOTAL
BOUGHT	10	90.91%
PRODUCED	1	9.09%
TOTAL:	11	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE LAYER RATION IN STORAGE

ACQUISITION	TOTAL	% TOTAL
BOUGHT	1	100.00%
TOTAL:	1	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE SHELLED CORN IN STORAGE

ACQUISITION	TOTAL	% TOTAL
BOUGHT	7	77.78%
PRODUCED	2	22.22%
TOTAL:	9	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE RICE IN STORAGE

ACQUISITION	TOTAL	% TOTAL
BOUGHT	1	100.00%
TOTAL:	1	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE BEANS IN STORAGE

ACQUISITION	TOTAL	% TOTAL
BOUGHT	1	100.00%
TOTAL:	1	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE HONEY IN STORAGE

NO RESPONSES

PROFILE OF ALL SMALL HOLDER FARMS  
BY HOW THEY ACQUIRE OTHER GOODS IN STORAGE

ACQUISITION	TOTAL	% TOTAL
BOUGHT	1	100.00%
TOTAL:	1	100.00%

PROFILE OF SMALL HOLDER FARMS  
BY 1987 GROSS SALES, PRODUCE

DISTRICT	CITRUS			CORN			RICE			SUGAR			GROUND FOOD			
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	
BELIZE	33	0	N/A	N/A	1	1820	1820	1	1820	1820	0	N/A	N/A	1	3120	3120
CAYO	23	0	N/A	N/A	5	1500	1258	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
CORDAZAL	22	0	N/A	N/A	2	6838	6838	0	N/A	N/A	13	9000	8856	0	N/A	N/A
ORANGE WALK	26	0	N/A	N/A	1	2000	2000	1	2000	2000	13	4500	6279	0	N/A	N/A
STAHN CREEK	22	5	10000	12076	0	N/A	N/A	0	N/A	N/A	1	100	100	1	200	200
TOLEDO	15	0	N/A	N/A	0	N/A	N/A	5	2000	1780	0	N/A	N/A	0	N/A	N/A
ALL FARMS	141	5	10000	12076	9	2000	2643	7	2000	1817	27	7616	7291	2	1660	1660

PROFILE OF SMALL HOLDER FARMS  
BY 1987 GROSS SALES, PRODUCE

DISTRICT	COCOA			PINEAPPLE			VEGETABLES			CASAVA			PLANTAIN			
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	
	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	SALES	
BELIZE	33	0	N/A	N/A	2	3500	3500	7	2600	2900	1	2600	2600	2	1250	1250
CAYO	23	0	N/A	N/A	0	N/A	N/A	1	400	400	0	N/A	N/A	1	500	500
CORDAZAL	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
ORANGE WALK	26	0	N/A	N/A	0	N/A	N/A	2	2150	2150	0	N/A	N/A	0	N/A	N/A
STANN CREEK	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	1	25	25
TOLEDO	15	1	510	510	0	N/A	N/A	1	2600	2600	0	N/A	N/A	1	1300	1300
ALL FARMS	141	1	510	510	2	3500	3500	11	2600	2509	1	2600	2600	5	1000	865

PROFILE OF SMALL HOLDER FARMS  
BY 1987 GROSS SALES, PRODUCE

DISTRICT	HONEY		BEANS			MELON			OTHER MIXED CROPS			OTHER				
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	
	TOTAL	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	
BELIZE	33	1	800	800	1	1800	1800	2	4050	4050	1	500	500	4	250	255
CAYO	23	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	6	3250	3417	2	838	838
COROZAL	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	3	9135	7545	2	1100	1100
ORANGE WALK	26	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	3	2000	2000	0	N/A	N/A
STANN CREEK	22	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	4	2000	3250	1	500	500
TOLEDO	15	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
ALL FARMS	141	1	800	800	1	1800	1800	2	4050	4050	17	3000	3684	9	500	599

PROFILE OF SMALL HOLDER FARMS  
BY 1987 GROSS SALES, LIVESTOCK

DISTRICT	CATTLE			POULTRY			PIGS			MIXED LIVESTOCK			OTHER			
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	
	TOTAL	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	SALES	RESP	SALES	
BELIZE	33	0	N/A	N/A	0	N/A	N/A	3	1440	1180	0	N/A	N/A	1	1872	1872
CAYO	23	2	3250	3250	7	1500	1537	2	850	850	1	2200	2200	0	N/A	N/A
CORDZAL	22	2	2250	2250	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
ORANGE WALK	26	2	1000	1000	0	N/A	N/A	1	4500	4500	0	N/A	N/A	0	N/A	N/A
STANN CREEK	22	0	N/A	N/A	1	150	150	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
TOLEDO	15	1	2200	2200	2	540	540	3	180	893	0	N/A	N/A	0	N/A	N/A
ALL FARMS	141	7	1000	2171	10	1000	1199	9	1000	1380	1	2200	2200	1	1872	1872

PROFILE OF SMALL HOLDER FARMS  
 BY TYPE OF BUSINESS; RECORDS KEPT

DISTRICT	TOTAL	PAY- ABLES	RECEIV- ABLES	PAY- ROLL	STOCKS/ SUPPLIES	SALE	CROP YIELDS	CROP PRICES	LIVE- STOCK/ POULTRY	NONE	OTHER
BELIZE	33	1	0	0	2	0	0	0	0	22	0
CAYO	23	3	2	1	4	4	3	1	4	14	0
COROZAL	22	0	0	0	1	2	0	1	1	18	0
ORANGE WALK	26	1	0	3	0	1	0	0	0	23	0
STANN CREEK	22	6	6	4	3	5	4	3	1	15	0
TOLEDO	15	4	3	2	3	3	3	2	0	6	0
ALL FARMS	141	15	11	10	13	16	10	7	6	98	0

