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The Caribbean Agricultural Research and Development Institute (CARDI) has under contract with the Government of the United States of America through the Agency for International Development agreed to undertake a project entitled "Small Farm Cropping Systems Research" in six territories of the Eastern Caribbean, namely Grenada, St. Vincent, St. Lucia, Dominica, St. Kitts and Nevis, and Montserrat.

The purpose of the project is "to improve small holder farming systems in the Eastern Caribbean through the development of management and production recommendations" for use by small farmers. The project also aims to "create a socio-economic data base through surveys and on-farm research". Since little information was available on the farming systems currently used by small farmers of the territories to be covered by the project, and of the socio-economic factors influencing their choice of systems, it was decided that an early priority of the project would be to conduct a detailed survey of selected target areas to define the characteristics of farms in those areas. The survey data would be used to help identify cooperating farmers in the various territories and the nature of information to be gathered from them on a continuing basis.

CARDI contracted with the University of the West Indies (UWI), through its Faculty of Agriculture, to undertake the above mentioned survey. The Department of Agricultural Extension of UWI conducted Phase I of the survey in the three territories of St. Vincent, St. Lucia and Dominica. This report presents the major findings of the survey.

Initial reports on the survey have already been submitted to CARDI. These included a seminar report which presented the preliminary findings for each island on farmers' personal characteristics, income range, crops farmed and livestock kept. Subsequently, island-reports were presented, the main purpose of which was to furnish data which would assist in the selection of 25 to 30 farm operators from each territory with whom CARDI would work in conducting on-farm research. This sub-sample should be as representative as possible of the general small-farm population. For those initial reports the data were analysed in relation to six factors which the CARDI project team had determined to use as the major criteria for selection of their research sub-sample of farms. These were:

1. geographical spread of the survey sample
2. size of the farm holdings
3. age distribution of farm operators
4. income distribution
5. degree of cooperativeness, and
6. accessibility of farm holdings.

A seventh selection factor identified by the CARDI team as important in farmer selection in the final sub-sample was "attitudinal disposition to continuation in farming activities". All farmers approached to be interviewed during the survey were, during the introductory remarks, informed of the objectives of the survey, and of the possibility of their being selected to work cooperatively with the CARDI field staff. Those farmers who were not interested in such cooperative endeavour (and a few did so indicate) did not agree to be interviewed. It is assumed, therefore, that all farmers who submitted to the interview are disposed both to the continuation of farming activities and to cooperating with CARDI staff in the proposed field work should they be selected.

Objectives and Scope

The agreement between UWI and CARDI with respect to Phase I of the survey required the carrying out of an Agro-Socio-Economic Survey of not less than 120 Small Farm Holdings in each of the three territories mentioned above. The target group should be farms of one to five acres in size, except that for St. Lucia this target group would be farms from one to 15 acres in size. The UWI sub-contract with CARDI further required

- (i) the preparation and pre-testing of one or more questionnaires for gathering the needed information
- (ii) analysis of the data for identifying systems detailed in the guidelines below; and
- (iii) preparation of detailed reports of the findings, keeping in mind (ii) above.

The guidelines provided for the survey indicated that analysis of the data should reveal, among other things:

1. Cropping/animal systems
 - (a) group of food crops - fruit, roots, vegetables, etc.
 - (b) animals
2. Major constraints to production
 - (a) on-farm
 - (b) off-farm
3. Major constraints to marketing of produce
4. Major problems affecting the farm family which can/do affect productivity.
5. Farmers most likely
 - (a) to succeed
 - (b) to respond to technology
6. Other related factors, as revealed by the survey
7. Accessibility.

The Sample

The survey sample consisted of 360 small farmers, 120 chosen from each of the islands of St. Vincent, Dominica and St. Lucia.

In St. Vincent the Ministry of Agriculture indicated their desire to have the sample selected from five of the eight agricultural districts into which the island is divided. It was assured that these five districts contained the highest concentration of small farmers in the island, included the entire range of ecological farming regions as well as cropping and livestock systems found on the island, and could therefore be considered as being truly representative of the small farming systems of the territory. A further factor for requesting the exclusion of three agricultural districts from the sample frame was that this would eli-

minate the possibility of including in the sample farmers who are involved in other on-going research or development project activities, and the inclusion of data from whom would bias the survey results. (See Figure 1).

The sample frame was therefore the Farmer Registration Cards provided by the Agricultural Statistics Unit of the Ministry of Agriculture of all farmers in the five selected districts. The cards were the result of an island-wide farmer registration exercise which was concluded in November, 1976. The data on the cards had not yet been analysed to determine the number of each acreage category of farmers there were in each district. A random sample of 120 names of farmers in the one to five acre category was selected, weighted very roughly by district on the basis of what officials of the Ministry of Agriculture considered were the estimated proportions of this category of small farmers in the various districts. At the same time for each district a replacement list was prepared of randomly selected farmers in the same category to replace any rejected from the sample.

During the field survey several names listed on the sample had to be rejected and substitute names selected consecutively from the replacement list. The main reasons for rejection, in descending order of frequency of occurrence, were

(i) *Farmer could not be located*

Many farmers listed on the cards as living in one village were in fact sometimes located living in a nearby village. There were other instances of farmers being listed under one name (their official name) but being known in the village by a totally different name or nickname. Replacements were resorted to only where prolonged effort failed to identify the farmer.

(ii) *Farmer had died or emigrated.*

(iii) *Failure to meet acreage qualification*

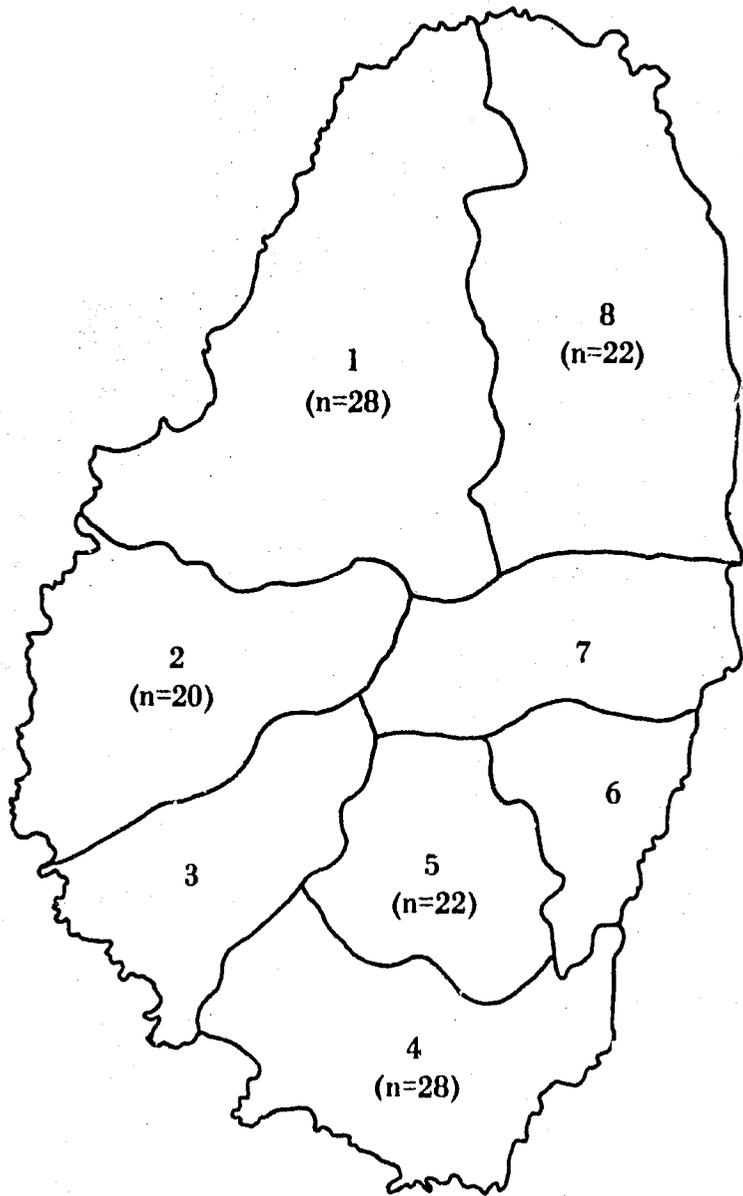
Several farms recorded on the cards as being in the 1-5 acre category were found in fact to be less than one acre in size either because they had been wrongly recorded in the first place or because the farmers now controlled (e.g. rented) less land than they did at the time of registration.

(iv) *The person named was no longer engaged in farming.*

(v) *Person refused to submit to the interview.*

The sample from St. Vincent therefore consisted of 120 randomly selected small farmers from five of the eight agricultural districts of the island, who controlled a minimum of

Figure 1
SAINT VINCENT
GEOGRAPHICAL DISTRIBUTION OF SMALL FARMER SAMPLE



No. of Registered Farmers in Districts Sampled are:

No. 1 : 1097 - No. 2 : 214 - No. 4 : 1610 - No. 5 : 645 - No. 8 : 719

Source: Agricultural Statistics Unit, Ministry of Trade and Agriculture, St. Vincent

one acre and a maximum of five acres of farm land, and who are willing, if chosen, to cooperate with CARDI field staff in the Small Farm Cropping Systems Research Project.

The farmers surveyed in Dominica consisted of a proportionate random sample of 120 farmers in the one to five acre group selected from all 10 parishes of the island. (See *Figure 2*). The sample was selected with the assistance of the Agricultural Statistics Unit of the Ministry of Agriculture, using tables of random numbers to select from numbered lists, per parish, of farmers in the desired category as identified in a recent (1976/77) Agricultural Census of the island. Replacement lists were prepared as for St. Vincent, and the reasons for making replacements to names on the original list were also similar.

In St. Lucia the criteria for the method of selection of the sample were different from those adopted in the other islands. The Ministry of Agriculture had with CARDI agreed that the target group should be farmers in the one to 15 acre group. The Ministry of Agriculture also made its own selection of farmers to be included in the survey. The Senior extension officers from each of the five agricultural districts in the island were required to select a specified number of farmers from their district to be included in the survey sample.

The criteria on which the extension officers were required to base their selections were stipulated in a memorandum from the Ministry's Head Office to the Senior Agricultural Assistant of the five agricultural districts. The relevant sections of the memorandum are as follows:

The project will involve farmers in the following categories:-

- (a) 1 - 5 acres
- (b) 5 - 10 "
- (c) 10 - 15 "

Re Selection of Farmers:- Procedure

In order to initiate the programme you are required first to select the most co-operative farmers in your District who will be willing to participate in the project.

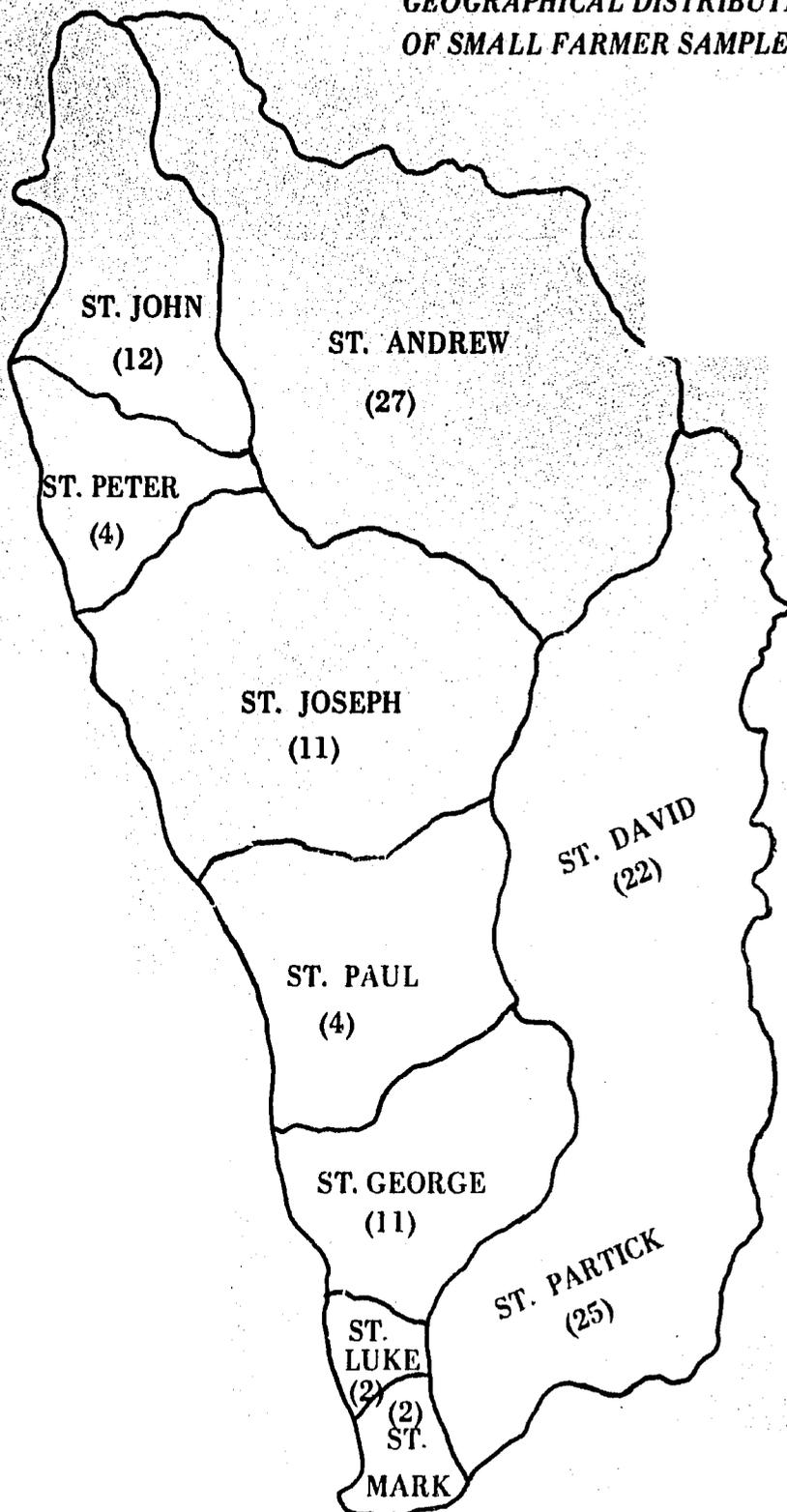
District allocations are as follows:

North	-	30	farmers
Central	-	24	"
Eastern	-	21	"
Southern	-	21	"
South/Western	-	24	"
TOTAL		<u>120</u>	

Figure 2

DOMINICA

*GEOGRAPHICAL DISTRIBUTION
OF SMALL FARMER SAMPLE*



The next step is to categorise the selected farmers on the basis of the acreages mentioned above, and examine the ratio of farmers in each category. Having done this the third step will be to include additional farmers in any of the categories to give some balance to the categories.

When selecting farmers it would be necessary to get some indication of:-

- (a) Age
- (b) Area of holding
- (c) Size of holding.

The St. Lucia sample is therefore not a randomly selected one and cannot objectively be considered as being statistically representative of small farming in that island. There are biases built into the sample because of the method of selection. Farmers who are not well known to the extension officer as well as those who, even if well known, do not get along well with the extension officer, will have been automatically left out. By extension of this argument the small-farming represented in the sample will be representative of farming systems already being influenced by the St. Lucia agricultural extension services rather than of small farming in general. However, since all agricultural districts are represented in the sample it may be assumed that the major ecological farming areas of the island are also included in the study (See *Figure 3*).

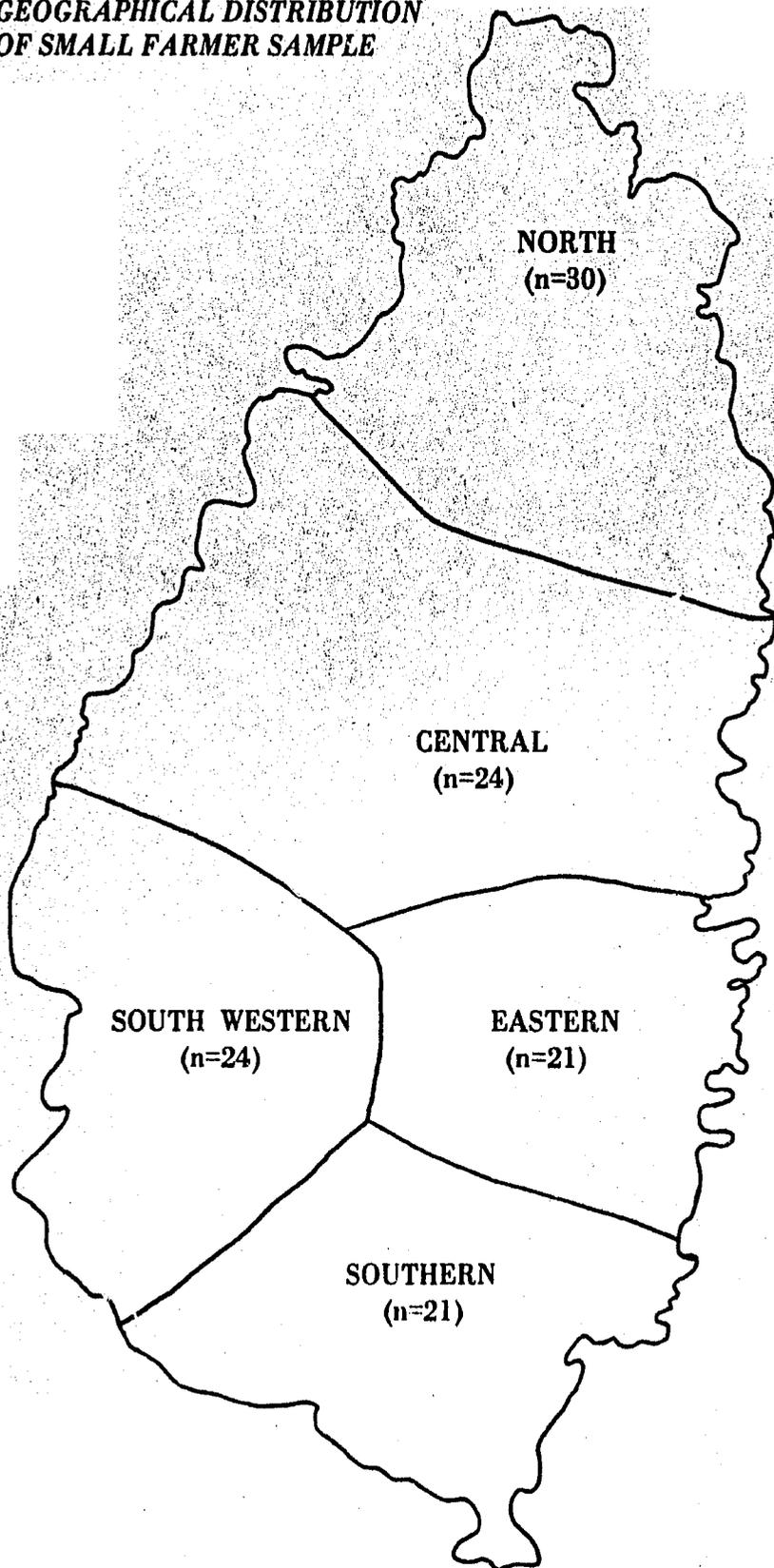
Research Method

Descriptive survey techniques were employed in the investigation. Following consultation with staff of subject-matter departments of the Faculty of Agriculture as well as with staff of CARDI, a 130 question interview schedule was designed by the Department of Agricultural Extension for administering in personal interviews with the selected sample of farmers. The questions were grouped into the following sections.