PROFILE OF ALL SMALL HOLDER FARMS  
 BY WHO KEEPS THE BUSINESS RECORDS

RECORDKEEPER	TOTAL	% TOTAL
Owner	16	64.00%
Coop	2	8.00%
Farmer	2	8.00%
Chairman	1	4.00%
Husband	1	4.00%
Sect. Coop	1	4.00%
Son	1	4.00%
Wife	1	4.00%
TOTAL:	25	100.00%

PROFILE OF SMALL HOLDER FARMS  
BY WHO BUYS GOODS

DISTRICT	TOTAL	MAR- KETING BOARD	TRADERS	INDIVI- DUALS	OTHER BUSI- NESSES	OTHER GOVERN- MENT	OTHER
BELIZE	33	2	3	22	1	0	5
CAYO	23	0	7	18	3	0	1
CORUZAL	22	5	0	4	2	6	6
ORANGE WALK	26	2	1	10	6	2	7
STANN CREEK	22	1	1	12	5	0	2
TOLEDO	15	7	1	7	3	0	1
ALL FARMS	141	17	13	73	20	8	22

PROFILE OF ALL SMALL HOLDER FARMS  
BY SHARE OF GOODS SOLD TO THE MARKETING BOARD

SHARE	TOTAL	% TOTAL
100%	4	40.00%
50%	2	20.00%
25%	1	10.00%
60%	1	10.00%
80%	1	10.00%
99%	1	10.00%
TOTAL:	10	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY SHARE OF GOODS SOLD TO TRADERS

SHARE	TOTAL	% TOTAL
75%	3	25.00%
70%	2	16.67%
100%	2	16.67%
10%	1	8.33%
25%	1	8.33%
35%	1	8.33%
50%	1	8.33%
80%	1	8.33%
TOTAL:	12	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY SHARE OF GOODS SOLD TO INDIVIDUALS

SHARE	TOTAL	% TOTAL
100%	9	32.14%
50%	3	10.71%
75%	3	10.71%
8%	2	7.14%
25%	2	7.14%
40%	2	7.14%
1%	1	3.57%
3%	1	3.57%
9%	1	3.57%
10%	1	3.57%
20%	1	3.57%
80%	1	3.57%
90%	1	3.57%
TOTAL:	28	100.00%

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PROFILE OF ALL SMALL HOLDER FARMS  
 BY SHARE OF GOODS SOLD TO OTHER BUSINESSES

SHARE	TOTAL	% TOTAL
100%	5	55.56%
10%	1	11.11%
50%	1	11.11%
60%	1	11.11%
90%	1	11.11%
TOTAL:	9	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
 BY SHARE OF GOODS SOLD TO OTHER GOVERNMENT

SHARE	TOTAL	% TOTAL
100%	4	100.00%
TOTAL:	4	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
 BY SHARE OF GOODS SOLD TO OTHER

SHARE	TOTAL	% TOTAL
100%	7	77.78%
50%	1	11.11%
75%	1	11.11%
TOTAL:	9	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
 BY REASON THEY SELL TO PARTICULAR MARKET(S)

REASON	TOTAL	% TOTAL
Only Market	26	26.53%
Have No Market to Sell	11	11.22%
Price	10	10.20%
Only One Factory	7	7.14%
Small Quantity	5	5.10%
They Buy Them	5	5.10%
Established Market	3	3.06%
Too Much to Consume at Home	3	3.06%
Contract	2	2.04%
Quickest Way Possible	2	2.04%
They Usually Buy	2	2.04%
Company buy also can be produce	1	1.02%
Depends on Whose Buying	1	1.02%
Don't Have Time	1	1.02%
Give Transportation	1	1.02%
I Need the Money	1	1.02%
Limited Market & Sales	1	1.02%
Mainly Only Source for Rice	1	1.02%
Marketing Board is convenient	1	1.02%
Near Market	1	1.02%
Not Able to Go to Town	1	1.02%
Only Individuals Accepts Offer	1	1.02%
Only Product	1	1.02%
Product Sells More	1	1.02%
Quickest Way Possible to Sell	1	1.02%
That's the Only Way	1	1.02%
The Only Way to Sell	1	1.02%
They Buy in Whole	1	1.02%
They Buy the Cane	1	1.02%
They Buy the Chickens	1	1.02%
They Will Always Buy Peanuts	1	1.02%
To Get More Sale	1	1.02%
Used for Domestic P.	1	1.02%
TOTAL:	98	100.00%

PROFILE OF SMALL HOLDER FARMS BY  
 WHETHER THEY ARE A MEMBER OF A CREDIT UNION OR COOPERATIVE

DISTRICT	TOTAL	TOTAL	%	TECHNICAL ASSISTANCE			
		RESP.	TOTAL	NO	% TOTAL	YES	% TOTAL
BELIZE	33	32	96.97%	26	81.25%	6	18.75%
CAYO	23	23	100.00%	7	30.43%	16	69.57%
COROZAL	22	22	100.00%	18	81.82%	4	18.18%
ORANGE WALK	26	25	96.15%	18	72.00%	7	28.00%
STANN CREEK	22	21	95.45%	9	42.86%	12	57.14%
TOLEDO	15	15	100.00%	14	93.33%	1	6.67%
ALL FARMS	141	138	97.87%	92	66.67%	46	33.33%