- Farm Size and Tenure Pattern
- Number and Size of Parcels, Topography, Rainfall, Soil Type, Distance to Parcel and Market, Crop Combinations and Irrigation Systems.
- Farming Activities and Cropping Practices
- Livestock and Poultry: Disposal of Produce, Management System, Cash Receipts
- Labour Availability and Use
- Credit Sources

ST. LUCIA

**GEOGRAPHICAL DISTRIBUTION
OF SMALL FARMER SAMPLE**



- Marketing Outlets, Crop Storage, Total Farm Sales
- Information Channels and Media Use
- Farm Buildings and Equipment Inventories
- Socio-economic Background, Household Expenditure, Decision-Making, Innovativeness, Attitudinal Dispositions
- Nutrition, Health Care and Community Needs.

For ease of recording answers in the field and of coding responses for analysis, the majority of questions in the schedules were of the fixed alternative type.

The schedule was first pre-tested on a group of small farmers in Trinidad. Interviewers and field supervisors were recruited from the three islands and jointly trained for four days in January, 1979 in St. Lucia. Three days were used in classroom sessions which dealt with the objectives of the survey, the purpose underlying every question of the schedule, and interviewing techniques. In addition to undergoing practice interviewing at the classroom sessions, the trainee interviewers spent one full day in the field using the survey schedule to interview groups of small farmers in the one to 15 acre category who had not been selected in the St. Lucia survey sample.

This field exercise, in addition to sensitising the prospective interviewers to field conditions, served as a second pre-testing of the questionnaire. The day following the field exercise was spent with trainees in analysing the problems they had experienced and farmers' reactions to the questions. As a result some minor alterations were made to the wording of some of the questions.

Furthermore, it was anticipated that many of the farmers to be interviewed in St. Lucia and Dominica would be less fluent in English than in the French-patois widely spoken in those islands. Attention was therefore paid to interviewers from these islands agreeing to a common translation into patois of the various schedule questions.

One field supervisor and one checker were employed in each island in addition to a team of interviewers. The function of the supervisor was to coordinate the work of the interviewers, assist in locating farmers and establishing appointments for interviews, collect completed schedules from interviewers for passing on to the checker, and generally to superintend the work of interviewers and checker.

The checker was required to make a detailed scrutiny of all schedules sent in as completed by the interviewers. He/she was to ascertain not only that a response had been entered for every question but that there were no inconsistencies in the recorded responses

(e.g. the sum of the acreages of the various individual holdings controlled by a farm operator should be identical with the recorded acreage of the whole farm). Any schedule submitted incompletely filled out, or containing inconsistencies, was returned for completion or correction to the responsible interviewer through the supervisor.

Field interviewing began simultaneously in all islands in late January, 1979 and was completed by late March. Three full-time interviewers with a knowledge of agriculture carried out the St. Vincent survey. They worked together as a team in one agricultural district until interviewing of all sample farmers for that district had been completed, and then moved on to another district. In St. Lucia and Dominica, district agricultural extension officers were recruited as part-time interviewers. They worked individually during the afternoons and evenings and on the weekends. Five such interviewers were used in each of St. Lucia and Dominica. All interviewers were required to record pertinent observations in a field notebook.

Based on the experience of this survey the use of full-time interviewers working as a team as practised in St. Vincent is recommended for similar surveys. The support and relative proximity of and frequent communication with team members helps immensely in keeping up the spirits and morale of individual interviewers during the trying and frustrating periods of locating farmers who constitute the selected sample. Furthermore, the daily exchange of experiences and problems soon leads to the development of a common approach to the techniques of framing interview questions, thus leading to a reduction in response bias due to individual differences of the interviewers (although it could possibly also introduce a group bias). A further advantage of the group approach is that it makes more efficient use of available transport facilities. One vehicle is all that is required for a group of four or even five interviewers working one district jointly, whereas under the alternative system each individual interviewer will need to have a vehicle.

Three hundred and sixty (360) usable interviews were obtained as planned. Data from these were coded according to a scheme developed in the Department of Agricultural Extension and transferred to computer data cards for machine tabulation. Descriptive statistics are used in the interpretation and reporting on the data.

CHAPTER 2

SMALL FARMING IN ST. VINCENT

A. CHARACTERISTICS OF THE SMALL FARMER

I. *Background Factors*

(i) Age, Sex and Ethnic Origin

Seventy per cent of farm operators in the St. Vincent sample were male. The mean age of the sample is roughly 50 years (i.e. 49.6) and the modal age slightly less, viz., 48. (See Tables 1 and 2 in the Appendix). The majority of the farmers (80 per cent) are of African descent, with nearly seven per cent East Indian and 12 per cent of mixed races. Less than one per cent of the farmers is of Amerindian (Carib) origin.

(ii) Literacy, Marital Status and Household Size

The level of literacy among farmers is relatively high. Roughly 72 per cent can read and write while a further seven per cent read but cannot write. (Table 4). No farmer was educated beyond primary school. The majority (65.8 per cent) reached Standard 4 or better (i.e. at least 4 years of primary school). Nine per cent of the farmers had no schooling at all.

The majority of small farmers are either married (70.8 per cent) or live in common law relationship (15.8 per cent). Only 6.7 per cent are single. The mean household size is six and the modal size is eight. Each farm operator has roughly three dependents (Table 8).

(iii) Stability

Judged by their length of residence in the place at which they were located at the time of the survey, Vincentian small farmers are a relatively shifting or moving group. Although the modal age of the farm operator is 48, the modal length of residence in his present local-

ity is less than 10 years. The number of replacements required for farmers who were selected in the original sample but who had since emigrated supports this observation.

(iv) Occupation

The sole occupation of the majority of the sample is farming (64 per cent). Fourteen, or 11.6 per cent of the total are also engaged in trades such as carpentry and masonry, and a further eight per cent are also employed in agriculture-related commercial enterprises such as the retailing of agricultural produce. Fewer still are employed as unskilled labourers in road gangs, in non-agricultural commercial enterprises (shop-keeping) and in fishing. (*Table 10*).

(v) Family Income

It was anticipated in preparing the questionnaire that small farmers would find it difficult to give a dependable estimate of their annual income from all sources, or even if they could provide such an estimate, might be reluctant in disclosing that information. It was decided to seek this information in a round about manner. First the farmer was asked who besides himself contributes to the total family income. Other questions asked for the proportion of the total income (with a corresponding cash estimate) spent on the various family, farm and other expenses. From responses to these questions it was anticipated that estimated total family incomes could be computed.

Even this design failed to elicit the desired data from most Vincentian small farmers. Only about 20 per cent of the farmers (i.e. 25) provided any figures from which estimates of annual family incomes could be computed. Of these 25 farmers, 10 had annual family incomes of \$500* or less, and the remaining 15 (i.e. 60 per cent) had incomes ranging between \$500 and \$5,000 per year. (*Table 11*).

Farmers were more open in disclosing who besides themselves contributed to the income of the household. In more than 40 per cent of the houses, one or more sons contributed to the family income as does the spouse in 25 per cent of the households and the daughters in 28 per cent of the sample. In some cases other relatives and even non-relatives also contribute to the family's total income (*Table 12*).

* Unless otherwise stated the dollar referred to in this report is the Eastern Caribbean dollar.

(vi) Nutrition

Tables 13 and 14 of the Appendix list the various foods and food groups consumed by small farmers, the relative frequency of their use and the source from which they are obtained.

Rootcrops and rice, in that order, constitute the staple food of the Vincentian small farmer. Well over three quarters of the sample eat rootcrops and rice very often, i.e. several times a week. Most of the rootcrops consumed in the home are grown by the farmer himself, whereas the rice is purchased. The vast majority of the sample (more than 70 per cent) also eat bananas very frequently.

The figures indicate that a very high proportion of small farmers (more than 80 per cent) consume vegetables very often, and that most of what is consumed is home grown. The validity of these responses is doubtful, taking into account the very low frequency of occurrence of vegetables in the cropping system of these farmers. (See Section B IV (i) of this Chapter). In many parts of the Eastern Caribbean the staple foodcrops are often referred to as "vegetables". Although this usage is not common in St. Vincent it is suspected that in the interviews some small farmers might have interpreted "locally-grown foodcrops" for "vegetables".

Virtually all respondents eat meat sometimes, but very little of what is eaten was produced by the farmer himself. A high proportion of small farmers reported also consuming eggs, milk, fish and fruits very often. However, the qualitative rather than quantitative nature of these food consumption pattern questions which required answers to be given in relative terms, frequently produce misleading results because what is "Very seldom" for one individual may be considered "Very often" by another. In order to get dependable data on the food consumption habits (and by extension the food consumption needs) of small farmers in the islands, it is suggested that CARDI includes this as one of the areas of continued data collection in its Small Farm Multiple Cropping System Research Project.

II. Farm Oriented Factors

(i) Time Spent and Labour Used on the Farm

For the small farmer who is in essence both farm manager and farm worker, the amount of time he spends on the farm largely determines the productivity of his farm. Assuming that the farm is sufficiently large to provide opportunity for his productive employment,

time spent on the farm will indicate the extent of an individual's interest in, dedication to and belief in the future of agriculture.

The modal (i.e. representative, majority of) Vincentian small farmer spends six to eight hours per day on his farm during the crop season when demands on his time for planting, pest and disease control, harvesting, etc. are high. In the out-of-crop season he spends from two hours to four hours daily on the farm. (Table 15). Nearly three quarters of all farm operators (72.5 per cent) are assisted with work on the farm by at least one other member of the household. (Table 16).

In situations of scarcity of money and/or labour, in an attempt to ensure the more timely performance of critical and labour demanding farm operations such as land preparation, planting and weeding small farmers sometimes resort to shared labour on each others farms (variously called lend-land, coup-de-main, swap-labour, in the islands). Twenty eight (28) per cent of the sample used shared labour on the farm.

(ii) Use of Farm Records

The keeping of farm records for use as a vital tool in farm management decision-making is universally recognised. In developing a greater agri-business orientation to farming among small holders in the Caribbean an early need will be to develop among them a recognition of the value of and skill in keeping and using farm records.

In St. Vincent less than one in 10 of the farmers sampled kept records, and the records kept by those few were very rudimentary.

Most farmers did not keep records because they thought it was too time consuming (38.8 per cent) or because they did not consider it necessary (22.5 per cent). Some explained they kept no records because they could not read or write (10 per cent) or because they did not know how to (4.5 per cent). (Table 19).

(iii) Innovativeness

In order to get some idea of how alert they were to developments taking place in agriculture around them, farmers were asked whether they were familiar with any new plant or seed varieties or new agricultural practice. The Windward Islands' banana industry is very dynamic and has over the past years introduced to farmers new chemicals and methods of disease control and new cultural practices. And yet only two of the 120 small farmers were familiar with what they considered a new variety or practice.

The relative innovative or adoption tendency of a farmer may also be indicated by examining the number of technologically recommended innovations he practises, and the degree to which these innovations are transferred from one crop or enterprise to another. Their commodity associations in the Windward Islands virtually force banana growers to use fertilisers in growing that crop. All export fruit is sold through the associations which, as part of the services they provide from a cess levied on all produce sold, supply fertilisers to each producer based on the volume of his sales.

Almost 70 per cent of the farmers growing bananas use fertilisers on that crop. However, the use of other non-fertiliser chemicals by these banana growers is very low indeed. Less than 20 per cent use chemical sprays and none uses other agricultural chemicals or organic manure.

The position is virtually identical with the other major crops and groups of crops grown in the island. Nearly 90 per cent of the plantain growers use fertiliser on that crop but use no other type of agricultural chemical. Seventy per cent of root and tuber crop growers use fertiliser while less than one per cent of their number use chemical sprays and other agricultural chemicals. With vegetables, legumes and maize, again relatively high proportions of the growers use fertilisers but not other agricultural chemicals. (Table 21).

It would seem therefore that there has been some transfer of technology from banana growing to the management of other crops. The influence of this industry on technology transfer is even better understood when it is realised that the Banana Association is virtually the sole importer of fertilisers. The fertiliser imported for bananas is used by small farmers on all their crops, and even by non-banana growers who, when they cannot obtain the commodity from the Banana Association, can nearly always depend on getting some to buy from some neighbour willing to trade part of his allocation for cash.

(iv) Persons consulted by farmers

The largest proportion of small farmers (40 per cent) consult no one in arriving at farm planning decisions. The spouse is the person most frequently consulted by those who seek advice (38 per cent). Less than two per cent of the sample consult the extension officer. (Table 22).

In deciding whether or not to adopt a new variety or practice the opinion considered to be most valuable is also that of the spouse. Seventy nine or nearly 70 per cent of the 118 farm operators with spouses considered that obtaining the opinion of the spouse was

important. Others whose opinions were considered important in arriving at a decision were, in descending order, the extension officer, the son or daughter, a relative and the neighbour. (Table 23).

III. Credit Facilities and Practices

The credit sources available to small farmers in the three islands surveyed areas follows:

- (a) **Commercial Banks.** The interest rate from this source was quoted as varying from 10 to 12 per cent per annum. During the year four Vincentian farmers obtained loans from commercial banks, ranging in amounts from \$600 to \$3,000. Farmers who used it said their preference for this source was because it was relatively easier and faster to obtain credit there than from the Development Bank.
- (b) **The local Agricultural Development or Agricultural and Industrial Development Bank.**

These government-run institutions obtain development funds on loan from the Caribbean Development Bank and in turn provide credit for farmers. Three types of credit are available to farmers through the local Agricultural Bank or the Caribbean Development Bank (CDB) through its field officers located in each of the islands:

- (i) **Short, medium or long-term loans** available directly from the Agricultural Bank for the purchase of land and equipment or for any other productive use. The rate of interest is eight per cent per year.
- (ii) **Farm Improvement Credit** - available through local CDB staff. Minimum loan granted is \$3,000 and maximum \$270,000. Medium to long term loan (up to 10 years) available for all agricultural development projects excluding land purchase and project refinancing. Interest rate is eight per cent per annum.
- (iii) **Agricultural Production Credit** - Minimum loan is \$500 and maximum \$6,750. Short to medium term loans are available for virtually all farm development except tobacco growing and marine fishing. The scheme operates on a crop lien basis. Interest rate is 12 per cent per annum.

All above listed credit is available to registered cooperatives at one-half per cent per annum less than quoted.

For the year preceding the survey only two farmers from the sample had obtained credit through these sources. One farmer who used the Production Credit scheme enthused his preference for this source because "they wait until you reap the crop to pay back". However, several farmers who did not use this credit source complained that there is too much red tape and too long a delay before obtaining a loan. One farmer complained that he had applied to the Agricultural Bank for a loan, and was getting the run-around for a long time; then he approached a commercial bank and obtained immediate credit.

(iv) Commodity Association

Associations such as the local Banana Association sometimes provide credit facilities to farmers, usually in the form of supplying fertiliser and other agricultural chemicals on credit. No credit was obtained during the year from such organisations by any farmer in the sample.

(v) Cooperative Credit Unions

These operate in all three islands, and according to credit union philosophy, should provide credit within their capability for all worthy productive purposes, including agricultural production. No farmer in the sample used credit unions as a source for credit during the past year.

(vi) Private money lenders, relatives, friends and neighbours also function as important sources of credit for farmers. Two farmers stated that when they needed a loan they preferred to approach a friend or relative because they are not given the run-around. During the year preceding the survey two farmers had obtained credit from these sources. The loans were for \$75 and \$200.

The purposes for which farmers obtained credit from all sources during the year reviewed were as follows:

Purchase of land	-	2	loans
Purchase of fertiliser and other chemicals	-	3	"
Labour employment	-	1	"
General farm development	-	<u>2</u>	"
		<u>8</u>	"

IV. Marketing Facilities and Practices

Table 24 shows the distances farm operators are located from the nearest marketing depot. More than half of the 97 farmers who could name and estimate the distance of the

nearest depot from their home live more than five miles from that depot. In fact, there are some 23 farmers who live 11 and more miles away from the nearest depot.

In the circumstances the farmers' main suggestions for improving the marketing systems were:

- (a) increase the number of access roads so that farmers could more easily obtain transport to the market;
- (b) increase the number of collection points so that no farmer would be living very far from a depot; and
- (c) the availability of better and more dependable transport to take farmers to the market. (*Table 25*).

The need for marketing cooperatives was suggested by only one farmer in St. Vincent as a possible way for improving the agricultural marketing situation.