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PROFILE OF ALL SMALL HOLDER FARMS  
BY CREDIT UNION OR COOPERATIVE

CREDIT UNION OR COOPERATIVE	TOTAL	% TOTAL
Women's Group Cooperative	5	11.36%
San Miguel Farmers Cooperative	4	9.09%
Starch Cooperative	4	9.09%
Esperanza Credit Union	3	6.82%
Holy Redeemer Credit Union	3	6.82%
Bullet Tree Livestock Cooperative	2	4.55%
Cane Farmers	2	4.55%
Citrus Growers Association	2	4.55%
St. Martin's	2	4.55%
United Farmers Cooperative	2	4.55%
3 People Cooperative	1	2.27%
Belize Livestock Producers Association	1	2.27%
Belize Northern Development Cooperative	1	2.27%
Civil Service CU & Lucky Saint Ann Bee C	1	2.27%
Dangriga Bee Keeping Cooperative	1	2.27%
Good Fellows	1	2.27%
Hopkins Farmers Cooperative	1	2.27%
Indener Credit Union	1	2.27%
Northern Agriculture Cooperative	1	2.27%
Northern Honey Cooperative	1	2.27%
San Roman Farmers	1	2.27%
St. Francis	1	2.27%
Western Mopan Cooperative	1	2.27%
Women's Farmers Cooperative	1	2.27%
Yo Farm Cooperative	1	2.27%
TOTAL:	44	100.00%

PROFILE OF SMALL HOLDER FARMS  
 BY VALUE OF FARM MACHINERY OWNED

DISTRICT	TRACTOR DRAWN PLOUGH			OTHER PLOUGH			TRACTORS			TRAILERS			TRUCKS, VANS, WAGONS			
	TOTAL	MEDIAN RESP	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	TOTAL RESP	MEDIAN VALUE	MEAN VALUE	
BELIZE	33	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	2	6500	6500
CATO	23	0	N/A	N/A	0	N/A	N/A	1	14000	14000	1	1000	1000	1	4000	4000
CORDOZAL	22	0	N/A	N/A	1	5000	5000	2	13250	13250	2	5000	5000	9	10000	15444
ORANGE WALK	26	2	5750	5750	0	N/A	N/A	3	13000	13167	2	3000	3000	2	11500	11500
STANN CREEK	22	1	15000	15000	0	N/A	N/A	0	N/A	N/A	1	4000	4000	1	7000	7000
TOLEDO	15	0	N/A	N/A	1	40000	40000	0	N/A	N/A	0	N/A	N/A	1	1000	1000
ALL FARMS	141	3	10000	8833	2	22500	22500	6	13500	13333	6	3000	3500	16	9750	11688

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PROFILE OF SMALL HOLDER FARMS  
BY VALUE OF FARM MACHINERY OWNED

DISTRICT	ANIMAL DRAWN VEHICLE		MECH. SPRAY PUMPS		HAND OPERATED PUMPS		MECHANICAL REAPER		MECHANICAL LOADERS							
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN				
	TOTAL RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE				
BELIZE	33	0	N/A	N/A	1	380	380	1	800	800	0	N/A	N/A	0	N/A	N/A
CAYO	23	0	N/A	N/A	1	300	300	3	250	250	0	N/A	N/A	0	N/A	N/A
CORDAZAL	22	0	N/A	N/A	3	200	193	4	500	531	0	N/A	N/A	0	N/A	N/A
ORANGE WALK	26	0	N/A	N/A	0	N/A	N/A	2	249	249	0	N/A	N/A	0	N/A	N/A
STANN CREEK	22	0	N/A	N/A	0	N/A	N/A	1	200	200	0	N/A	N/A	0	N/A	N/A
TOLEDO	15	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
ALL FARMS	141	0	N/A	N/A	5	200	252	11	300	398	0	N/A	N/A	0	N/A	N/A

DISTRICT	OTHER MACH./EQUIP.			
	TOTAL	MEDIAN	MEAN	
	TOTAL RESP	VALUE	VALUE	
BELIZE	33	7	200	1041
CAYO	23	4	1500	1500
CORDAZAL	22	6	155	560
ORANGE WALK	26	2	10075	10075
STANN CREEK	22	3	500	867
TOLEDO	15	3	500	2513
ALL FARMS	141	25	500	1877

PROFILE OF SMALL HOLDER FARMS  
BY VALUE OF FARM BUILDINGS OWNED

DISTRICT	FARM HOUSE			BARN			STORAGE SHED			GRAIN SILO			CHICKEN HOUSE			
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	
	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	RESP	VALUE	VALUE	
BELIZE	33	15	2000	3887	0	N/A	N/A	2	250	250	0	N/A	N/A	4	150	145
CAYO	23	10	1250	3005	1	200	200	0	N/A	N/A	1	75	75	10	500	519
CORDZAL	22	6	11500	20083	0	N/A	N/A	1	3000	3000	0	N/A	N/A	2	6250	6250
ORANGE WALK	26	6	4500	4300	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	1	300	300
STANN CREEK	22	5	1000	2500	1	500	500	0	N/A	N/A	0	N/A	N/A	1	200	200
TOLEDO	15	3	1500	2667	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	5	150	170
ALL FARMS	141	45	2000	5670	2	350	350	3	300	1167	1	75	75	23	300	853

DISTRICT	PIG PEN			OTHER			
	TOTAL	MEDIAN	MEAN	TOTAL	MEDIAN	MEAN	MEAN
	RESP	VALUE	VALUE	RESP	VALUE	VALUE	VALUE
BELIZE	33	4	288	349	1	1000	1000
CAYO	23	2	125	125	0	N/A	N/A
COROZAL	22	2	2500	2500	0	N/A	N/A
ORANGE WALK	26	0	N/A	N/A	0	N/A	N/A
STANN CREEK	22	0	N/A	N/A	0	N/A	N/A
TOLEDO	15	5	190	198	0	N/A	N/A
ALL FARMS	141	13	200	587	1	1000	1000

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PROFILE OF SMALL HOLDER FARMS BY  
 WHETHER THEY HAVE OBTAINED LOAN FROM LENDING INSTITUTION

DISTRICT	TOTAL	TOTAL RESP.	% TOTAL	OBTAINED LOAN FROM INSTITUTION			
				NO	% TOTAL	YES	% TOTAL
BELIZE	33	33	100.00%	20	60.61%	13	39.39%
CAYO	23	23	100.00%	11	47.83%	12	52.17%
CORDIAL	22	22	100.00%	5	22.73%	17	77.27%
ORANGE WALK	26	26	100.00%	9	34.62%	17	65.38%
STANN CREEK	22	21	95.45%	15	71.43%	6	28.57%
TOLEDO	15	15	100.00%	7	46.67%	8	53.33%
<b>TOTAL FARMS</b>	<b>141</b>	<b>140</b>	<b>99.29%</b>	<b>67</b>	<b>47.86%</b>	<b>73</b>	<b>52.14%</b>

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PROFILE OF ALL SMALL HOLDER FARMS  
 BY SOURCE OF LOAN RECEIVED

SOURCE	TOTAL	% TOTAL
DFC	27	40.91%
Barclays	16	24.24%
NDF	5	7.58%
Belize Bank	4	6.06%
Royal Bank	2	3.03%
Agriculture Dept.	1	1.52%
Atlantic Bank	1	1.52%
Bank	1	1.52%
Belize	1	1.52%
BSI	1	1.52%
CARE	1	1.52%
CIDA	1	1.52%
Civil Servant Credit Union	1	1.52%
Credit Union	1	1.52%
CUC	1	1.52%
Govt	1	1.52%
HRCU	1	1.52%
TOTAL:	66	100.00%

PROFILE OF SMALL HOLDER FARMS BY  
AMOUNT OF LOAN THEY HAVE RECEIVED

DISTRICT	TOTAL	TOTAL RESP.	% TOTAL	MEDIAN LOAN	MEAN LOAN	MINIMUM LOAN	MAXIMUM LOAN
BELIZE	33	11	33.33%	500	964	100	3000
CAYO	23	9	39.13%	2000	3356	600	15000
COROZAL	22	17	77.27%	5000	8069	600	25000
ORANGE WALK	26	17	65.38%	1000	1684	200	5000
STANN CREEK	22	6	27.27%	3500	9033	200	31000
TOLEDO	15	8	53.33%	3250	16000	1000	100000
ALL FARMS	141	68	48.23%	2400	5682	100	100000

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PROFILE OF ALL SMALL HOLDER FARMS  
 BY INTEREST RATE PAID ON LOAN RECEIVED

RATE	TOTAL	% TOTAL
12.00%	12	25.53%
10.00%	6	12.77%
8.00%	4	8.51%
14.00%	4	8.51%
16.00%	3	6.38%
18.00%	3	6.38%
20.00%	3	6.38%
1.00%	1	2.13%
2.00%	1	2.13%
5.00%	1	2.13%
6.00%	1	2.13%
9.00%	1	2.13%
12.50%	1	2.13%
13.00%	1	2.13%
15.00%	1	2.13%
16.50%	1	2.13%
19.00%	1	2.13%
22.00%	1	2.13%
25.00%	1	2.13%
TOTAL:	47	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY LOAN PERIOD IN MONTHS FOR LOAN RECEIVED

PERIOD	TOTAL	% TOTAL
12	15	39.47%
24	7	18.42%
60	6	15.79%
6	3	7.89%
7	1	2.63%
8	1	2.63%
36	1	2.63%
48	1	2.63%
120	1	2.63%
240	1	2.63%
1 Season	1	2.63%
TOTAL:	38	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY TYPE OF LOAN RECEIVED

TYPE	TOTAL	% TOTAL
Short Term	35	54.69%
Long Term	21	32.81%
Agriculture	2	3.13%
Financial	2	3.13%
Cane	1	1.56%
Crop Loan	1	1.56%
Long/Short	1	1.56%
Overdraft	1	1.56%
TOTAL:	64	100.00%

PROFILE OF SMALL HOLDER FARMS BY  
AMOUNT OF LOAN THEY WILL SEEK

DISTRICT	TOTAL	TOTAL RESP.	% TOTAL	MEDIAN LOAN	MEAN LOAN	MINIMUM LOAN	MAXIMUM LOAN
BELIZE	33	20	60.61%	2250	5100	3	30000
CAYO	23	17	73.91%	3000	4882	1000	20000
COROZAL	22	12	54.55%	4500	5933	1000	12000
ORANGE WALK	26	18	69.23%	2000	3072	300	10000
STANN CREEK	22	14	63.64%	3000	13386	400	60000
TOLEDO	15	11	73.33%	3000	3864	200	16000
ALL FARMS	141	92	65.25%	3000	5885	3	60000