The Banana Association (for banana) and the Marketing Corporation (mainly for vegetables and rootcrops) are the main purchasers of produce for export. Other market outlets available to the small farmers are the city market, village market, hotels and supermarkets and the hucksters and traffickers who purchase at the farm gate. The only market channels not reported as being used by the small farmers were hotels and supermarkets. For the rootcrops and vegetables there was an expressed preference for selling to the hucksters and traffickers who, it is claimed, pay a better price than the Marketing Corporation although they purchase the produce right on the farm.

V. Communication Channels Used

In order to determine the information sources in which farmers had the greatest confidence where technical agricultural matters are concerned, interviewees were asked "If you have technical farming problems from whom do you seek advice?"

The largest proportion of the sample was either traditional in trying to solve its problems solely through self experience, or was very sure of (overly so) its technical knowledge, or contained some of both types. Members of this group (36 per cent) stated that they sought advice from no one at all. Twenty nine per cent of the sample would seek advice from the extension officer and another 23 per cent from either a relative or good friend.

In order to obtain information on improved farming practices more farmers visit their neighbour's farm (60 per cent) than they visit large estates (25 per cent) or government farms and demonstration stations (22 per cent). (*Table 27*). Fifty per cent of the farmers know the extension officer but 37 per cent report that he never visits their farm.

More than 80 per cent of the sample listen to radio and some of the kind of information they would like to receive through that channel includes technical information on crop and livestock production, market information (current market prices) and government agricultural incentives available to the farmer. (*Table 29*). The time considered by farmers to be most suitable to them for the airing of agricultural radio programmes is from 7.00 p.m. to 8.30 p.m.

VI. Membership in Groups

The degree of group membership among small farmers in St. Vincent is very low, and of those who join groups their preference is for those groups which offer possibilities for their spiritual or material benefits. Twenty four per cent of the sampled farmers belong to a church group and five per cent each belong to a sou-sou or co-operative. (*Table 30*).

VII Attitudes

Attitudes influence behaviour, and if one wishes to know how best to approach an individual (or conversely how one ought not to approach him) in order to influence his opinion or behaviour, it is very useful to have some previous knowledge of that individual's attitudes and value system.

Most farmers in the St. Vincent sample were of the opinion that the single most important factor for one to consider in choosing a job is how much money they can make out of the job (80 per cent). The rest said that personal liking for the job was for them the single most important factor. (*Table 31*).

The St. Vincent small farmer is thus seen as an almost totally economic-oriented individual. Status, long-run potential for self improvement and such other factors play no part in his decision making so far as a career choice is concerned. This suggests therefore that in dealing with these farmer, stressing the economic benefits (and demonstrating this) of whatever is recommended would be the surest way of influencing their practice-adoption.

Individuals not unseldom wish to live vicariously through their children that which they wished they could have themselves achieved. The jobs or professions they would like their children to follow in so far as this compares with their own occupation is often indicative of their attitude towards their own calling.

Farmers were asked what jobs they would like for their sons and daughters. Only 13 per cent wished their son to follow into farming. The largest proportion (28 per cent) would like the sons to become blue collar workers (mechanics, masons and other tradesmen and craftsmen), presumably because they believe these jobs pay better than does farming. A comparatively large proportion (22 per cent) would like their sons to become teachers, a position usually looked up to in the village, indicating that status still does play some part in the lives of these small farmers. (*Table 32*).

Two thirds of the respondents would like their daughters to become either teachers or nurses. Failing that the next best job for their daughters would be other white collar jobs (secretaries, typists, etc.). Only one farm operator wished the daughter to take up farming. (*Table 33*).

In an attempt to more directly determine farmers' attitude to agriculture as a career they were asked whom they would consider to be more important - a son who was a lawyer or doctor or another who was an agriculturist. There was a 50/50 division in the responses - equal proportions (29 per cent) voted for agriculture and law/medicine while the remainder thought the professions were equally important. (*Table 38*).

As a further check on respondents' perception of the position of the farmer in the community they were asked to name the three persons they considered most influential in their community, and then to state the occupations of the persons so named.

Relatively large proportions of the sample felt that there was really no one influential in their community, thus indicating a very low level of confidence in their own community. Of those who believed persons in their community wielded some influence the vast majority saw all three of the most influential persons in the community as farmers.

So far as education is concerned, all respondents would like their children to be better educated than themselves. Fifty-three per cent would like their children to receive a University education, roughly only quarter of the sample want their children to go through secondary school and the remainder would like them to go "as far as they can reach". This desire by small farmers for the highest possible educational attainment for their children is based on their opinion that the best form of security for their children is a high level of education. (*Tables 34 and 35*).

Land is sacred to the small farmer and to bequeath a piece of land to his offspring is regarded as a great expression of love. In this belief, almost every farmer in the sample (11 out of the 113 who had children) indicated they would divide their land among all their children rather than leave it all to one child. This pervading attitude is one of the main reasons for the very fragmented nature of farms among small holders in the region. This is one problem which requires very serious attention.

Finally, since the farmers are so money-oriented, a look at their attitude toward saving is in order. More than three quarters of the farmers interviewed reported that they saved some of their earnings. The vast majority (83) placed their savings in a bank. Only two reported keeping their savings at home. Several of those who did not save any money declared that they would like to save but their earnings was not sufficient to meet their inescapable commitment and leave some over for savings.

B. THE FARM

I. Farm Size and Fragmentation

The 120 small farms included in the sample were grouped as follows:

<i>Farm Size (Acres)</i>	<i>Number of Farms</i>	<i>Per cent of Total</i>
1.0 - 1.99	61	50.8
2.0 - 2.99	22	18.3
3.0 - 3.99	11	9.2
4.0 - 5.00	26	21.7
	<u>120</u>	<u>100.0</u>

The majority of farms (82 or slightly more than 68 per cent of the total) contained only one holding (i.e. one single parcel of land). Twenty-two (22) per cent of the sample (27 farms) each consisted of two parcels, while another 10 farms (or eight per cent of the sample) were made up of three parcels each. Only one farm contained four parcels.

In order to get an indication of whether small farmers fully utilised their farm lands, interviewees were asked whether they let any of their lands for rent to others. Questions were also asked regarding the acreage of land uncultivated or unutilised (i.e. wastage) on each holding. Only five of the 120 farmers rented out any of their lands.

Relatively few farms (viz. 17 or 14 per cent of the sample) contained any unutilised or wasteland. And even among these the majority (i.e. 13) reported comparatively small areas of wasteland (less than one half acres). (*Table 40**). Much of this wasteland is said to consist of very steep or otherwise uncultivable areas. On the whole the small farmers can be said to be utilising quite fully the lands which are available to them. Potential for increasing small farmer production therefore seems to lie in more intensive rather than more extensive use of the lands under their control.

II. Tenure and Location of Parcels

Table 41 in the *Appendix* sets out the tenure system of the farms. It is necessary to indicate the system of tenure by parcel because one farm may consist of several parcels each held under a different tenure system. For example, one farmer may have a freehold parcel near to the village on which is his house and a small (say half acre) foodcrops garden. At the foothills he may be renting an acre or two from the large estate which usually borders each village, and may also be cultivating another acre or two of joint family lands up in the mountains.

For purposes of this survey the parcels ** comprising a farm were numbered according to their relative distance from the farmer's dwelling. If the plot on which the farmer's dwelling is located is merely sufficient for his house and allows for little or no farming (for example a house lot in the village), this was not counted as a part of the farm. Parcel number 1 is taken as that parcel closest to the farmer's dwelling, or on which the dwelling is located if it is sufficiently large to permit some meaningful small farming. Parcel number 2 was the one next distant from the farmer's home and so on.

In St. Vincent the largest proportion of all holdings (i.e. nearly 48 per cent of the total of 170 in the sample) is occupied freehold. Other tenure systems encountered, in descending order of frequency, were annual rental (20.6 per cent), share cropping (9.4 per

* This table lists wastage by parcel rather than by farm.

** The terms "parcel" and "holding" are used interchangeably in this report.

cent) and use of family land (7.1 per cent). The sample included no cases of leasehold tenure or squatting, quite unlike (as will be discussed later) the situation found in Dominica and St. Lucia.

The vast majority of parcels number 1 (i.e. more than 70 per cent of the 120) are within three miles of the farmers' homes. The same is also true of the number 2 parcels (73 per cent lie within three miles of the farmers' dwellings.) Even among the third parcels more than 50 per cent are located within three miles of the farmers' homes.

By and large, therefore, it could be stated that generally speaking small farmers' holdings are located within reasonable commuting distance from their homes. However, with islands of such rugged topography as the three covered by this survey, accessibility is not always directly related to distance. What Macpherson wrote of Dominica is equally valid to St. Vincent, and indeed to St. Lucia:

"It is steepness of slope rather than altitude which gives Dominica its particular character and makes transport and agriculture so difficult. Remoteness in such a country is not a matter of distance but of difficulty of access."¹

Small farmers operating in these mountainous islands usually farm the steepest and least accessible areas. The reason is historical, since the better lands in all the islands were taken over by estates in the early period of their settlement by Europeans. When a peasantry began to be developed following emancipation, the only lands available to these peasants were the least accessible, steep, interior hillsides. With such a background one should expect small farmers in St. Vincent as well as St. Lucia and Dominica to consider as gentle slope what others might consider to be very steep. It is in this light one should interpret the farmers' responses concerning the slope category or topography of their farms. (Table 43).

In view of the farmers appreciably more than three quarters of the lands of their various holdings is either mostly flat or consists of gradual slopes. About six per cent of the holdings are undulating, and less than one tenth of all holdings contain mostly steep slopes. However, of St. Vincent Macpherson states that "that land is very limited in extent. Indeed only five per cent of the island has slopes of five degrees or less."²

¹ John Macpherson, *Caribbean Lands. A Geography of the West Indies*. Longman Caribbean Ltd., Trinidad and Jamaica, Third Edition, 1973, p. 101.

² *Ibid*, p. 93.

St. Vincent is of volcanic origin and many of its soils are derived from volcanic ash. According to the small farmers the soils of their holdings are roughly equally divided between heavy soils (47.6 per cent) and light soils (50.6 per cent). However, quite significantly, the lighter soils are on the holdings nearest home. The further the holding is from the farmer's home the more likely it is that the soils are heavy rather than light. (*Table 44*). This is of some importance because for the same crop the heavier soil will require different and more labour demanding management to obtain similar results, according to the farmers. For example, in districts 4 and 5 (see *Figure 1, Map of St. Vincent*) farmers reported the need to deepfork the land before they could use a hoe or other implements to prepare seedbeds or banks for planting potatoes and other crops. In districts 1, 2 and 8 most soils of the small farmers are light and are worked very easily with a hoe only.

Annual rainfall in St. Vincent is high and most of the island experiences 80 or more inches a year. The rainfall is generally fairly well distributed and therefore 60 inches will support most of the crops grown in the island. Roughly, 63 per cent of the farm holdings receive 60 or more inches of rain per year. The remainder fall in the 40 inches to 60 inches annual rainfall range, and depending on the crops grown on these holdings, irrigation should prove advantageous.

Table 46 shows the type of roads farmers must use in travelling from their homes to the various farm parcels. Notice that only two of the farmers in the sample had their homes on a farm parcel, strongly highlighting the practice in these islands of village residence and operating farms located outside of the village. The table shows that the most common type of road used by small farmers from home to holding is an unpaved dry-weather road (i.e. unpaved roads which will take vehicular traffic in the dry season but are generally unfit for vehicular travel in the rainy season). Trails or footpaths, and motorable road follow in that order. Many farmers also use a combination of road types to get to their holdings, for example travel on a motorable road for a short distance, and then branch off to a trail leading up the hills to their farm.

The distance of holdings from the nearest market and the type of transport available for taking produce to the market can influence both the type and quantity of a crop produced. *Table 37* shows that for the largest proportion of holdings (48 per cent) the nearest market is more than six miles away. In fact, for more than 70 per cent of the holdings, the market is more than four miles distant. (Remember that distance must always be related to topography and accessibility in these islands). Most farmers use public transport to get their produce to the market.

III. Tools, Equipment, Machinery and Farm Buildings

For the vast majority of St. Vincent small farmers (almost 90 per cent of the sample) the inventory of farm tools consists of one to five pieces of hand tools (*Table 49*). The most common hand tools are the hoe, cutlass and fork. Six farmers owned one knapsack sprayer each. No farmer owned either a motor-sprayer or a tractor or other farm vehicle of any kind. Similarly, only one farmer owned any piece of irrigation equipment, and this was a watering can.

Investment by the farmer in farm buildings is equally sparing. Of the total sample of 120, two small farmers owned one storeroom apiece. One farmer had a cattle pen, another a goat pen, and that summed up the total investment by the small farming sample. It is therefore evident that apart from investment in land (48 per cent of the holdings are held freehold) small farms in St. Vincent are highly undercapitalised.

IV. Crop Enterprises

(i) Crops Grown by the Small Farmer

The banana is in St. Vincent, as in the other Windward Islands, one of the most important cash crops, and a major contributor to the territory's gross domestic product and foreign exchange earnings. However, only 30 per cent of small farmers (36 of the 120 sample) cultivate this crop.

Discounting bananas, generally speaking the Vincentian small farmer is a cultivator of short-term crops rather than of long-term crops. Of the 170 holdings in the sample there was one long-term crop (perennial) on each of 60 holdings (35.3 per cent) and two long-term crops on only nine (5.3 per cent) of the holdings. All told, therefore, perennial tree crops were grown on only 40 per cent of the farms. Coconuts were grown on one farm and citrus on another three.

By contrast, short-term crops were grown on 160 (94 per cent) of the farm holdings. On more than half of the number one parcels three or more types of short-term crops were cultivated; the maximum number recorded as being grown on one parcel was nine. The maximum number of types of short-term crops cultivated on any holding decreased with distance of holding from the farmer's home, viz., a maximum of six for parcel two and four for parcels three and four. (*Table 50*).

The most commonly cultivated crops among the small farmers and their frequency of occurrence in the sample are as follows:

<i>Crop</i>	<i>Farms on which grown</i>	
	<i>No.</i>	<i>Per cent</i>
Banana	36	30.0
Plantain	25	20.8
Rootcrops		
Sweet potatoes	63	52.2
Tannia	64	53.3
Dasheen	30	25.0
Eddoes	28	23.3
Yam	27	22.5
Cassava	9	7.5
Arrowroot	4	3.3
Vegetables		
Tomatoes	20	16.1
Carrots	17	14.2
Cabbage	13	10.8
Cucurbits	6	5.0
Peppers	4	3.3
Pigeon Peas	20	16.6
Ginger	12	10.0
Peanuts	11	9.2
Corn	10	8.3

Interviewees were asked to state which crop on each parcel was the most important (a) on the basis of the acreage devoted to the crop and (b) the economic returns from sale of individual crops. Parcels 1 and 2 are most important ones (there are only 11 third parcels and one fourth parcel in the sample) and the data are discussed only in relation to those two parcels.

For these two parcels the crops found to be the most important on the basis of area cultivated are as follows:

Crops	Parcel No. 1 (n=120)		Parcel No. 2 (n=38)	
	No. of Farms	Rank Order	No. of Farms	Rank Order
Sweet Potato	30	1	14	1
Banana	28	2	8	2
Tannia	21	3	5	3
Carrots	13	4	4	4
Plantain	5	5	1	7
Peanuts	4	6.5	1	7
Arrowroot	4	6.5	1	7
Yam	3	8.5	2	5
Cabbage	3	8.5	0	.

Considered on the basis of the economic returns to the farmer, the crops considered to be the most important (or most valuable) on parcels one and two are:

Crops	Parcel No. 1 (n=120)		Parcel No. 2 (n=38)	
	No. of Farms	Rank Order	No. of Farms	Rank Order
Banana	26	1	6	3
Sweet potato	25	2	12	1
Tannia	16	3	7	2
Carrots	11	4	2	6
Plantain	10	5	1	8
Peanut	6	6	3	4.5
Eddoes	5	7	.	.
Tomatoes	4	8.5	1	8
Arrowroot	4	8.5	1	8
Cabbage	3	11	.	.
Yam	3	11	3	4.5
Ginger	3	11	.	.

By both standards banana, sweet potato and tannia occupy the top three positions, as they also did on the basis of frequency of occurrence on all farms. Carrots and plantain follow in that order. Reasons given by farmers for choosing to grow that crop which was most extensively grown on their farm were (a) favourable market conditions, (b) relatively small labour demand, and (c) land suitability for the particular crop, in that order. Reasons for growing those crops which were most important on the basis of returns were the same, except that (b) and (c) exchanged rank orders.

(ii) Crop Combinations

For the survey crops were considered to be grown in combination if they were *interplanted* (i.e. grown together on the same plot) or if they followed one another on the same plot of land during one agricultural year.

Among the sample of farms surveyed the aroids (i.e. tannia, dasheen and eddoe) were the crops most often grown in combinations. Crop combinations with tannia were reported 61 times, with eddoes 27 times and with dasheen nine times. The frequency of occurrence of other crops in combinations within the sample is as follows:

<i>Crops</i>	<i>Frequency of occurrence in a crop combination</i>
Sweet potato	53
Corn (maize)	24
Pigeon peas	23
Banana	13
Plantain	13
Yam	13
Carrot	12
Peanut	10
Cassava	10
Tomato	8
Cabbage	5
Pumpkin	4
Ginger	3
Coconut and arrowroot	1
Orange (with eddoes and pumpkin)	1

Because of their supremacy in the cropping pattern of the small farmer in St. Vincent, bananas, sweet potatoes and the aroids are most frequently encountered as the dominant crops in a combination. The most frequently occurring combinations are listed below, the dominant crop in the combination being listed first. Crops interplanted are denoted by the use of the plus sign (e.g. pigeon peas + corn) whereas the slash sign (/) signifies one crop following another (e.g. carrot/cabbage denotes a pure stand plot of carrots followed immediately or soon after harvest by a crop of cabbages).