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PROFILE OF SMALL HOLDER FARMS BY  
WHETHER THEY HAVE WILL SEEK A LOAN NEXT YEAR

DISTRICT	TOTAL	TOTAL RESP.	%	SEEK LOAN NEXT YEAR			
				NO	% TOTAL	YES	% TOTAL
BELIZE	33	32	96.97%	10	31.25%	22	68.75%
CAYO	23	23	100.00%	4	17.39%	19	82.61%
COROZAL	22	22	100.00%	9	40.91%	13	59.09%
ORANGE WALK	26	26	100.00%	5	19.23%	21	80.77%
STANN CREEK	22	18	81.82%	3	16.67%	15	83.33%
TOLEDO	15	15	100.00%	4	26.67%	11	73.33%
TOTAL FARMS	141	136	96.45%	35	25.74%	101	74.26%

PROFILE OF ALL SMALL HOLDER FARMS  
BY SOURCE OF LOAN SOUGHT

SOURCE	TOTAL	% TOTAL
Any Source	21	26.58%
NDF	17	21.52%
DFC	13	16.46%
Bank	6	7.59%
Belize Bank	4	5.06%
Barclays	2	2.53%
DFC/NDF	2	2.53%
Lending Foundation	2	2.53%
Atlantic Bank	1	1.27%
Bank or DFC	1	1.27%
Barclays Bank	1	1.27%
Brother	1	1.27%
Civil Servant C.U.	1	1.27%
Credit Union	1	1.27%
Depends	1	1.27%
Don't Know	1	1.27%
Friends	1	1.27%
Long Term	1	1.27%
NDF/Bank	1	1.27%
Starch Cooperative	1	1.27%
TOTAL:	79	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY PURPOSE FOR LOAN SOUGHT

PURPOSE	TOTAL	% TOTAL
Clearing/Planting	18	18.95%
Develop Farm	9	9.47%
Planting	7	7.37%
Buy Livestock	5	5.26%
Buy Poultry	5	5.26%
Pig Rearing	5	5.26%
Plant Cane	5	5.26%
Plant Citrus	5	5.26%
Fertilizer	4	4.21%
Buy Tractor	2	2.11%
Buy Water Pump	2	2.11%
Plant Beans/Corn	2	2.11%
Plant Cocoa	2	2.11%
Plant Corn	2	2.11%
Plant Peanuts	2	2.11%
Seeds	2	2.11%
Build House	1	1.05%
Buy More Land	1	1.05%
Buy Trailer/Truck	1	1.05%
Buy Tractor/Tractor	1	1.05%
Cattle Fatteners	1	1.05%
Crop Lien for Cocoa	1	1.05%
Cultivate Rice/Beans	1	1.05%
Cultivation	1	1.05%
Drain Farm	1	1.05%
Equipment	1	1.05%
Fence Farm	1	1.05%
If He Has To	1	1.05%
Pay Old Loan/Invest in Veg.	1	1.05%
Plant Papaya	1	1.05%
Shed	1	1.05%
Start Crop	1	1.05%
Tools	1	1.05%
Vegetables	1	1.05%
TOTAL:	95	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY WHEN LOAN WAS RECEIVED

YEAR	TOTAL	% TOTAL
1968	2	2.99%
1970	1	1.49%
1972	1	1.49%
1973	1	1.49%
1975	1	1.49%
1977	1	1.49%
1978	2	2.99%
1979	1	1.49%
1980	3	4.48%
1981	2	2.99%
1982	2	2.99%
1983	2	2.99%
1984	1	1.49%
1985	6	8.96%
1986	8	11.94%
1987	12	17.91%
1988	21	31.34%
TOTAL:	67	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
BY PURPOSE FOR WHICH LOAN WAS RECEIVED

PURPOSE	TOTAL	% TOTAL
Plant Cane	9	14.29%
Farm Use	6	9.52%
Pig Rearing	5	7.94%
Grow Rice	4	6.35%
Crop Loan	3	4.76%
Land Clearing	3	4.76%
Buy Chicks	2	3.17%
Buy Tractor	2	3.17%
Buy Truck	2	3.17%
Plant Papaya	2	3.17%
Planting	2	3.17%
Plough Land	2	3.17%
Poultry	2	3.17%
Agriculture	1	1.59%
Building	1	1.59%
Buy Machinery	1	1.59%
Cattle/Pasture	1	1.59%
Citrus Expansion	1	1.59%
Corn Production	1	1.59%
Feed,Pigs,Other Material	1	1.59%
Fence Wire	1	1.59%
Fertilizer	1	1.59%
For Crop	1	1.59%
Improve Farm/More Cattle	1	1.59%
Land/Plants	1	1.59%
Mechanize Rice	1	1.59%
Personal Use	1	1.59%
Plant Beans	1	1.59%
Repair Equipment	1	1.59%
Sickness	1	1.59%
Stove, Gas Station	1	1.59%
Supplement Food	1	1.59%
TOTAL:	63	100.00%

PROFILE OF ALL SMALL HOLDER FARMS BY  
COLLATERAL USED TO SECURE LOAN RECEIVED

<u>COLLATERAL</u>	<u>TOTAL</u>	<u>% TOTAL</u>
Not Given	10	45.45%
Land	5	22.73%
Crop	2	9.09%
Title	2	9.09%
House	1	4.55%
Job	1	4.55%
Lease	1	4.55%
TOTAL:	22	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
 BY REPAYMENT SCHEDULE FOR LOAN RECEIVED

SCHEDULE	TOTAL	% TOTAL
Seasonal	14	36.84%
Monthly	11	28.95%
Annual	4	10.53%
Crop Lien	4	10.53%
Semiannual	2	5.26%
9 Month	1	2.63%
Quarterly	1	2.63%
Weekly	1	2.63%
TOTAL:	38	100.00%

PROFILE OF ALL SMALL HOLDER FARMS  
 BY REASON FOR NOT HAVING SOUGHT  
 TECHNICAL ASSISTANCE

REASON	TOTAL	% TOTAL
Never Had Opportunity	5	27.78%
Not Necessary	5	27.78%
Has Experience	2	11.11%
Did Not Seek Any	1	5.56%
Does Not Know Where to Go	1	5.56%
It's Too Old	1	5.56%
Not Full-Time Farmer	1	5.56%
Requires Finance/Machines	1	5.56%
Was Thinking About It	1	5.56%
TOTAL:	18	100.00%

PROFILE OF SMALL HOLDER FARMS BY  
WHETHER THEY INTEND TO SEEK TECHNICAL ASSISTANCE

DISTRICT	TOTAL	TOTAL	%	TECHNICAL ASSISTANCE			
		RESP.	TOTAL	NO	% TOTAL	YES	% TOTAL
BELIZE	33	32	96.97%	11	34.38%	21	65.63%
CAYO	23	22	95.65%	7	31.82%	15	68.18%
COROZAL	22	22	100.00%	9	40.91%	13	59.09%
ORANGE WALK	26	25	96.15%	12	48.00%	13	52.00%
STANN CREEK	22	21	95.45%	4	19.05%	17	80.95%
TOLEDO	15	14	93.33%	2	14.29%	12	85.71%
ALL FARMS	141	136	96.45%	45	33.09%	91	66.91%

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PROFILE OF ALL SMALL HOLDER FARMS BY  
TYPE OF TECHNICAL ASSISTANCE THEY WILL SEEK

TYPE OF ASSISTANCE	TOTAL	% TOTAL
Farm Management	10	11.49%
Crop Production	9	10.34%
Planting Methods	9	10.34%
Agriculture Training	8	9.20%
Soil Testing	6	6.90%
Disease Control	5	5.75%
Any Kind	4	4.60%
Fertilizer	4	4.60%
Don't Know	3	3.45%
Farm Maintenance	3	3.45%
Cattle Rearing	2	2.30%
How to Grow Vegetables	2	2.30%
Insecticide	2	2.30%
Money	2	2.30%
Weed Control	2	2.30%
Cacao	1	1.15%
Cattle Management	1	1.15%
Crop Type	1	1.15%
Cultivation Methods	1	1.15%
Develop the Pasture	1	1.15%
Farm Equipment/Machinery	1	1.15%
Farm Rep.	1	1.15%
Farming	1	1.15%
How to Protect Plants	1	1.15%
Irrigation	1	1.15%
Livestock	1	1.15%
New Crops	1	1.15%
Pig Rearing	1	1.15%
Sane Program	1	1.15%
Seed Availability	1	1.15%
Use of Casava	1	1.15%
TOTAL:	87	100.00%

PROFILE OF BELIZE DISTRICT SMALL HOLDER FARMS  
BY TYPE OF TECHNICAL ASSISTANCE SOUGHT

Planting Methods	4
Agriculture Training	3
Soil Testing	3
Crop Production	2
Fertilizer	2
Cattle Rearing	1
Crop Type	1
Disease Control	1
Don't Know	1
Insecticide	1
Pig Rearing	1
<hr/>	
TOTAL:	20

PROFILE OF CAYO DISTRICT SMALL HOLDER FARMS  
BY TYPE OF TECHNICAL ASSISTANCE SOUGHT

Agriculture Training	2
Crop Production	2
Disease Control	2
Farm Management	2
Weed Control	2
Any Kind	1
Cultivation Methods	1
Develop the Pasture	1
Don't Know	1
How to Protect Plants	1
<hr/>	
TOTAL:	15

PROFILE OF COROZAL DISTRICT SMALL HOLDER FARMS  
BY TYPE OF TECHNICAL ASSISTANCE SOUGHT

How to Grow Vegetables	2
Planting Methods	2
Agriculture Training	1
Any Kind	1
Crop Production	1
Disease Control	1
Farm Maintenance	1
Insecticide	1
Irrigation	1
Money	1
<hr/>	
TOTAL:	12

PROFILE OF ORANGE WALK DISTRICT SMALL HOLDER  
FARMS BY TYPE OF TECHNICAL ASSISTANCE SOUGHT

Planting Methods	3
Soil Testing	2
Any Kind	1
Cattle Management	1
Cattle Rearing	1
Disease Control	1
Farm Management	1
Livestock	1
Same Program	1
Seed Availability	1
<b>TOTAL:</b>	<b>13</b>

PROFILE OF STANN CREEK DISTRICT SMALL HOLDER  
FARMS BY TYPE OF TECHNICAL ASSISTANCE SOUGHT

Farm Management	5
Crop Production	3
Agriculture Training	1
Farm Rep.	1
Farming	1
Fertilizer	1
Money	1
New Crops	1
Use of Casava	1
<b>TOTAL:</b>	<b>15</b>