<i>Crop Combination</i>	<i>Frequency of occurrence in sample</i>
Sweet potato + corn	20
“ + pigeon peas	13
“ + cassava	5
“ / peanuts	8
“ / corn	3
“ / carrots	3
Banana + aroid	8
“ + plantain	2
Aroid + aroid	24
“ + yam	5
“ + pigeon pea	3
“ / aroid	10
“ / yam	4
“ / carrot	2
Plantain + aroid	8
Peanut + corn	2

In addition to being found in combinations with the three major crops, carrots are grown in pure stand succession to ginger and vegetable crops such as cabbage and tomato. One very disturbing cropping sequence observed was carrots/carrots/carrots. An adventurous combination observed in district 8 on a farm not included in the sample was

Arrowroot + pigeon peas + corn + blackeye peas + pumpkin.

In St. Vincent corn is not usually grown for sale by small farmers, but whatever crop is obtained is retained for feeding the farmers' few scrub chicken. Two very interesting reasons were given by farmers for including corn in their crop combinations. Several farmers mentioned growing corn in combination with sweet potatoes and peanuts merely to provide a more desirable alternative foodstuff for the rats which would normally do a great deal of damage to the potatoes and peanuts. One other farmer, however, grows corn with his sweet potatoes only during the mango season because the birds then feed on the mangoes and leave his corn alone.

(iii) Management Practices

Table 51 in the *Appendix* summarises the modal management treatments given by St. Vincent farmers to 10 of the crops grown on most farms. Included in the data are the usual months of planting and harvesting, systems of planting and periods of highest price received for produce. All the crops (*viz.*, banana, plantain, sweet potato, tannia, dasheen, yam, pigeon peas, tomato, carrot and ginger) are grown both for home use and for sale. The farmers indicated that they intended to continue to grow these crops.

Banana and *plantain* are planted year round as well as harvested all through the year. Most farmers grow these crops in pure stand, but with plantains there is a sizeable minority of farmers who grow the crop in combinations. The normal system of planting is in rows on the flat. Farmers reported receiving the highest prices for bananas from May to July and the lowest prices during November to January. For plantain the price was fairly even all through the year.

Virtually all farmers select planting material from their existing fields. The majority (25 of the 36 who grow bananas) use fertiliser on the crop. (*Table 21*). Only seven use chemical sprays of any kind (weed or pest and disease control), and not one of the 36 banana growers reported using chemical dusts or non-fertiliser granular formulations (including nematicides). Similarly, no use is made of organic manures.

Very few farmers (5 of 36) reported using labour for planting, harrowing or forking in land preparation for planting bananas. However, drainage and planting hole preparation are common practises for which farmers depend largely on family labour. Similarly, family labour is that mainly used for planting, fertiliser application, weed control and harvesting.

The majority of banana growers in the sample (*i.e.* 27 of the 36) reported having no costs for carrying (*i.e.* heading) or transporting (35 of 36) their bananas to the marketing point. This indicates that the farmers do not place a value on their own or their family's

labour in heading bananas from field to collection point, or that they consider this all a part of the harvesting operation.

Sweet potato is usually planted in May/June and harvested in October/November. Most farmers grow the crop in pure stand (39) but a sizeable minority (21) grow mixed stands of sweet potato and other crops. The remaining few have both pure-stand plots and mixed-stand plots on their holdings. Only 12 farmers had some knowledge of the variety they cultivated. Nine of these thought they grew a local variety while the other three grew what they considered to be improved varieties.

All farmers planted their crop along ridges. No farmer attempted to store his harvested potato. Prices were even throughout the year (sales to the Marketing Board) but a few farmers who had marketing outlets other than the Marketing Board reported that prices were highest in the period November to January.

Tannia is usually planted in May to July, with the peak planting period in May. Some harvesting takes place from November to January, but the peak harvesting month is February. The crop is grown in both mixed stand and pure stand, on mounds. No storage of harvested crop is practised. The periods of highest prices are February to April and May to July. The reported period of lowest prices is November to January.

The peak planting period for *dasheen* is April to June. The crop is grown in both pure-stand and mixed-stand on ridges. The peak month for harvesting is December. Highest prices are obtained for the crop during February to April and lowest prices in November to January.

Yams are grown by 27 farmers in the sample, the variety being the "local" variety. The crop is usually planted in May to July, mainly in mixed stands (although there is a fair amount of pure stand cultivation), and grown on mounds. As with *dasheen* the peak harvesting period is around December, lowest prices are obtained for the crop from November to January and highest prices from February to April. No crop storage is practised.

For the *root* and *tuber crops* as a whole, farmers use their own planting material rather than purchase. The use of fertilisers is widespread (75 of 107 growers use fertilisers in these crops, a spin-off from the banana industry). (Table 21). Non-fertiliser chemicals as well as organic manures are not used in the growing of these crops in St. Vincent.

Both family and hired labour are used for land clearing, forking, drainage, planting and weeding. Family labour is that mainly used for fertiliser applications and for harvesting.

Pigeon peas are sown usually from March to June, with two peak planting periods in March and June. The crop is planted in rows on the flat, and is as frequently grown in mixed

stands as in pure stands. The peak period harvesting is November to January. Prices are usually highest in November to December and lowest in January.

The peak period of *ginger* planting in St. Vincent is April/May, with a lesser peak in February. Ginger is mainly grown in pure-stand, planted in rows on the flat. Harvesting is spread from August to January, with a peak in December. Prices obtained for the crop remain fairly even throughout the year.

Tomato is grown in pure-stand, planted along ridges. The crop is planted virtually throughout the year, the three major periods of planting reported by the 20 farmers in the sample who grew the crop being May to July, November to January, and February to April in that order of importance. Because of the wide range of planting times harvesting similarly takes place during most months of the year.

The crop is planted on ridges or mounds in the wet season and in furrows in the dry season. Highest prices are obtained from November to January and lowest prices from February to April.

Carrots are sown mainly from November to January, in pure-stands, mainly on ridges but in a few cases on the flat, either broadcast or in rows. The main harvesting period is February to April. The crop is largely sold through the Agricultural Marketing Board and prices are standard throughout the year.

For the vegetables as a group very few farmers use plant protection sprays or other chemicals and none use organic manures. However, a large number (78.4 per cent) use fertilisers. (Table 21). Except for drainage and seedbed preparation and weeding for which some hired labour is used, vegetable growers depend on family labour for their vegetable production.

V. *Livestock Enterprises*

(i) *General*

Tables 52 and 53 give a breakdown of the types of animals kept by farmers in the three islands.

Of the 170 farm parcels in the St. Vincent sample, no livestock (poultry excepted) was kept on 109 parcels (64 per cent). Cattle was found on 34 of the parcels (20 per cent), mainly on parcel number one. Pigs were reared on six parcels (all number one) and sheep and goats on 31 parcels (18 per cent of total parcels). No rabbits were kept by any farmer in the sample.

One farmer kept a few ducks on his home parcel. Sixty four farmers kept some common fowls, and in virtually all cases these were on the farmer's home plot in the village which did not qualify as a farm parcel.

(ii) Cattle

Of the 47 farmers in the St. Vincent sample who kept cattle, 46 owned five or less animals. Twenty five of these farmers reported owning 'local' scrub cattle, 21 improved breeds of cattle and one farmer had both improved and scrub animals. Virtually all cattle were either tethered in rough pasture and moved from spot to spot as the pasturage at one spot became exhausted, or were stake penned (i.e. normally tethered at one spot, and grasses and roughages cut from elsewhere fed to the animal at the stake).

Three farmers reported having bought feed for their cattle during the past year and five grew some grass or other feed for their animals. Seventeen paid stud fees during the year. None reported having had veterinary or medicinal expenses, nor did they lose any animal other than through slaughter, thus indicating no problems from diseases, larceny or other causes.

(iii) Pigs

Twenty one farmers in the sample reared pigs. Of these 19 owned five or less, and the other two each owned more than five pigs. Fifteen farmers kept improved breeds of swine while the others kept local scrub animals. Eight farmers kept their pigs in pens, the others were either tied to a stake or ran about loose.

Four farmers bought feed for their pigs. Other expenses reported as incurred during the past year were:

Pen construction and repairs	-	1 farmer
Medicines bought	-	2 farmers
Mineral supplements	-	2 "
Stud fees	-	5 "

Four farmers reported receiving between \$100 and \$500 each from sale of pork during the past year. No weaners were sold.

(iv) Goats

A total of 26 farmers kept goats. Nineteen of these had five or fewer goats each, and the remaining seven more than five goats each. Sixteen farmers had improved breeds and the others kept local stock. Virtually all farmers tethered their animals. The types

of expenditure reported as having been incurred during the past year were feed bought (one farmer), medicines (3 farmers), mineral supplements (2 farmers), and breeding (stud) fees (7 farmers).

No farmer reported making use of milk from his goats, either for home use or sale. Four farmers slaughtered animals for the sale of meat and one only for home use. Of the four who sold meat two realised less than \$100 from their sale and the other two between \$100 and \$500. No economic use was made of the hides.

(v) Sheep

Twenty six (26) farmers owned five or less sheep and seven owned more than five sheep each. Nineteen (19) thought their sheep were of improved breeds and the rest were local scrub animals. Sheep were either tethered (28 farms) or ran about loose.

Four farmers reported spending money on medicines, two for mineral supplements, one for feed and six for stud fees. Six farmers reported selling meat for cash receipts of \$50 to \$500.

(vi) Poultry

No farmer in the sample kept any broilers or layers.

Sixty-four (64) farmers keep common fowls, one farmer having his fowls in a pen, all others running loose. Forty one farmers have less than 12 birds each, and another 20, less than 25 birds each. No one owns more than 100 birds. The only expenditures farmers reported having incurred are for pen repairs (one farmer) and feed purchase (one farmer).

Only one farmer reported selling some of his eggs or meat, the others use these solely for the home.

(vii) Draught Animals

One farmer owned a pair of donkeys and 11 farmers owned one donkey each. No direct expenses were reported as having been incurred on the maintenance of these animals.

(viii) Constraints to Livestock Production

On the assumption that, given favourable conditions, small farmers would engage in livestock production which they considered beneficial, the survey attempted to identify what respondents considered were the main factors hindering the expansion of their current

livestock enterprises or, for those not rearing any livestock, their involvement in livestock production.

The table below gives a breakdown of what respondents considered are the factors which hinder greater production of livestock.

<i>Factors Constraining Greater Production</i>	<i>Cattle</i>	<i>Pigs</i>	<i>Goats</i>	<i>Sheep</i>	<i>Poultry</i>
Cost of feed	2	6	.	.	10
Availability of feed	5	4	2	2	2
Market condition	4	4	5	5	4
Prædial Larceny	18	11	28	32✓	42
Land Suitability	23	20	17	16✓	12
Vet. and/or A.I. fees	.	.	.	.	.
Inadequate Labour	4	3	4	4	3

So far as cattle production is concerned the factors considered by farmers to be most constraining are land suitability and prædial larceny. Earlier discussions in Chapter 2 alluded to the steep and generally inaccessible nature of most of the lands cultivated by these small farmers. Cattle rearing on such steep slopes is not only difficult and perhaps hazardous to both man and beast, but on the light volcanic soils of St. Vincent could prove to be an economic erosion hazard.

Inaccessibility of lands, coupled with the system of management practised by farmers, also contributes to the fear of prædial larceny felt by farmers. (The data indicate that this is a fear, probably based on past experience, rather than continuing experiences of prædial larceny because no farmer reported having lost any cattle through prædial larceny during the past year.) It is no mere coincidence that of 34 farm parcels on which cattle were kept, 28 were the parcels nearest to the farmer's house, thereby making it easier for both management and policing.

The same reasons can be offered for these same factors, viz., prædial larceny and unsuitability of the land (terrain and accessibility) being considered by farmers as also the most limiting factors to the greater production of pigs, goats, sheep and poultry.

It is also understandable that because of the system of management practised, farmers do not consider the cost or unavailability of feed, market conditions or labour shortage to be important production constraints. In fact their present management system tends to optimise the use of their resources. By and large all the animals are either staked in the open field and feed on household wastes or farm residues or roam loose to forage for themselves. Hence cost or availability of concentrate or supplementary feed is of no real concern to the farmer. Furthermore the system of management places no great demands on the farmer's time, nor does it require that he hires extra labour because he only keeps as many stock as he can manage comfortably. Shortage of labour is therefore no great problem. Earlier discussions on the disposal of livestock products indicate that these are used mainly in the home. The small excess over household requirements would find ready sale among neighbours so that the market conditions (price, etc.), really pose no problems to these small farmers.

It must be realised, however, that any attempt at changing the farmers' management practices will change the present delicate balance of production factors, and will create new problems for the farmers.

VI. Correlates of Farm Income

A primary objective of any agricultural development programme in the Caribbean today must be to increase the income which farmers obtain for their efforts. We have already seen from the analysis of responses in this survey to the question regarding job selection that the Vincentian small farmer is highly motivated by money. (See *Chapter 2, Section VII. Attitudes*). A respondent may be in farming today by circumstance rather than by choice, and the amount of effort put into farming as well as the response to adoption of new skills or systems will depend very largely on what is seen as the economic returns likely to accrue as a result of his/her efforts.

Because of this we may regard farm income as a major dependent variable in farm development programmes. A study of the independent variables which may be associated with farm income might prove fruitful in indicating some "gateways" or "carriers" for successfully introducing development programmes.

Total farm income was computed for each farm by summing the cash received from sale of produce from every crop and livestock enterprise of the farm. No attempt is made to quantify and cost the farm produce consumed by the household although the amount

is substantial. There are two reasons for ignoring this portion of farm income. First of all the use of farm produce is common to all farmers in the sample, and indeed in the universe of small farmers in St. Vincent. Any differences due to differences in household size would tend to be counterbalanced by a corresponding difference in farm family labour input. Secondly, in the present view of farming the Vincentian farmer neither places a cost on his nor his family's labour on the farm, nor does he place a value on the farm produce used in the home. The only index of profitability is the real cash received for produce sold in excess of any cash spent on production inputs. For the time being, therefore, "real" cash income must remain the "carrot" with which to motivate the small farmers to adopt new techniques.

Table 54 (a) summarises the data to show the relationships between farm income and 13 sets of independent variables. It is shown that in the St. Vincent sample of farmers there is absolutely no relationship between farm income and

1. Sex of farm operator
2. number of parcels per farm
3. number of dependents
4. the person consulted by the farm operator in making farm planning decisions (spouse, some other person, including the extension officer, or no one at all)
5. Index of Organisation Membership, or
6. Distance of first farm parcel from farmer's home.

There is an indication that operators who own their farm lands are more likely to have higher farm incomes than those with other forms of land tenure, but the difference between the two groups does not reach the probability level the researchers will accept as being statistically significant (viz. $p \leq .05$).

The data, however, reveal the following variables to be significantly related to farm income:

- (a) Farm Size. - Within the limits of farm size categories in the sample, the larger the farm the greater the income the operator obtains.
- (b) Age. - The age of the farm operator is negatively related to farm income. Farmers less than 40 years old in the sample proportionately have higher farm incomes than farmers 40 years old and over.
- (c) Household size. - Farms with households of five to nine persons (including the farm operator) have higher incomes than those either with less or more household members. It could be that households with 10 or more members consume so much of what

the farm produces that farm income is significantly depressed. At the other extreme, households with less than five members often do not have a sufficient number of working adults to meet all the farm labour demands, thereby failing to achieve full potential farm income.

- (d) Major crop on the farm. - Tannia or carrot as the major farm crop seems to have no influence on the level of farm income. Farms with banana as the major crop tend to provide higher farm incomes than those on which banana is not the main crop, but the difference is not significant at the five per cent level.

However, sweet potato as the main crop significantly depresses the level of farm income. It is therefore suggested that any farming system proposed for St. Vincent should not include sweet potato as a major farm enterprise until the economics of producing that crop are analysed in detail.

- (e) Information Source. - Farmers who actively seek technical information from some source when they are faced with a farming problem are significantly more likely to have high farm incomes than those farmers who do not bother to seek information from any source whatever. Those farmers who consult their extension officer tend to have higher incomes than those who seek information from other sources, but the difference between these two groups is not statistically significant.

- (f) Rainfall. - In St. Vincent, farms with rainfall of more than 60 inches per year yield higher incomes than those farms with less rainfall.

VII. Farmers' Expressed Community Needs

Successful implementation of an agricultural development programme does not depend solely on introducing technological improvements. Man is first a social being, a member of a community and only then a farmer, and it may often be necessary to alleviate urgent social and community needs which impinge upon the farmer's consciousness before it is considered meaningful to devote any further effort towards farm improvement. For these

reasons it was considered necessary in this survey to determine what respondents considered to be pressing community needs.

Tables 55, 56 and 57 show what farmers considered were needed improvements in their community and in the state organisation of agriculture, and the action they suggested should be taken to alleviate the community needs.

In St. Vincent the need most deeply felt was for community infrastructural improvements. Most respondents (67 per cent) expressed a need for more and better roads. Roughly one fifth of the sample (22 per cent and 18 per cent respectively) expressed the need for improvements in the water and electricity supplies, and 10 per cent asked for better schools and educational facilities as well as for recreational facilities. The majority of those who expressed these needs considered it the responsibility of government rather than the local community or of individuals to solve these community needs.

In spite of the relatively low level of technological input and low returns from agriculture which this survey indicated for St. Vincent, not many farmers felt that there were any pressing agricultural needs. (Table 57). Twenty per cent of the sample would like to see more employment opportunities provided. Five per cent or less needed more land for farming, an improved marketing system and the provision of improved credit facilities. The others, the vast majority, either were not conscious of any needs (i.e. were satisfied with their present situation) or had become so mired in a morass of needs that they could not distinguish the possible from the actual.

At a later stage of the project, more indepth sociological investigations can be directed at determining factors associated with varying levels of community consciousness and means to stimulate community action for rural transformation .

CHAPTER 3**SMALL FARMING IN DOMINICA****A. CHARACTERISTICS OF THE SMALL FARMER****I. Background Factors****(i) Age, Sex and Ethnic Origin**

In the Dominica sample, almost 82 per cent of farm operators were male. The majority (70 per cent) were between the ages of 41 and 70, with the modal age of 63 and the mean age of the sample was 52 years. Almost 90 per cent of farm operators are of African ethnic origin and 10.8 per cent are of mixed racial descent, while less than one per cent is of Carib origin (see *Tables 1, 2 and 3*).

(ii) Literacy, Marital Status and Household Size

The majority of farmers in the sample (62.5 per cent) can read and write, less than one per cent can read only and a further 4.2 per cent can write only. Roughly one out of every three farmers can neither read nor write. Almost six per cent had attained a secondary level of education, and about 50 per cent had completed at least four years of primary school. Some 20 per cent of the sample had no formal schooling (*Tables 4 and 5*).

Most farmers (70.8 per cent) are either legally married or have established common-law unions (15.8 per cent). The household size for the sample is bi-modal (three and eight persons per household). The mean household size is six. The average number of dependents per farm operator is roughly four (*Tables 6, 7 and 8*).

(ii) Stability

In contrast to the St. Vincent farmers, there is a relatively high degree of residential stability among Dominica small farmers. Whereas the modal length of residence in his/her

present locality for the former in 5.5 years, for Dominica farmers the modal length of residence is almost 50 years (*Table 9*).

(iv) Occupation

A few more than 50 per cent indicated their only occupation to be farming. Some 12 per cent of the sample are employed as skilled tradesmen such as carpentry, plumbing or masonry. Ten per cent earn a part of their living through agriculture-related commercial enterprises in the retail trade of farm produce. A remaining 20 per cent are employed in such areas as fishing, providing unskilled labour for road works or low-level public service jobs (*Table 10*).

(v) Family Income

Fairly accurate estimates of total family income were arrived at from indications of sources of income and proportionate expenses for household and farm needs. More than 10 per cent (11.7) have annual incomes of \$500. or less. Fifty-five per cent have annual incomes between \$1,000 and \$5,000. Less than two per cent, i.e. only two farmers, stated that they have annual incomes of more than \$10,000 (*Table 11*).

In some 26.7 per cent of households, spouses contributed to total family income, one or more sons and daughters were also contributors in 19.2 per cent and 7.5 per cent of households respectively. Some operators (10.8 per cent) acknowledged that other relatives also contributed to annual family income (*Table 12*).

(vi) Nutrition

The most frequently consumed foods of the Dominica sample are root crops and bananas. More than 90 per cent (95.8) consuming these foods do so from their own cultivation. A significant proportion of the sample also use fish, fruits and milk (80.0, 79.0 and 87.1 per cent respectively) on a relatively frequent basis, i.e. several times a week. While the fruits consumed were invariably "home grown" (68.9 per cent), fish and milk had to be purchased by the majority of the sample (77.5 and 75.2 per cent respectively). Eggs and meat were also reputed to be "used often" by relatively large proportions of the sample (65.9 and 63.9 per cent respectively). Taken together, these items might suggest a fairly high nutritional status of Dominica small farmers. It would seem necessary to be cautious in arriving at such a conclusion, since the data obtained relied on subjective assessments of "very seldom" and "very often". At a subsequent stage of the project efforts to

determine consumption patterns in quantifiable and standardised measures should be pursued. (See *Tables 13 and 14*).

II. Farm-Oriented Factors

(i) Time spent and labour used on the farm

Among the sample of Dominica small farmers, the majority spend six to eight hours per day in farming activities during the cropping season. In the out-of-crop season, the modal time spent on the farm is two to four hours daily (*Table 15*). Almost 80 per cent of farmers obtain the assistance of at least one other family member for labour on the farm. As many as 15 per cent indicate they receive assistance from four or more members of the household group (*Table 16*).

The custom of shared labour is practised by 41.7 per cent of small farmers in Dominica. This is considerably larger than that recorded in St. Vincent (28.3 per cent) or St. Lucia (29.2 per cent).

(ii) Use of Farm Records

Less than 10 per cent of the Dominica sample keep any farm records. A similarly low proportion was found among the St. Vincent farmers i.e. approximately seven per cent (*Table 18*).

Most farmers in Dominica said "they don't consider it necessary" to keep farm records (27.6 per cent). Almost 25 per cent cited their inability to read or write as the reason for not keeping records; whereas another 10 per cent indicated that record-keeping "takes too much time" (*Table 19*).

(iii) Innovativeness

While there has been considerable technological development in the agricultural field in such areas as disease control, new plant or seed varieties and improved cultural practices, the level of awareness among Dominica small farmers seems negligible. Only four farm operators were familiar with what they considered a new variety or practice. Of these four "innovators", two had been using the new practice or variety between two to five years and one other farmer acknowledged using a new practice or variety less than two years. (*Table 20*).

It is the policy of banana associations to supply growers with fertiliser which is paid for by a cess levied on their produce. As expected, a high proportion of small farmers use fertilisers on their bananas - almost 75 per cent of those growing that crop indicated this. How-

ever, the use of chemical sprays and other chemicals is considerably low. Only 25 per cent of farmers growing bananas use chemical sprays and less than one per cent use other chemicals (weedicides or herbicides) and none use organic manure (*Table 21*).

For other major crops grown by the small farmers, there is a relatively high proportion using fertilisers on plantains (84.4 per cent) and roots and tubers (59.8 per cent) but only negligible numbers indicate a use of chemical sprays or other chemicals. There was no practice of using organic manure by Dominica small farmers (see *Table 21*). As was observed in St. Vincent, a beneficial side-effect occurs in the transfer of fertiliser techniques from bananas to other crops. Fertiliser imported for bananas and made available to small farmers through the commodity association, has a wide application to other major crops grown by the farmers.

(iv) Persons consulted by farmers

The majority of small farmers do not normally consult anyone in decisions on farm planning. Less than 40 per cent (38.0) indicated they consulted "no-one". Some 22.5 per cent cited their spouse as the person consulted most in farm planning decisions. Almost 20 per cent of the sample consult the extension officer. This figure was significantly higher than that recorded for St. Vincent (1.7 per cent) but considerably smaller than the St. Lucia sample (54.0 per cent) which was "hand picked" by extension officers (*Table 22*).

The opinion source most highly considered in decisions about a new variety or practice is that of the farmer's spouse (*Table 23*). Roughly two thirds of farmers with spouses considered the opinion of their spouses to be important. Other than spouses, relative importance is shown to opinions of a son or daughter (42.3 per cent), the extension officer (33.3 per cent), a relative or neighbour (21.4 and 16.4 per cent respectively).

II. Credit Facilities and Practices

Of the credit facilities available to Dominica small farmers, seven respondents indicated that their first preference was for the co-op-credit union. Another five reported their first preference to be a commercial bank and for four farmers their preferred source of credit is the commodity association to which they belong.

During the past year, 23 small farmers in Dominica had taken loans from the available credit sources. Of the purposes stated for these loans, the highest number, five were used

for improving overall farm productions. Other purposes cited were for purchase of fertiliser, chemicals and land.

The highest number of loans, (i.e. eight) were from a co-operative-credit union. Six farmers had loans from their Commodity Associations, five from the Agricultural Development Bank, four from a commercial bank and another four from a neighbour, friend or relative. Three farmers said they obtained credit from a money-lender.

IV. Marketing Facilities and Practices

Some 20 per cent of farmers gave no estimate of the distance of the nearest marketing depot from their home. More than 50 per cent indicated they lived up to 10 miles from the nearest marketing depot and another 15 per cent of the sample lived between 11 and 20 miles from the nearest marketing depot. Almost 10 per cent had their homes more than 20 miles from a marketing depot (*Table 24*).

Among suggestions for improving the marketing systems, the highest proportion (42.5 per cent) of small farmers in the sample mentioned the formation of marketing co-operatives. This was a striking contrast to the St. Vincent sample in which only one farmer suggested the formation of co-operatives (*Table 25*).

Other suggestions offered by the Dominica sample were:

- a. increase the number of collection points to reduce the distances between farmers' home and depots;
- b. increase and improve the number of access roads so that farmers could more easily obtain transport; and
- c. offer better transport facilities by which farmers could get to marketing outlets.

V. Communication Channels Used

Information sources consulted by small farmers in Dominica comprise the extension officer mainly (36.7 per cent) or a good friend (21.7 per cent). A sizeable proportion (21.7 per cent) indicated that they sought advice from no one when they are faced with technical farming problems. It is noticeable that only a relatively small proportion (3.3 per cent) sought advice from a neighbour (*Table 26*).

To interpret the significance of this latter point, one should exercise due caution as it seems to be contradicted by the relatively high proportion (63.3 per cent) of the sample

which indicated they visit their neighbour's farm to obtain information on improved farming practices (*Table 27*). However, most farmers listen to the radio (75.8 per cent) rather than visit large estates (35 per cent) or government farms (29 per cent) as sources of information on improved farming practices.

While as many as 65 per cent report that they know the district extension officer, 22 per cent indicate that the officer never visit their farm (*Table 28*).

The kinds of technical information which farmers wish to obtain from the radio are mainly how to grow crops, when to plant certain crops, current prices of farm produce at the market, how to care animals and kinds of incentives available (*Table 29*). Most farmers considered 7.00 p.m. to 9.00 p.m. as the most appropriate time for agricultural radio programmes.

VI. Membership in Groups

A relatively higher degree of group membership exists among Dominica small farmers than was found for the St. Vincent sample. The highest proportion in the Dominica sample indicated they were members of co-operatives (31.7 per cent). Only 10 per cent of the sample belong to a church group, and another nine per cent each belong to village councils or an Agricultural Society (*Table 30*).

VII. Attitudes

Slightly less than one third (32.5 per cent) of the Dominica sample were of the opinion that the single most important criterion in selecting a job is how much money can be made from the job. Of primary importance to other respondents were such factors as personal liking for the job or the extent to which the job was beneficial to one's family (27.5 and 25.0 per cent respectively). Some 10 per cent consider the single most important factor in selecting a job to be the chance it provides for one to get ahead (*Table 31*).

The attitudes of the sample were also considered in relation to the kinds of jobs or professions preferred by the farmers for their children.

Seventeen per cent wished their sons to pursue farming as a career. Almost 20 per cent would like their son to enter a profession such as medicine or law. This reflects an attitude commonly found in other strata of the society. Equal proportions (14.3 per cent) indicated a preference for their sons to be teachers or blue collar workers (skilled craftsmen, mechanics

or other tradesmen). These jobs are not merely known to have higher status in the villages but are also believed to pay better than farming (*Table 32*).

The largest proportion of respondents (62 per cent) would like their daughters to become either teachers or nurses. Less than five per cent indicated a preference for their daughters to be in medicine or law. Not a single small farmer in Dominica indicated a desire for his/her daughter to pursue farming as a career (*Table 33*).

As an indicator of a ranked preference towards agriculture as a career, the farmers were asked whom they would consider more important - a son who was a lawyer or doctor or another who was an agriculturist. A distinctively larger proportion (40 per cent) favoured law or medicine over those (30 per cent) who preferred agriculture. Another 30 per cent thought the professions were equally important (*Table 38*).

To further identify farmers' perceptions of occupational prestige in their communities, they were asked to name the three persons they considered most influential and to state the occupations of these persons.

About 40 per cent of the sample felt all three of the most influential members of their community were farmers. Another 17.5 per cent of respondents was of the opinion that a teacher or priest also exerted a relatively high degree of influence.

High educational aspirations for their children were evident among the small farmers in the Dominica sample. The majority (55 per cent) would like their children to receive a university education and a further one-third wish their children to complete secondary school. In conjunction with these high educational aspirations, the underlying attitude that education is the best form of security for their children was found in 75 per cent of the sample (*Tables 34 and 35*).

A firm attitude towards dividing land equally among all their children was also indicated by the great majority (93 per cent) of small farmers in Dominica (*Table 36*). As a deeply pervasive attitude of small holders it has continued to influence a high degree of land fragmentation among small farmers.

A favourable attitude towards saving some of their earnings was reported by more than 60 per cent of the sample. Of the various ways in which money was saved, a commercial bank was used by some 30 per cent of respondents, while almost 20 per cent used a co-operative and another 10 per cent kept their money at home (*Table 37*). Several respondents who did not save, nevertheless declared they would like to save were their earnings large enough to meet basic needs plus something extra.

B. THE FARM

I. Farm Size and Fragmentation

The 120 farm units in the sample were grouped as follows:

<i>Farm Size (acres)</i>	<i>Number of Farms</i>	<i>Per cent of Total</i>
1.0 - 1.99	50	41.6
2.0 - 2.99	18	15.0
3.0 - 3.99	29	24.2
4.0 - 5.00	23	19.2
Total	<u>120</u>	<u>100.0</u>

There were 43 farms composed of only one holding (i.e. a single parcel). About the same number (46 or 38.3 per cent) had two parcels, while another 25 farms (20.8 per cent) were made up of three parcels each. There were six farms with four parcels each.

Only three of the 120 farmers rented out any of their lands. Thirty-six farms (30 per cent of the sample) contained no unutilised or waste land and those portions not cultivated were reported to be very steep. Hence it can be concluded that the small farmers are fully utilising whatever lands are available to them. Increased production must mainly therefore result from more intensive rather than more extensive land use (*Table 40*).

II. Tenure and location of parcels

The 120 farmers in the sample together operated a total of 234 parcels or holdings. Roughly one-third of all holdings are occupied freehold. The other tenure systems, in descending order of frequency were family land (30.8 per cent), annual rental (15.0 per cent), share cropping (6.4 per cent) and squatting on government lands (6.0 per cent). Only five cases each of leasehold tenure and squatting on private lands were recorded (*Table 41*). Among the parcels, number one was found the whole range of tenure systems, from freehold (the dominant system) through family lands and rental to squatting on private and government lands. Similarly, the full range of tenure systems is found among the parcels number two, but here family land is the dominant tenure system.

The majority of parcels number one (i.e. first parcels) is situated within one mile of the farmers' homes and some 86 per cent of first parcels are within three miles. Of the

number two parcels (i.e. second parcels) more than 80 per cent are also within three miles of farmers' homes. Similarly a great majority (70 per cent) of third parcels are within a distance of three miles from farmers' homes (*Table 43*).

The fact that small farmers' holdings are generally within reasonable distances from their homes must not lead to an underestimation of the severe "difficulty of access" farmers face on account of the rugged topography with which they have to deal.

Almost 70 per cent of the small farmers' holdings were regarded by respondents as mostly flat or of gradual slopes. Twenty per cent considered their various holdings to be undulating and only three per cent were of the opinion that their parcels were mostly steep (*Table 43*). As for St. Vincent these opinions on slope category must be viewed in the context that lands available to the small farmer are usually on the least accessible mountain slopes of the interior.

According to the small farmers, their holdings were composed predominantly of heavy soils (64.1 per cent).

Almost 75 per cent of all farm holdings were estimated to receive 60 or more inches of rain per year. The remaining 25 per cent were in the range of 40 to 60 inches per year (*Table 45*).

Table 46 classifies the types of roads used by the Dominica small farmer in travelling from their homes to the various farm parcels. Six farmers (five per cent of the sample) had their home on a farm parcel. This practice of village residence and operating farms outside of the village is also typical of the St. Vincent small farmer. The table shows that 52 (43 per cent) of Dominica small farmers use a combination of road types to get to their holdings. Thirty (25 per cent) use only trails or foot paths; 23 (19.2 per cent) have their farms along a motorable road.

The distance of holding from the nearest market and the type of transport available influence the choice of crop in the production system and how much of that crop is produced. For 53 of the Dominica small farmers (41 per cent of the sample) the nearest market is more than six miles away. For another 13 (10.8 per cent) the market is four to six miles away, while for 34 (28.3 per cent) the nearest market is three miles or less away (*Table 47*). As already discussed for St. Vincent, distance must be related to topography and accessibility.

III. Tools, Equipment, Machinery and Farm Buildings

For 100 of the Dominica small farmers, (83 per cent of the sample), the inventory of farm tools consist of one to five pieces of hand tools while another 18 farmers (15 per cent) own six to 10 pieces (*Table 49*).

Seven farmers owned one knapsack sprayer each, one farmer owned a motorised sprayer and one farmer owned a tractor. Only one farmer owned irrigation equipment (any piece) and this was a watering can.

Like with the St. Vincent small farmer, capital investment in farm buildings is very limited. Five of the Dominica small farmers owned a storeroom each. One farmer had a cattle pen, 12 farmers each owned a poultry pen, six farmers had a pig pen each and another had a goat and sheep pen. Forty-five (37.5 per cent of the sample) of 120 farmers have holdings which are held on freehold. As was the case in the St. Vincent sample, small farms in Dominica can be regarded as being much under-capitalised.

IV. Crop Enterprises

Banana is a major contributor to the gross domestic product and foreign exchange earnings of Dominica, and indeed all the Windward Islands. One hundred and two (85 per cent) of the Dominica small farmers cultivate bananas as compared with 30 per cent of the St. Vincent sample (*Table 21*). The Dominica small farmer cultivates more long-term crops than their Vincentian counterparts. Fifty-two (43.3 per cent) farmers cultivated coconuts, 18 (15 per cent) produced bay and 34 (28.3 per cent) produced citrus. Sixteen (13.3 per cent of the sample) of 120 farmers grew sweet potatoes and 96 (80 per cent) grew dasheen, emphasising the point that Dominica small farmers do not involve, to the same extent in the production of a wide range of short-term crops as does the St. Vincent small farmer. Eighty-one (34.6 per cent) of the 234 holdings in the Dominica sample contained more than two long-term crops each. Sixty-one parcels contained two long-term crops each and on another 66 (28.2 per cent) of the 234 parcels one long-term crop was cultivated.

On 65 (28 per cent) of the parcels one or two short-term crops were cultivated; on 110 parcels (47.2 per cent) more than two short-term crops were cultivated. The maximum number recorded as being grown on one parcel was seven. As in the St. Vincent sample, the maximum number of short-term crops cultivated on any parcel decreased with distance of holding from the farmer's home, viz., a maximum of seven different crops for parcel number two, five for parcel number three, and four for parcel number four (*Table 50*).