PROFILE OF TOLEDO DISTRICT SMALL HOLDER FARMS  
BY TYPE OF TECHNICAL ASSISTANCE SOUGHT

Farm Maintenance	2
Farm Management	2
Agriculture Training	1
Any Kind	1
Cacao	1
Crop Production	1
Don't Know	1
Farm Equipment/Machinery	1
Fertilizer	1
Soil Testing	1
<b>TOTAL:</b>	<b>12</b>

ALL FARMS: 87

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PROFILE OF ALL SMALL HOLDER FARMS  
 BY SOURCE OF TECHNICAL ASSISTANCE  
 THEY PLAN TO SEEK

SOURCE	TOTAL	% TOTAL
Ministry of Agriculture	34	40.48%
Any Source	15	17.86%
Central Farm	5	5.95%
BSI	3	3.57%
NDF	3	3.57%
DFC	2	2.38%
Agriculture Training Institute	1	1.19%
Agriculture Training School	1	1.19%
Association Library	1	1.19%
BEST	1	1.19%
Company	1	1.19%
Coop/Ministry of Agriculture	1	1.19%
Cooperative	1	1.19%
Department of Cooperative	1	1.19%
DFC or Ministry of Agriculture	1	1.19%
Do Not Know Where to Go	1	1.19%
Don't Know/BSI & Gov't Inadequate	1	1.19%
Experienced Farmers	1	1.19%
Help for Progress	1	1.19%
Menonites	1	1.19%
NDF or Ministry of Agriculture	1	1.19%
Someone Educated in Farming	1	1.19%
Supervisor	1	1.19%
Technical	1	1.19%
The Vet	1	1.19%
Training School of Agriculture	1	1.19%
US	1	1.19%
Where It Comes	1	1.19%
TOTAL:	84	100.00%

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PROFILE OF SMALL HOLDER FARMS BY  
WHETHER TECHNICAL ASSISTANCE RECEIVED WAS USEFUL

DISTRICT	TOTAL	TOTAL RESP.	%	TECHNICAL ASSISTANCE			
				NO	% TOTAL	YES	% TOTAL
BELIZE	33	6	18.18%	0	0.00%	6	100.00%
CAYO	23	9	39.13%	1	11.11%	8	88.89%
COROZAL	22	5	22.73%	1	20.00%	4	80.00%
ORANGE WALK	26	9	34.62%	0	0.00%	9	100.00%
STANN CREEK	22	9	40.91%	0	0.00%	9	100.00%
TOLEDO	15	7	46.67%	0	0.00%	7	100.00%
ALL FARMS	141	45	31.91%	2	4.44%	43	95.56%

PROFILE OF ALL SMALL HOLDER FARMS BY  
PURPOSE FOR TECHNICAL ASSISTANCE RECEIVED

PURPOSE	TOTAL	% TOTAL
Improve Crop Yields	10	25.64%
Farm	7	17.95%
Disease Control	3	7.69%
Helping	2	5.13%
Pest Control	2	5.13%
Planting Methods	2	5.13%
Better Farm Achievement	1	2.56%
Farm Management	1	2.56%
For Sale of Papaya	1	2.56%
For Their Improvement	1	2.56%
Grow Grass/Care for Cattle	1	2.56%
Improve Farm	1	2.56%
Improve Skills	1	2.56%
Keep Cooperative United	1	2.56%
See How Good They Produce	1	2.56%
Seed Availability	1	2.56%
Seeds	1	2.56%
Stop Eating Rice	1	2.56%
To Improve	1	2.56%
TOTAL:	39	100.00%

PROFILE OF BELIZE DISTRICT SMALL HOLDER FARMS  
BY TYPE OF TECHNICAL ASSISTANCE RECEIVED

Improve Crop Yields	2
Planting Methods	2
Pest Control	1
Soil Testing	1
<u>TOTAL:</u>	<u>6</u>

PROFILE OF CAYO DISTRICT SMALL HOLDER FARMS  
BY TYPE OF TECHNICAL ASSISTANCE RECEIVED

Pest Control	2
Disease Control	1
How to Feed Chickens	1
How to Work In Partnership	1
Soil Testing	1
Treat & Care for Chickens	1
Treat Pigs	1
<u>TOTAL:</u>	<u>8</u>

PROFILE OF CORDZAL DISTRICT SMALL HOLDER FARMS  
BY TYPE OF TECHNICAL ASSISTANCE RECEIVED

Farm Management	2
Agriculture	1
Cattle	1
Planting Methods	1
<u>TOTAL:</u>	<u>5</u>

PROFILE OF ORANGE WALK DISTRICT SMALL HOLDER  
FARMS BY TYPE OF TECHNICAL ASSISTANCE RECEIVED

Technical Advice	4
Disease Control	1
Farming Procedures	1
Grow Cane Better	1
Insecticide	1
Weed Control	1
<u>TOTAL:</u>	<u>9</u>

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PROFILE OF STANN CREEK DISTRICT SMALL HOLDER  
FARMS BY TYPE OF TECHNICAL ASSISTANCE RECEIVED

Farm Management	4
Citrus Management	1
Expand Farming	1
Fertilizer	1
Planting Methods	1
Project Costs	1
<hr/>	
TOTAL:	9

PROFILE OF TOLEDO DISTRICT SMALL HOLDER FARMS  
BY TYPE OF TECHNICAL ASSISTANCE RECEIVED

Weed Control	2
Clearing/Seeds/Fert.	1
How Maintain Crop	1
Pest Control	1
Soil Testing	1
Variety	1
<hr/>	
TOTAL:	7