The most commonly cultivated crops among the small farmers and their frequency of occurrence in the sample are as follows:

<i>Crops</i>	<i>Farms on which grown</i>	
	<i>Number</i>	<i>Per cent</i>
Banana	102	85.0
Plantain	46	38.3
Root Crops		
Dasheen	96	80.0
Tannia	77	64.2
Sweet Potato	16	13.3
Cassava	12	10.0
Yam	35	29.2
Ginger	5	4.2
Tree Crops		
Coconuts	52	43.3
Cocoa	30	25.0
Coffee	20	16.7
Avocado	7	5.8
Bay	18	15.0
Citrus	34	28.3
Breadfruit	17	14.2
Mangoes	11	9.2
Vegetables		
Cucurbits	11	9.2
Tomatoes	6	5.0
Cabbage	4	3.3
Carrots	7	5.8
Pigeon Peas	5	4.2

The interviewees were asked to state which crop on each parcel was the most important (a) on the basis of the acreage devoted to the crop and (b) the economic returns from sale in individual crops.

As in the St. Vincent sample, parcels one and two are the most important ones (there are 31 third parcels and six fourth parcels in the Dominica sample) and the data are discussed in relation to these two parcels.

The crops found to be the most important on the basis of area cultivated are as follows:

<i>Crop</i>	<i>Parcel No. 1 (n=120)</i>		<i>Parcel No. 2 (n=77)</i>	
	<i>Number of Farms</i>	<i>Rank Order</i>	<i>Number of Farms</i>	<i>Rank Order</i>
Banana	62	1	28	1
Dasheen	10	2	11	2
Coconuts	9	3.5	10	3
Citrus	7	5	7	4
Bay	9	3.5	5	5
Cassava	.	.	4	6.5
Tannias	3	7.5	4	6.5
Pasture	.	.	2	8
Sweet potatoes	6	6	1	10
Cocoa	3	7.5	1	10
Coffee	2	9	1	10

On the basis of the economic returns to the farmer, the crops considered to be most important (or most valuable) on parcels one and two are:

<i>Crop</i>	<i>Parcel No. 1 (n=120)</i>		<i>Parcel No. 2 (n=77)</i>	
	<i>Number of Farms</i>	<i>Rank Order</i>	<i>Number of Farms</i>	<i>Rank Order</i>
Banana	53	1	27	1
Dasheen	6	5.5	8	2.5
Plantains	6	5.5	8	2.5
Coconuts	11	2	7	4
Bay	9	3	6	5
Tannia	3	9	5	6
Citrus	7	4	3	7.5
Cassava	.	.	3	7.5
Cocoa	1	10	2	9.5
Pasture	.	.	2	9.5
Sweet potatoes	4	7	1	11

By both standards banana occupies the top position, as it also did on the basis of frequency of occurrence on all farms. Coconuts hold the third and second positions on the basis of acreage and economic returns respectively. The data revealed that dasheen is the second most important crop in terms of acreage cultivated, but ranked fifth in terms of economic returns. Bay shared the third position (on the basis of acreage cultivated) with coconuts and also ranks third as far as economic returns are concerned.

(ii) Crop combinations

Among the sample of farms surveyed banana was the crop most often grown in combinations. Crop combinations with banana were reported 88 times, while aroids (dasheen and tannia) were reported 61 times. The frequency of occurrence of other crops in combinations within the sample is as follows;

<i>Crops</i>	<i>Frequency of occurrence in a crop combination</i>
Coconut	25
Yam	20
Cocoa	12
Citrus	11
Coffee	10
Bay	9
Plantain	7
Mangoes	5
Sweet potato	5
Limes	5
Cucurbits (cucumber, christophene and pumpkin)	5
Avocado	3
Cabbage	2

Taken together, tree crops feature quite prominently in crop combinations in the Dominica sample, with a frequency occurrence of 80. There was no report that a short-term crop is grown in succession with another crop. With the Dominica small farmer, the

emphasis is apparently on the cultivation of tree crops which are intercropped with other short-term crops such as aroids and yams which occurred 20 times in the crop combinations.

There are many combinations of tree crops, with coconut most frequently occurring in these combinations, followed by cocoa and citrus in that order.

A combination of avocado, cocoa, coffee and breadfruit was reported.

<i>Crop combination</i>		<i>Frequency of occurrence in sample</i>
Banana	+ aroid	33
"	+ coconut	17
"	+ bay	4
"	+ tree crop combinations (citrus, avocado, mango, limes)	11
"	+ other root crops, (Yams, sweet potato, ginger, cassava)	5
"	+ cucurbits (christophene and cucumber)	4
Aroid	+ aroid	17
"	+ yam	7
"	+ other root crops	1
"	+ legume (including pigeon peas)	3
Bay	+ coconut	1
"	+ coffee	1
Citrus	+ nutmegs	1
"	+ mangoes	1
"	+ cocoa	1
Avocado	+ citrus and cocoa	1
"	+ cocoa and coffee and breadfruit	1
Coconuts	+ coffee	2
"	+ cocoa	3
"	+ avocado	1
"	+ mango	1
"	+ cocoa and breadfruit	1
Limes	+ cocoa	2
"	+ coconut	1
Nutmeg	+ orange and cinnamon	1

The Dominica crop combinations contrast markedly with those of the St. Vincent sample. Short-term crops such as sweet potato, corn, peanuts, pigeon peas and carrot are not given the same emphasis in the Dominican cropping system but instead, with the exception of bananas, tree crops dominate the crop combinations.

(iii) Management practices

Table 51 in the *Appendix* summarises the modal management treatments given by the Dominica small farmers to 13 of the crops most frequently encountered on farms in the sample. Included in the data are the usual months of planting and harvesting, systems of planting and months of highest and lowest price received for farm produce.

Banana and plantain are grown both for home use and for sale and are planted year round. Some banana farmers plant the crop mainly during May to July. The majority of farmers grow these crops in mixed stands. The normal system of planting is in rows on the flat.

Seventy six of the 102 farmers growing bananas use fertilisers and another 26 farmers use chemical sprays. No farmer reported making use of organic manure in his crop production system.

Harvesting takes place throughout the year. The highest prices were reportedly obtained for bananas in May to July and the lowest prices in November to January. The price received pattern is the reverse for plantain. The majority of farmers grow improved varieties of bananas and local varieties of plantain.

Family labour was reported as used for most operations. Twenty-two farmers used hired labour for preparing field drains, 11 for planting, 24 for weed control and nine for harvesting. Fifteen banana growers incurred non-family costs for carrying harvested fruit and 64 for transporting fruit to point of sale.

More than 89 per cent of the plantain growers (39 out of 46) use fertilisers on the crop, a spinoff, from fertiliser use for bananas. Six growers reported using chemical sprays for this crop.

As with bananas family labour is that mainly used for all cropping operations. Hired labour was used by 10 growers for land clearing, by six growers for drain digging, by four growers and six growers respectively for planting and weed control and by only three growers for harvesting. Eighteen growers incurred non-family costs for transporting their produce to market.

Dasheen is grown by 96 farmers and is usually planted all year round with the majority of it planted in the months May to July. The crop is mainly grown in combination with other crops. The majority of farmers reported growing the crop for home use but some farmers also produce for the market. The crop is generally planted in rows on the flat. No attempt is made by farmers to store this produce. The majority of farmers indicated their desire to continue producing dasheen, which is harvested virtually all year round. Highest prices are obtained for this crop from August to October and lowest prices from February to April.

Tannia is usually planted all year round with the peak planting period from May to July. The majority of farmers cultivate the crop in combination with other crops, while a smaller number grow the crop in pure stand. The crop is grown mainly on mounds. Production is mainly for home use. Harvesting takes place virtually all the year through, and no attempt is made to store this produce. The pattern of market prices is as for dasheen.

Yams are grown by 35 farmers mainly for home use. The crop is planted mainly from May to July in rows on mounds. The majority of farmers reportedly store this produce for some time after harvest. Harvesting is largely from November to January, prices being highest from November until about Christmas and lowest in January.

Sweet potato is planted from February to July and harvested mainly in August to October. Most farmers grow the crop in pure stand, using what they consider to be improved varieties. The norm is to grow the crop along ridges. Highest prices are obtained in November to January and lowest prices in January.

Cassava is grown by 12 farmers in the sample for home use as well as for sale. Nine farmers plant cassava in pure stand and the others in crop combinations. Most plantings are done in May to July, with smaller quantities planted at various other times throughout the year. The crop is harvested 16 to 18 months after planting and time of harvest is also staggered throughout the year. The prices obtained for the crop were even throughout the year.

A fairly high proportion of the 107 farmers who cultivate root and tuber crop (viz. 70 per cent) apply fertilisers to these growing crops. No farmer uses organic manures, and only very few (three and two respectively) make use of chemical sprays and other chemicals with these crops.

The farmers all select and use planting material from their old fields. Family labour only is used for most cultural operations, but some hired labour is also used for land clearing (30 growers), drainage (26 growers), planting (11 growers) and weed control (22 growers).

Few farmers reported incurring any market costs except for transporting produce to market (21 farmers).

Coconuts are grown by 52 farmers both for sale and home use. The crop is planted throughout the year. Harvesting is also year round. The greater number of respondents recorded growing the crop in mixed stands. Coconuts are generally planted in rows on the flat. Harvesting takes place all year round and price is even throughout the year.

Cocoa is grown for both market and home use. Most farmers plant the crop in the period May to July. The crop is planted in rows on the flat, and is most frequently grown in mixed stands. The majority of farmers were of the opinion that they grew a local variety of cocoa. The main harvesting period is November to January. The price of cocoa is fairly even throughout the year.

Bay is an important cash crop for 18 farmers in the sample. The crop is grown in pure stand as well as in combinations. Planting is done in rows on the flat during the rainy season, with peak planting from August to October. Harvesting takes place during the second half of the year, the peak harvesting period being October to December. The price remains fairly even in any one year.

Citrus is grown for both home use and for sale. The crop is planted mainly during the rainy season, with peak planting from May to July. Planting is in rows on mounds, the crop being grown mainly in mixed stands. The main harvesting period is August to October, with a small off-season crop earlier in the year. Prices are highest in February to April and lowest from November to January.

Coffee is grown by small farmers in Dominica mainly for home use. The crop is planted mainly during May to July in rows on the flat. Coffee is usually grown in mixed stands. Peak harvesting is from November to January. Highest prices are obtained in the periods May to July, and lowest prices from November through April. Opinion is evenly divided among the farmers as to whether they grow local or improved varieties.

Breadfruit is grown by 17 farmers in the Dominica sample. The crop is grown solely for home use and is planted all year round on the flat. The plants are irregularly arranged and are most frequently grown in mixed stand. Most harvesting takes place in the period July to October.

Tree crops account for nearly half of the 13 most frequently grown crops within the Dominica small farmer sample, but the level of technological input on these crops is relatively low. Only nine of the 78 farmers who cultivated tree crops reported using fertiliser on any of the crops and one reported using a chemical spray. Apart from seven

farmers who reported hiring labour to assist in weed control, all cultural operations for these crops depended on family labour. As with most of the other crops already discussed, marketing costs (family labour excluded) were limited to the transportation of produce to the market.

As a group, vegetables are relatively unimportant crops among small farmers in Dominica. Among the more important vegetables grown are cucurbits (11 farmers), carrots (seven farmers) and tomatoes (six farmers). Of the 21 farmers who cultivated one type or other of vegetable only six used fertilisers on these crops and not a single one reported using organic manures. Only four used chemical sprays or dusts of any kind.

V. *Livestock Enterprises*

(i) General

According to *Tables 52 and 53*, of the 234 farm parcels in the Dominica sample, no livestock (poultry excepted) was kept on 181 parcels (77.4 per cent). Cattle was reared on 28 (12 per cent) of the parcels. These were found mainly on parcel number one, and parcel number two. There were 13 first parcels, and 11 second parcels with cattle. Pigs were reared on nine parcels, seven of which were first parcels, and the remaining two were second parcels, and sheep and goats on 29 parcels (12.4 per cent of total parcels). Five farmers kept rabbits and four of these were on parcel one, while the other was on parcel two.

One farmer kept a few turkeys and geese but no ducks were kept by any farmer in the sample. Fifty-five farmers kept common fowls, and in virtually all cases these were on the farmer's home plot in the village which did not qualify as a farm parcel.

(ii) Cattle

Of the 38 farmers in the Dominica sample who reared cattle, 33 owned five or less animals, and the remaining five farmers had six to 10 animals. Thirty of these farmers reported owning local scrub cattle, two improved breeds of cattle and five farmers had both improved and scrub animals.

Twenty-eight of the respondents tethered their animals and moved them around from one spot to the next as the forage in one spot became exhausted. Five farmers reported that they grazed and penned their animals, while another three reported having pens in which their animals are housed. One farmer stake-penned his animal and another had his animals running loose.

Six farmers reported losses of animals over the past year. One farmer reported that loss was as a result of disease, another said loss was due to physical injury, and two other respondents reported "Larceny and other causes" as the reason for the loss experienced.

(iii) Pigs

Thirty-one farmers in the Dominica sample kept pigs. Of these 29 owned five or less, and the other two each owned more than five pigs. Twenty-seven farmers kept local scrub animals and two kept improved breeds. Eleven farmers kept their pigs in pens, the others were either tethered, stake-penned, or ran about loose.

Four farmers bought feed for their pigs. Other expenses incurred during the past year were:

Pen construction and repairs	-	1 farmer
Medicines bought	-	3 farmers
Mineral supplements	-	2 "

Three farmers reported receiving between \$100 and \$200 each from sale of pork during the past year. No weaners were sold.

(iv) Goats

Thirty-two farmers in the Dominica sample reared goats. Twenty-six of these each had five goats or less and the remaining six had more than five goats each. Twenty-three farmers tethered their animals, seven used a combination of tethering and penning, and two farmers had their animals running loose. The types of expenditure reported as having been incurred during the past year were pen construction and repairs (one farmer), medicines (two farmers) and mineral supplements (one farmer).

No farmer reported utilising milk from his goats, either for home use or sale. Seven farmers slaughtered animals for home use. No farmer reported slaughtering for sale of meat only. One farmer reported receiving less than \$100 for the sale of meat. No economic use was made of the hides.

(v) Sheep

Twenty-two farmers in the sample reared sheep. Twenty farmers owned five or less animals and two owned more than five. Seventeen farmers owned local scrub sheep. The management system was similar to that for goats.

Five farmers reported losses in the past year. Three farmers reported that the cause was due to the attack of stray dogs.

Two farmers reported spending money on the purchase of feed, and one each reported spending on medicines, mineral supplement and veterinary fees. The only farmer reporting sale of meat during the past year realised less than \$100 from the venture.

(vi) Rabbits

Five farmers in the Dominica sample reared rabbits. Two farmers had five or less animals and the remaining three had more than five. All five farmers reported that their rabbits were local breeds. Two farmers reported that the meat produced was for home use only.

One farmer reported losses in the past year but could not state specifically the cause of the losses.

(viii) Poultry

One farmer in the sample kept less than 25 broilers. Fifty-five farmers keep common fowls, 11 farmers kept their fowls in pens, all others running loose. Thirty-four farmers had less than 12 birds each, and another 21 had less than 50 birds each.

Fifteen farmers reported spending money on the purchase of feed. Other expenditure incurred were for:

Pen construction and repairs	-	2	farmers
Purchase of Medicines	-	2	"

Only two farmers reported selling their meat and eggs, the others consume these products entirely in the home.

(viii) Draught animals

Six farmers reported owning a donkey each. No direct expenses were reported as having been incurred on the maintenance of these animals.

(ix) Constraints to livestock production

The table below gives a breakdown of what respondents considered are the factors which hinder greater production of livestock.

<i>Factors constraining greater production</i>	<i>Cattle</i>	<i>Pigs</i>	<i>Goats</i>	<i>Sheep</i>	<i>Poultry</i>
Cost of feed	0	14	18	20	43
Availability of feed	5	3	2	1	5
Prædial larceny	2	3	9	3	12
Land suitability	26	15	14	14	6

As far as cattle production is concerned the factor considered by the respondents in the Dominica sample to be most constraining is land suitability. Availability of feed is considered a constraint by five farmers. Praedial larceny is not considered a serious constraint, as is the case in St. Vincent. Earlier discussion in Chapter 2 alluding to the topography and general accessibility of the small farmers' holdings are equally valid for the Dominica sample and account for the farmers considering their lands unsuitable for livestock rearing.

Cost of feed is the most important constraint to the increased production of poultry, sheep and goats, followed by land suitability, praedial larceny and availability of feed in that order. Land suitability and cost of feed are the major factors constraining pig production.

VI. Correlates of Farm Income

As indicated in the discussion of the St. Vincent sample, farm income was treated as the dependent variable of the Dominica sample and relationships between farm income and 13 sets of independent variables were tested by means of the Chi Square technique. The results are shown in *Table 54(b)*. It was found that among Dominica small farmers, there is no relationship between farm income and

1. sex of farm operator
2. number of parcels per farm
3. the person consulted in farm planning decisions (whether these be spouse, extension officer or some other person)
4. index of organisation membership
5. tenure pattern
6. distance of first parcel from farmer's home, or
7. annual rainfall

The data also indicated that farmers with more than five dependents are more likely to have higher incomes than those with less than five dependents. Similarly, farmers who were less than 40 years old tend to have proportionately higher incomes than those 40 years old and over. But these differences in regard to age and number of dependents do not reach the probability level ($\alpha = 0.05$) by which they can be considered to be statistically significant.

However, the data indicated that the following four variables are significantly related to farm income:

1. **Farm Size.** - In the sample, it was very forcibly evident that farmers operating more than three acres had significantly higher incomes than those farmers in the one to three acre category.
2. **Household Size.** - Higher incomes are most often found in households of five to nine persons (including the farm operator) than in those households with less or more members. This may be tentatively explained, as was pointed out earlier in the discussion of St. Vincent, on the grounds that larger households (i.e. more than 10 members) consume at a higher rate and thereby depress farm incomes. On the other hand, smaller households (less than five members) cannot provide sufficient family labour to realise full economic potential of the farm unit. It is an area of considerable interest requiring further research and more detailed data to determine the influence of household size and composition on farm income.
3. **Major crop on farm.** - Bananas, coconuts, bay, citrus or dasheen as major farm crops did not have any significant influence in increasing or depressing the level of farm income. However, when sweet potato is found as the main crop, there is a significant positive influence on total farm income. This finding is the opposite to that found in St. Vincent. In the latter island sweet potato is grown widely as an export crop whereas in Dominica this crop is much less widely grown and is intended solely for the local market.
4. **Information Source.** - The consultation of the extension officer as a source of technical information is very significantly related to improved farm incomes. Farmers who consulted extension officers were found to have higher incomes than those who consulted some other source. However, farmers who consulted no information source whatever for technical advice were not significantly different in income level from those who consulted some source, extension officer or other.