ALL FARMS: 44

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PROFILE OF ALL SMALL HOLDER FARMS BY  
TYPE OF TECHNICAL ASSISTANCE RECEIVED

TYPE OF ASSISTANCE	TOTAL	% TOTAL
Farm Management	6	13.64%
Pest Control	4	9.09%
Planting Methods	4	9.09%
Technical Advice	4	9.09%
Soil Testing	3	6.82%
Weed Control	3	6.82%
Disease Control	2	4.55%
Improve Crop Yields	2	4.55%
Agriculture	1	2.27%
Cattle	1	2.27%
Citrus Management	1	2.27%
Clearing/Seeds/Fert.	1	2.27%
Expand Farming	1	2.27%
Farming Procedures	1	2.27%
Fertilizer	1	2.27%
Grow Cane Better	1	2.27%
How Maintain Crop	1	2.27%
How to Feed Chickens	1	2.27%
How to Work In Partnership	1	2.27%
Insecticide	1	2.27%
Project Costs	1	2.27%
Treat & Care for Chickens	1	2.27%
Treat Pigs	1	2.27%
Variety	1	2.27%
TOTAL:	44	100.00%

PROFILE OF ALL SMALL HOLDER FARMS BY YEAR  
THEY RECEIVED TECHNICAL ASSISTANCE

<u>YEAR</u>	<u>TOTAL</u>
1982	1
1983	3
1984	1
1985	3
1986	3
1987	17
1988	11
TOTAL:	39

PROFILE OF BELIZE DISTRICT SMALL HOLDER FARM  
BY SOURCE OF TECHNICAL ASSISTANCE RECEIVED

Ministry of Agriculture	7
<u>TOTAL:</u>	<u>7</u>

PROFILE OF CAYO SMALL HOLDER FARMS  
BY SOURCE OF TECHNICAL ASSISTANCE RECEIVED

Central Farm	4
Ministry of Agriculture	1
Menonites	1
Official of Cooperative	1
Raise Cattle	1
<u>TOTAL:</u>	<u>8</u>

PROFILE OF COROZAL SMALL HOLDER FARMS  
BY SOURCE OF TECHNICAL ASSISTANCE RECEIVED

Belize School of Agriculture	1
BEST	1
BSI and Agriculture	1
Ministry of Agriculture	1
USAID	1
<u>TOTAL:</u>	<u>5</u>

PROFILE OF ORANGE WALK SMALL HOLDER FARMS  
BY SOURCE OF TECHNICAL ASSISTANCE RECEIVED

BSI	3
Ministry of Agriculture	2
BABCO	1
Cane Farmers Association	1
Company Program	1
Cousin	1
<u>TOTAL:</u>	<u>9</u>

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PROFILE OF STANN CREEK SMALL HOLDER FARMS  
BY SOURCE OF TECHNICAL ASSISTANCE RECEIVED

Ministry of Agriculture	2
Books	1
Cooperative	1
DFC	1
Experienced Farmers	1
Help for Progress/BEST/Agri. Dept.	1
Hopkins Farmers Cooperative	1
USAID	1
<hr/>	
TOTAL:	9

PROFILE OF TOLEDO SMALL HOLDER FARMS  
BY SOURCE OF TECHNICAL ASSISTANCE RECEIVED

Ministry of Agriculture	4
DFC	2
TRDP	1
<hr/>	
TOTAL:	7

ALL FARMS: 45

PROFILE OF ALL SMALL HOLDER FARMS BY  
SOURCE OF TECHNICAL ASSISTANCE RECEIVED

SOURCE	TOTAL	% TOTAL
Ministry of Agriculture	17	37.78%
Central Farm	4	8.89%
BSI	3	6.67%
DFC	3	6.67%
USAID	2	4.44%
BABCO	1	2.22%
Belize School of Agriculture	1	2.22%
BEST	1	2.22%
Books	1	2.22%
BSI and Agriculture	1	2.22%
Cane Farmers Association	1	2.22%
Company Program	1	2.22%
Cooperative	1	2.22%
Cousin	1	2.22%
Experienced Farmers	1	2.22%
Help for Progress/BEST/Agri. Dept.	1	2.22%
Hopkins Farmers Cooperative	1	2.22%
Menonites	1	2.22%
Official of Cooperative	1	2.22%
Raise Cattle	1	2.22%
TRDP	1	2.22%
TOTAL:	45	100.00%

PROFILE OF SMALL HOLDER FARMS BY  
WHETHER THEY HAVE RECEIVED TECHNICAL ASSISTANCE

DISTRICT	TOTAL	TOTAL RESP.	% TOTAL	TECHNICAL ASSISTANCE			
				NO	% TOTAL	YES	% TOTAL
BELIZE	33	33	100.00%	25	75.76%	8	24.24%
CAYO	23	23	100.00%	14	60.87%	9	39.13%
COROZAL	22	22	100.00%	17	77.27%	5	22.73%
ORANGE WALK	26	26	100.00%	16	61.54%	10	38.46%
STANN CREEK	22	22	100.00%	12	54.55%	10	45.45%
TOLEDO	15	14	93.33%	7	50.00%	7	50.00%
<b>TOTAL FARMS</b>	<b>141</b>	<b>140</b>	<b>99.29%</b>	<b>91</b>	<b>65.00%</b>	<b>49</b>	<b>35.00%</b>

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