VII. Farmers' Expressed Community Needs

Since agricultural development must aim at an overall improved standard of living for the farming community, the needs identified by farmers themselves as deserving specific attention must be borne in mind as integral to a comprehensive rural development strategy. Information was obtained in regard to community needs generally, and also for the agricultural sector in particular, as well as suggested solutions for meeting these needs (*Tables 55, 56 and 57*).

Among Dominica small farmers, the need identified by the largest number (42 per cent) was that for more and better roads. Other community needs strongly felt were for improvements in electricity and water supplies. More than one fifth of the sample identified the need for improved hospital and health care, and better than 10 per cent were concerned that there should be improved public community facilities and more schools. The solutions were seen as mainly the responsibility of the government but at least a minority in Dominica (almost 10 per cent) indicated that some form of community action might also play a part in solving their needs.

It was surprising to find that in spite of low returns from their agricultural endeavours, only a few small farmers explicitly indicated that they experienced pressing agricultural needs. Thirteen per cent of the small farmers would like to see improved marketing systems, 15 per cent are concerned about more employment opportunities and about seven per cent indicated the need for improved credit facilities. Less than two per cent would like more land for farming and less than one per cent wanted agricultural inputs to be more easily available.



CHAPTER 4**SMALL FARMING IN ST. LUCIA****A. CHARACTERISTICS OF THE SMALL FARMER****I. Background Factors****(i) Sex, Age and Ethnic Origin**

The St. Lucia sample revealed a marked difference from the other two territories of St. Vincent and Dominica in regard to the distribution according to sex. In the "hand-picked" sample of St. Lucia, 95 per cent of farm operators were male in contrast to 70 and 82 per cent in St. Vincent and Dominica respectively.

The mean age of the farm operators in St. Lucia was 47 years and the mode was slightly higher (48). This indicated a relatively close similarity to St. Vincent, which had a mean of 49 years and a modal age of 48. For Dominica, the mean and mode were 52 and 63 years respectively. Almost 77 (76.7) per cent of farmers are of African origin and close to 18 (17.5) per cent are mixed. Less than five per cent are East Indies (see *Tables 1, 2 and 3*).

(ii) Literacy, Marital Status and Household Size

The majority of farmers (60.8 per cent) can read and write but more than one third of the sample (34.2 per cent) could neither read nor write, indicating a relatively sizeable proportion to be illiterate (*Table 1*). While almost twelve (11.7) per cent had no formal schooling, the majority (70 per cent) had completed primary school. About three per cent had reached secondary schooling and beyond.

A majority (64.2 per cent) of farmers were either married or lived in common law unions. A relatively high proportion (26.7 per cent) is single. The mean household size

is eight and this is larger than both St. Vincent and Dominica (six for each) despite the higher proportion which is single. The mean number of dependents for each farm operator is six. This was also much larger than either St. Vincent (3.8) or Dominica (3.9). Almost 50 per cent (47.5) of the St. Lucia sample had between six and 15 dependents (*Tables 6, 7 and 8*).

(iii) Stability

The length of residence of the St. Lucia farmers as indicated by the number of years they lived in the locality at the time of the survey is in the majority of cases (59.2 per cent) more than 20 and as many as 50 years. The modal length of residence is 25.5 years. While this is relatively higher than St. Vincent (5.5 years), residential stability of the Dominica farmers is the highest with a mode of 45.5 years (*Table 9*).

(iv) Occupation

The majority (70.8 per cent) of the St. Lucia sample is occupied only in farming. Some farmers (8.3 per cent) are also occupied in non-agricultural commercial enterprises, such as shop-keeping, and a few (5.8 per cent) are engaged in the trades, usually carpentry and masonry. A smaller proportion (3.3 per cent) also participates in the retailing of agricultural produce or other agriculture-related commerce. Fewer still are employed as civil service low-level manual or clerical workers and as unskilled labourers (*Table 10*).

(v) Family Income

Broad indicators of combined sources of family earnings and expenses were used as rough estimates of annual income. These revealed that the majority (69.2 per cent) of the St. Lucia sample have incomes of more than \$5,000 (E.C.) per annum with almost 30 per cent (27.5) earning more than \$10,000 per annum. As expected, these figures were far higher for the St. Lucia sample than for either St. Vincent or Dominica. Not only do the St. Lucia farmers operate larger acreages (up to 15 ac.), but also as a sample "hand-picked" by extension officers, they can be expected to be "better-off" and "more successful". This was reinforced by their being more likely to be chosen by officers to whom they are better known.

Among family members contributing to household income, daughters accounted for 20.8 per cent of the sample, whereas sons contributed to 18.3 per cent of the households and spouses 16.9 per cent (*Table 12*).

(vi) Nutrition

The food item consumed by the highest proportion of the St. Lucia sample is root crops (96.4 per cent). More than 90 per cent (93.6) of the sample indicated they ate fruits several times a week. The other staple foods of the St. Lucia sample are milk, fish, vegetables and meat. In general terms this indicates a relatively satisfactory nutritional status of the farmers samples (*Table 13*).

While most root crops consumed were home grown (86.7 per cent), other frequently consumed foods such as milk and fish were purchased by large proportions of the sample, e.g. 70 per cent and 94.2 per cent respectively. Vegetables were home grown by almost 42 per cent (41.7) of the sample (*Table 14*).

Given the bias and unrepresentative character of the St. Lucia sample, it is inadvisable to conclude that St. Lucia farmers in general have such a high nutritional intake apparently implied in the "frequent" consumption of milk, fish, vegetables and meat. Reference to specific nutritional surveys should be consulted before arriving at a more representative view.

II. Farm-Oriented Factors

(i) Time Spent and Labour Used on the Farm

During the cropping season, almost 50 per cent (47) of the St. Lucia sample spend more than eight hours a day on the farm. More than 50 per cent also indicated they spend up to six hours a day. In the out of crop season only 15 per cent spend more than eight hours a day on the farm and about 40 per cent (38) spend up to four hours daily on the farm (*Table 15*). At least 60 per cent of farmers in the sample indicate they receive labour assistance from one or more family members on the farm (*Table 16*). Thirty (30) per cent of the sample also used shared labour.

(ii) Use of Farm Records

Only one fifth of the sample stated that they kept any farm records at all. Of those who do not keep records, the reasons given included, the inability to read or write (23.2 per cent), not considering keeping records to be necessary (16.8 per cent) or because it was thought to be too time consuming (14.7 per cent). What is noticeable is that no one specific type of reason was frequently responsible for the low level of record-keeping among far-

mers. This suggests a general underlying lack of awareness about the value and need of keeping and using farm records (*Table 19*).

(iii) Innovativeness

The response of farmers in the St. Lucia sample to new or improved agricultural practices was in general, quite low in comparison with St. Vincent, and Dominica, considerably higher. Less than 20 per cent (18.3) in St. Lucia said they were "familiar" with a new variety or agricultural practice. The proportion using a new variety or practice was 13.3 per cent of the sample. With regard to the time over which a new or improved variety/practice was implemented, one farmer in the sample stated this was being done for more than five years, less than 10 per cent (8.3) had been using a new variety/practice for less than two years (*Table 20*).

In addition to general improved practices, data were collected on use of fertilisers, chemical sprays and other chemicals.

Almost all farmers (97.2 per cent) growing bananas use fertilisers for that crop. But in contrast 49 per cent use chemical sprays and 19.8 per cent use other agricultural chemicals. For vegetables, plantain, root and tuber crops, 55.8, 50.0 and 48.2 per cent respectively indicate they used fertilisers. Other than 36.5 per cent who use chemical sprays for vegetables, the use of other chemicals or organic manure was not practised in regard to any other crops (*Table 21*).

(iv) Persons Consulted by Farmers

Of the various persons consulted in farm planning decisions, 54 per cent of the St. Lucia sample cited the extension officer, while only 1.7 per cent in St. Vincent and 18.3 per cent in Dominica named the extension officer. These data are not surprising when it is recalled that the St. Lucia sample was hand picked by extension officers.

Relatively smaller proportions of the sample indicated that they consulted their spouses (15 per cent), relatives (3.4 per cent) or neighbours (4.2 per cent). Less than 10 per cent (9.2) stated that they consult no one about farm planning (*Table 22*).

Decisions about a new variety or practice were arrived at with the assistance of opinions primarily from spouses. Nearly 70 (68.9) per cent cited spouses as opinion sources consulted for these kinds of decision, and 67.8 per cent consulted the extension officer, whereas 36.7 per cent consulted a son or daughter. Of relatively less importance are opinions of a relative or neighbour. Thirty four (34) per cent of the sample indicated they consulted a relative and 30.8 per cent a neighbour (*Table 23*).

III. Credit Facilities and Practices

In Chapter 2 reference was made to the credit sources available to small farmers in the territories of the survey. In the year preceding the survey, five farmers had secured loans from commercial banks.

IV. Marketing Facilities and Practices

Only 13.3 per cent of farmers said they were located less than five miles from the nearest marketing depot. Almost 50 per cent (43.3) are located between five and 10 miles from the nearest depot. Noticeably, more than one-third of the sample are as many as 11 to 20 miles from the nearest marketing depot. Five farmers were as far as 20 miles or more from the nearest depot (*Table 24*).

Farmers suggestions for improving the marketing systems, included the following:-

- (a) designation and identification of more collection points;
- (b) provision of additional and improved access roads to facilitate adequate movement of farm produce to marketing outlets
- (c) better transport methods to enable increased volume and efficiency in getting produce quicker and safer to markets
- (d) the formation and effective functioning of marketing co-operatives (see *Table 25*).

V. Communication Channels Used

A sharp contrast was found between the information sources consulted by the St. Lucia sample and those of St. Vincent and Dominica. Almost 90 per cent (88.3) of the farmers in St. Lucia stated that they consulted the extension officer when they have "technical farming problems" in contrast to 29.2 per cent in St. Vincent and 36.7 per cent in Dominica. A relatively small proportion (4.2 per cent) indicated that they sought advice from "no one"; and 2.5 per cent said they do so from a neighbour (*Table 26*).

Among sources consulted for information on improved farming practices, the highest proportion of the St. Lucia sample indicated that they listen to the radio (87.5 per cent). More farmers reported visiting a neighbour's farm (70.8 per cent) than a government farm (37.5 per cent) or a large estate (35.5 per cent) in order to secure information on improved practices (*Table 27*).

As can be expected, given the basis on which the extension officers participated in selecting the sample, 82.5 per cent claimed they they knew their district extension officer and almost as many (81.7 per cent) indicated they were visited by the officer (*Table 28*).

Of the kinds of technical information requested from radio programmes, the largest proportion of the sample (75.0 per cent) indicated interest in information on how to grow crops; others required information on when to plant (53.3 per cent), how to care animals (36.7 per cent), times for spraying (35.0 per cent) or kinds of incentives available to farmers (27.5 per cent) (see *Table 29*). Most farmers considered the hours 6.30 p.m. to 8.00 p.m. to be most suitable for airing of agricultural radio programmes.

VI. Membership in Groups

Group membership was only acknowledged by a relatively small number of the St. Lucia sample. Among those belonging to any groups, the highest proportion mentioned the village council (34.2 per cent) with almost as many being members of a church group (33.3 per cent). Other than these two kinds of groups, 17.5 per cent indicated they were members of a co-operative (*Table 30*).

VII. Attitudes

To establish a thorough knowledge of the farmers' attitudinal dispositions and value systems is a necessary aspect of the subsequent research programme. As a preliminary step in this direction, an attempt was made to record basic attitudinal responses of the selected sample in reference to occupational and educational aspirations for themselves and their offspring.

Almost 50 per cent (48.3) of the St. Lucia farmers indicated that the single most important factor to be considered in choosing a job was whether or not it provided "good money". The criterion of how "beneficial" the job was to their family was cited by 28.3 per cent of the sample. A far smaller proportion of farmers referred to "good status" (9.2 per cent) or "personal liking" of the job (5.0 per cent) as the most important criterion in their view (*Table 31*).

The sample respondents were asked to identify what jobs they prefer for their sons and daughters. In a remarkable contrast to the samples in St. Vincent and Dominica, almost 50 per cent (45.9) stated they wished their sons to choose farming rather than medicine, law or

a teaching job. In St. Vincent and Dominica, only 13.0 and 17.0 per cent respectively, of parents wished their sons to be farmers. The second largest choice (22.9 per cent) was made for their sons to become blue collar workers (such skilled tradesmen as mechanics, masons or plumbers). The generally accepted high status professions of medicine and law were chosen as the most preferred job for their sons by 12.8 per cent of the St. Lucia sample. Some 11 per cent indicated they had no preference (*Table 32*).

More than 50 per cent (53.8) of parents in the sample would like their daughters to become teachers or nurses. The next most preferred job for daughters was that of white collar clerical occupations. Of the 106 farmers in the sample with girl children, only three would like to see their daughters as farmers (*Table 33*).

As a direct indicator of the respondents' attitude to agriculture as a career, they were asked whom they would consider more important - a son who was a lawyer or a doctor or one who was an agriculturist. Forty six per cent considered the agriculturist more important, whereas 27 per cent thought law or medicine was more important and a similar 27 per cent considered them equally important (*Table 38*).

The great majority of farmers in the sample held education in high esteem. Almost 70 per cent (69.2) thought education was the best security in life for their offspring.

More than 60 per cent (62.5) wanted their offspring to receive a university education. The next largest proportion of the sample (22.5 per cent) wanted their offspring to go through secondary school and 12.5 per cent were concerned that their offspring go "as far as they can reach" (*Tables 34 and 35*).

The attitude of respondents to land inheritance was indicated by the high proportion (74.2 per cent) who held the view that they would divide their land among all their children rather than leave it all to one child (*Table 36*).

A little more than 70 per cent (70.9) indicated a positive attitude toward saving some of their earnings. The majority (61.7 per cent) of those who saved, did so through a commercial bank, with only five persons indicating they saved through a co-operative and another five reported saving their money at home (*Table 37*).

B. THE FARM

I. Farm Size and Fragmentation

The 120 small farmers in the Saint Lucia sample were grouped as follows:

<i>Farm size (acres)</i>	<i>Number of Farms</i>	<i>Per cent</i>
1.0 - 1.99	10	8.3
2.0 - 2.99	7	5.8
3.0 - 3.99	8	6.7
4.0 - 4.99	7	5.8
5.0 - 9.99	55	45.8
10.00 - 15.00	33	27.5
Total	120	100.0

There is an average of less than two parcels per farm in the Saint Lucia sample, as was also the case in St. Vincent and Dominica. Of the 120 farms in the sample 42 or 35 per cent consisted of only one parcel, 46 (38 per cent) each contained two parcels, 29 (i.e. 24 per cent) were each made up of three parcels, and the remaining three farms consisted of four parcels each.

Seventy-six per cent of all parcels were fully utilised, i.e. they contained no wasteland. On 28 parcels there was uncultivated land of up to $\frac{1}{2}$ acre per parcel and an equal number of parcels each contained between one half and one acre of unutilised land.

II. Tenure and Location of Parcels

In the Saint Lucia sample 112 of all parcels (48 per cent) are occupied freehold. The other tenure systems, in descending order of frequency are family land (29.2 per cent), annual rented (11.2 per cent), leasehold (4.7 per cent) squatting on government lands (3.4 per cent) and squatting on private lands (1.7 per cent). Only one case of share cropping was recorded (*Table 41*).

Eighty-three (69.2 per cent) of the first parcels are situated less than one mile from the farmers' home and 38 (48.7 per cent) of the second parcels and 12 (37.5 per cent) of the third parcels are less than one mile away.

One hundred and ninety seven (85 per cent) of the total number of parcels in the sample are less than three miles away from the farmers' homes. Only 36 parcels are four or more miles distance from the farmer's home (*Table 42*).

Thirty nine parcels (16.7 per cent) in the sample were classified by respondents as mostly flat. The remainder were roughly evenly distributed among the topography classi-

fications mostly steep (28 per cent), gradual slopes (29 per cent) and undulating (27 per cent) (*Table 43*).

The majority (64.8 per cent) of the holdings in the sample consisted of heavy soils. Only 43 (18.5 per cent) were classified as being light and another 35 (15.0 per cent) consisted of both light and heavy soils (*Table 44*).

One hundred and eighty four (79.0 per cent) of the total number of farm parcels were estimated to receive 60 or more inches of rain per year. Another 45 received more than 40 inches and the remaining four less than 40 inches annually (*Table 45*).

Table 46 classifies the type of roads used by the small farmers in travelling from their homes to the various farm parcels. Only 13 farmers (10.8 per cent of the sample) had their home on a farm parcel. The practice of village residence and operating farms outside of the village is also typical of both the St. Vincent and Dominica small farmer. The table shows that roughly one fifth of the farm parcels are reached via motorable road and a similar proportion by footpath. About half the parcels are reached via a combination of motorable and non-motorable roads.

For the majority of parcels the nearest market was more than six miles away. More than three quarters of the parcels in the sample are further than four miles from the nearest market.

III. Tools, Equipment, Machinery and Farm Buildings

For 56 (46.7 per cent) of the Saint Lucia small farmers the inventory of farm tools consisted of six to 10 pieces of hand tools; 35 (29.2 per cent) owned one to five pieces while another 29 (24.1 per cent) owned 11 to 20 pieces (*Table 49*). Forty-four (36.7 per cent) owned one knapsack sprayer each, nine others owned two each, one farmer owned three and another owned four. One farmer owned a motorised sprayer and another owned a tractor. Five farmers owned irrigation lines and another owned irrigation lines as well as pump.

Nineteen farmers invested in farm buildings, and/or storerooms. Three farmers owned one cattle pen each; nine farmers each owned a poultry pen; 17 farmers owned a pig pen apiece and four others owned one sheep/goat pen each.

IV. Crop Enterprises

(i) Crops Grown by the Small Farmer

Banana is the most important cash crop to the Saint Lucia small farmer. The crop is grown by 106 farmers, i.e. 88.3 per cent of the total sample

The Saint Lucian small farmer, like his counterparts in Dominica, places some emphasis on tree crops in his cropping system. Long term crops were grown on 216 parcels (92.7 per cent) of the sample. One hundred farmers (83.3 per cent) cultivated coconuts; 79 (65.8 per cent) grow breadfruit; 68 (56.7 per cent) grow citrus. Cocoa, avocado, nutmeg and coffee are important crops in the Saint Lucia small farm cropping enterprise.

Of the 233 parcels in the Saint Lucia sample, short term crops were grown on 175 holdings (75.1 per cent). On 70 of the number one parcels more than two short term crops were grown and 101 of the first parcels contained long term crops. The maximum number of short term crops cultivated on one holding was nine. The number of short term crops grown on a holding decreased with distance of holding from the farmer's home viz. a maximum of nine for parcels one and two, seven for parcel three, and four for parcel four.

The most commonly cultivated crops among the small farmers and their frequency of occurrence in the sample are as follows:

<i>Crops</i>	<i>Frequency of Occurrence</i>	
	<i>No.</i>	<i>Per cent</i>
Banana	106	88.3
Coconuts	100	83.3
Avocado	36	30.0
Cocoa	45	37.5
Plantain	60	50.0
Citrus	68	56.7
Breadfruit	79	65.8
Mangoes	61	50.8
Cabbage	19	15.8
Yam	90	75.0
Dasheen	78	65.0
Tannia	52	43.3
Tomatoes	21	17.5

<i>Crops</i>	<i>Number</i>	<i>Per cent</i>
Cucurbits	11	9.2
Ginger	5	4.2
Coffec	32	25.7
Sweet potato	21	17.5
Cassava	10	8.3
Carrots	19	15.8
Hot peppers	9	7.5
Peanuts	4	3.3
Nutmeg	4	3.3
Onions	4	3.3

Interviewees were asked to state which crop on each parcel was the most important (a) on the basis of the acreage devoted to the crop and (b) the economic returns from sale of individual crops. Parcels 1 and 2 are the most important parcels (there are only 32 third parcels and three fourth parcels in the sample) and the data are discussed in relation to those two parcels.

For these two parcels the crops found to be the most important on the basis of area cultivated are as follows:

<i>Crop</i>	<i>Parcel No. 1 (n=120)</i>		<i>Parcel No. 2 (n=78)</i>	
	<i>No. of farms</i>	<i>Rank Order</i>	<i>No. of farms</i>	<i>Rank order</i>
Banana	72	1	37	1
Coconuts	26	2	17	2
Citrus	5	3	1	7
Sweet potato	2	5	2	5
Peanuts	2	5	1	5
Yam	2	5	4	3
Cocoa	1	7.5	3	5
Dasheen	1	7.5	3	5

Considered on the basis of the economic returns to the farmer, the crops considered to be most important (or most valuable) on parcels one and two are:

<i>Crop</i>	<i>Parcel No. 1 (n=120)</i>		<i>Parcel No. 2 (n=78)</i>	
	<i>No. of farms</i>	<i>Rank order</i>	<i>No. of farms</i>	<i>Rank order</i>
Banana	76	1	44	1
Coconuts	15	2	14	2
Carrots	4	3	1	7
Peanuts	2	6.5	.	.
Cabbage	2	6.5	2	4.5
Yam	2	6.5	3	3
Dasheen	2	6.5	1	7
Tomatoes	3	4	1	7
Plantains	.	.	2	4.5

(ii) Crop Combinations

Among the sample of farms surveyed banana was the crop most often grown in combinations. Crop combinations with banana were reported 351 times, coconuts 322, aroids 121, yam 110, and breadfruit 106 times. The frequency of occurrence of other crops in combinations within the sample is as follows:

<i>Crops</i>	<i>Frequency in a crop combination</i>
Citrus	87
Mangoes	68
Avocado	65
Plantain	34
Cucurbits (cucumber, pumpkin christophene)	32
Tomatoes	31
Coffee	26
Sweet potato	23
Nutmeg	17
Ginger	15
Other vegetables (lettuce, Sweet pepper, cabbage)	15

<i>Crop</i>	<i>Frequency in a crop combination</i>
Carrot	14
Cassava	12
Peas and beans (including Pigeon peas)	6
Cashew	3
Bay	2
Cocoa	54
Cloves	1
Cinnamon	1

The most frequently occurring combinations are listed below, with the dominant crop in the combination being listed first. Crops interplanted are denoted by the plus sign (e.g. banana + aroid).

Banana	+	Coconut	62
"	+	Citrus	38
"	+	Breadfruit	36
"	+	Mangoes	24
"	+	Cocoa	22
"	+	Plantain	21
"	+	Aroid	20
"	+	Avocado	18
"	+	Coffee	15
"	+	Yam	18
"	+	Nutmeg	7
Coconut	+	Breadfruit	40
"	+	Citrus	40
"	+	Mangoes	33
"	+	Bananas	33
"	+	Avocado	25
"	+	Cocoa	24
"	+	Aroid	11
"	+	Plantain	10
"	+	Yam	14

Yam	+	Aroid	28
"	+	Cucurbits	5
"	+	Banana	5
"	+	Cucumber	3
"	+	Plantain	2
"	+	Tomato	2
"	/	Bananas	20
"	/	Aroid	4
"	/	Plantain	3
Dasheen	+	Tannia	18
"	+	Yam	10
"	+	Cucurbits	5
"	+	Plantains	3
"	+	Banana	3
"	+	Coconuts	3
"	+	Citrus	3
"	+	Corn	3
"	+	Peas	2
Tomato	+	Cabbage	3
"	+	Sweet pepper	2
"	+	Aroid	2
"	/	Sweet pepper	3
"	/	Carrot	2
"	/	Aroid	2
"	/	Cucumber	2
"	/	Banana	2
Cassava	+	Sweet potato	8
"	/	Ginger	2

Crop rotation or succession cropping was most clearly defined in the cultivation of short term root crops (e.g. yams), and vegetables. Crops used in succession were yams followed by banana, aroid, plantain, tomato and ginger. Tomato as a major crop was followed by sweet pepper, carrot, aroid, cucurbits, plantain, onion and cabbage.

(iii) Management Practices

Table 51(c) in the Appendix summarises the modal management practices carried out by the Saint Lucia farmers to 12 of the crops grown on most farms. The data also include the usual months of planting and harvesting, systems of planting and periods of highest prices received for produce. All the crops (viz., banana, plantain, yam, dasheen, tannia, coconut, breadfruit, citrus, mango, cocoa, avocado and coffee) are grown both for home use and sale. Respondents reported that they intend to continue to grow all of these crops, except breadfruit.

Banana is planted mainly in the period May to July with a sizeable minority planting all year round, while *plantain* is mainly planted year round, but with a peak from May to July. Harvesting of bananas and plantains takes place all through the year. Highest prices are fetched for bananas in the period August to October and the lowest price in November to January. The reverse pattern holds for plantains. Both crops are planted in rows on the flat in mixed stands. Farmers in the Saint Lucia sample reported planting improved varieties of banana while plantains were of a local variety.

One hundred and three of the 106 farmers who grow bananas, use fertilisers, and a sizeable minority use chemical sprays. No farmer reported the use of organic manure in the production of bananas and plantains.

Yams are grown by 90 farmers in the sample, the main varieties being local. Some farmers plant the crop from January to April but the majority do their planting from May to July. The crop is planted on mounds in rows, and is grown both for home use and for sale. The period of highest price is from November to January, and the lowest prices are obtained in February to April.

Dasheen is grown by 78 farmers in the total sample. Seventy-six farmers indicated that they intended to continue growing the crop. Dasheen is planted virtually all year round, but the majority of plantings take place from February to July. The crop is usually planted on the flat in rows, mainly in mixed stands. Some harvesting takes place throughout the year, the peak period of harvesting being November to January. Highest prices are obtained in November to January and the lowest prices from February to April.

Tannia is usually planted in May to July with a smaller number of farmers planting at virtually any time of the year. Harvesting takes place all year round, and the price obtained is more or less even all through the year with a period of slightly higher price occurring in November to January. The crop is grown mainly in mixed stands and is planted on mounds.

As is the case with the other two islands, the root and tuber crops are among the staple food crops of the Saint Lucian small farmer. About half of the 110 farmers who cultivate root and tuber crops use fertilisers on these crops but not a single one makes use of organic manures. Virtually no use is made of chemical sprays, dusts or other chemical formulations.

Because of the larger size of farms in the Saint Lucia sample (73 per cent of farms are five acres or larger) as compared with those of St. Vincent and Dominica (all farms are five acres or less in size), the labour requirements on the Saint Lucia farms are greater than for farms on the other islands. As a result greater use is made of hired labour in the Saint Lucia sample. Seventy-two of the 110 root crop growers reported using hired labour for land clearing, 50 used that form of labour for drainage and land preparation for planting, and 57 hired people to assist in planting these root crops. The majority of farmers depended solely on family labour for fertiliser application and harvesting, but a majority (75 farmers) used hired labour for weed control.

Coconuts are grown by 100 farmers in the sample both for home use and for sale. The crop is planted all year round on the flat either in rows or located irregularly. The crop is grown mainly in mixed stands. Harvesting takes place all through the year - and the prices are even all year round.

Breadfruit is grown by 79 farmers both for home use and for sale. The crop is planted all year round with most farmers planting in May to July. Harvesting takes place mainly in August to October, but some crop is obtained throughout most of the year.

Citrus is planted mainly in May to July, with smaller number of farmers planting at other times. The crop is grown both for home use and for sale. The majority of farmers grow improved varieties while a smaller number grows the "local" variety. The crop is harvested mainly in the period November to January. Citrus prices are at their highest from November to around Christmas and lowest in January.

Mangoes are grown by 61 farmers both for home use and for sale. The crop is mainly planted in May to July on the flat and is irregularly staggered over the holding. Most harvesting is done in August to October while some early crop is obtained from May to July. The highest price is obtained for the early May crop. Prices are lowest in July to August.

Cocoa is grown by 45 farmers for home use as well as for sale. Twenty-six farmers indicated their intention to make new plantings of the crop. The majority of farmers plant the crop in May to July. In Saint Lucia cocoa is almost equally planted on the flat as on mounds, and arranged regularly in rows as staggered irregularly in the field. The crop is grown mainly in mixed stands. The main period of harvesting is from November to January, and the price is even throughout the year.

Avocado is grown by 36 farmers in the sample, both for home use and for sale. The crop is planted mainly in May to July, on the flat and staggered irregularly. Avocadoes are grown mainly in mixed stand, and most farmers grow "local" varieties. Harvesting is mainly in August to October with some crop extending into November to January. Prices are usually highest in July/August and lowest during the peak harvest in October.

Coffee is grown by 32 farmers for both home use and for sale. The crop is also planted mainly in May to July. Saint Lucian farmers generally plant the crop mainly on the flat, in mixed stands and irregularly located in the field. The main harvesting period is November to January. Prices are even throughout the year.

Thirty-four per cent of the 109 farmers in the Saint Lucia sample who cultivated tree crops reported using fertilisers on these crops, as compared to only 12 per cent of the 78 Dominican small farmers who used fertilisers on their tree crops. Similarly, nearly 20 per cent of the Saint Lucian tree crop cultivators used chemical sprays on their trees in comparison with less than two per cent for the corresponding Dominican small farmers.

Apart from weed control, for which 25 per cent of the growers used hired labour, the Saint Lucian tree crop cultivators depended almost entirely on family labour for all farming operations.

V. *Livestock Enterprises*

(i) *General*

Of the 233 farm parcels in the Saint Lucia sample no livestock was kept on 147 parcels (64 per cent). Cattle was found on 50 parcels (21.5 per cent), mainly on parcel number one. Pigs were reared on 47 parcels (20.2 per cent), sheep and goats on 34 parcels (14.6 per cent) and rabbits on nine parcels (3.9 per cent of total parcels). Six farmers reported rearing turkeys and geese and another seven farmers reared broilers and layers.

(ii) *Cattle*

Fifty-eight of the farmers in the Saint Lucia sample reared cattle. Of these 52 owned one to five animals each, five owned between six and 10 animals and the other had more

than 10 cattle. Eight of these farmers were so limited by available land that their animals were kept not on any farm parcel but in their village backyard or other appropriate wayside or common pasture land. The majority of owners (i.e. 45) tethered their animals. Only one farmer penned his cattle, another had his animals running loose, and the others were variously grazed or stake-penned.

Seven farmers reported losses of cattle during the previous year through physical injury, larceny or other human related causes. In the year preceding the survey only two farmers received cash from sale of milk and 25 received total cash from meat sales as follows:

Less than \$ 100	-	2 farmers
\$100 - \$ 500	-	4 "
\$501 - \$1,000	-	8
More than \$1,000	-	11 "

Only nine farmers reared what they considered were improved breeds of cattle. Six farmers reported spending money to purchase cattle feed, five on stud fees and 28 for labour and other expenses.

(iii) Pigs

Forty-seven farmers in the sample reared pigs. Of these 36 owned five or less and 21 each owned more than five pigs. Sixteen farmers kept improved breeds of swine while the others kept only local scrub animals. Twenty-nine farmers kept their pigs in pens, the others were either stake-penned, tethered or ran about loose. Twenty-four farmers bought feed for their pigs. Other expenses reported as incurred during the past year were:

Pen construction and repairs	-	14 farmers
Medicine bought	-	18 "
Mineral supplements	-	2 "
Vet fees	-	1 farmer
Hired labour	-	3 farmers

Eight farmers reported receiving between \$100 and \$250 each from sale of pork during the past year, nine realised between \$251 and \$999 and another three realised more than \$1,000. Nine farmers sold weaners two of these grossing more than \$500 from their sales and the others less than that amount.

(iv) Goats

As with cattle many farmers kept sheep and goats not on their farm parcels but in their village backyards or in public or other scrublands.

Twenty farmers kept goats. Thirteen of these had five or fewer and the remaining seven more than five goats each. One farmer had improved breeds and the others kept local stock. Fourteen farmers tethered their animals, one had his goats penned and the remainder had their animals running loose or stake-penned.

No farmer reported making use of milk from their goats. Three farmers slaughtered animals for the sale of meat and six for home use. Four farmers realised less than \$250 from the sale of goat meat. No economic use was made of the hides.

(v) Sheep

Forty-three farmers kept sheep. Twenty-five owned five or less sheep and 18 owned more than five sheep each. Only one farmer kept improved breeds. The normal management system was to have sheep tethered at a stake (35 farmers). No farmer reported incurring any expenditure on the management of sheep. Three farmers reported receipts of less than \$100 each from sale of meat, five between \$100 and \$250 each and two each received more than \$250 from meat sales. Five farmers reported having lost animals during the previous year mainly through physical injury such as strangulation.

(vi) Rabbits

Thirteen farmers in the Saint Lucia sample kept rabbits. Seven of these farmers kept their rabbits on parcel number one, one each on parcels two and three respectively and the others in their village backyards. Four farmers owned less than five animals and the remaining nine farmers owned more than five. Only one farmer reported the sale of rabbit meat.

(vii) Poultry

As is common with villages in these islands 50 of the small farmers in the sample kept some common fowl (local breeds of chicken) as dual purpose birds for both eggs and meat. The majority each owned less than one dozen birds which ran about loose in their backyards, and the meat and eggs from these fowls were for home use only.

In addition to these, some seven farmers kept birds in sufficient numbers to consider themselves broiler or egg producers. The four broiler producers all reared improved breeds of poultry, as did two of the egg producers. Three broiler producers kept their birds in pens. All others were kept on range.

The expenditure reported as having been incurred in the past year by poultry keepers were:

purchase of feed	11 farmers
pen construction/repairs	3 "
purchase of medicines	5 "

(viii) Draught Animals

Only one farmer in the Saint Lucia sample owned a donkey. There is no report of any expenses being incurred in its management.

(ix) Constraints to livestock production

Assuming that small farmers would engage in livestock production which they considered beneficial if given favourable conditions, the survey attempted to identify what the Saint Lucia small farmer considered were the major constraints to the expansion of their present livestock enterprises or, for those not rearing any livestock, their involvement in livestock production.

The table below gives a breakdown of frequency distribution of respondents' opinions on the factors they consider constraining to greater livestock production.

<i>Factors constraining greater production</i>	<i>Cattle</i>	<i>Pigs</i>	<i>Goats</i>	<i>Sheep</i>	<i>Poultry</i>
Cost of feed	27	40	18	21	31
Availability of feed	12	.	4	4	1
Market condition	2	.	.	.	.
Prædial larceny	1	.	.	3	3
Land suitability	45	32	38	38	24
Vet. and/or A.I. fees	1	.	.	.	.
Inadequate labour	1	1	.	.	.

As far as cattle rearing is concerned the factors considered by farmers to be most constraining are land suitability and cost and availability of feed. Earlier discussions in Chapter 2 made reference to the steep and generally inaccessible nature of most lands cultivated by small farmers. Cattle rearing on steep slopes is rather difficult and hazardous both to man and beast.

Because of the system of management practised farmers do not consider labour shortage, market conditions, Vet and/or A.I. fees, nor praedial larceny to be important constraints. Of the 50 farm parcels on which cattle were reared, 30 were the parcels nearest to the farmer's home, thus making it quite easy for management and policing. The same is also true for goats and sheep as 28 of the 34 parcels on which these animals are kept are first parcels. Most poultry was also kept on parcel number one. Thirty-eight of the 47 parcels on which pigs were reared were first parcels. The remaining nine were parcels two (six) and parcels three (three).

Forty respondents considered cost of feed to be a major constraint to pig production, emphasising the unfortunate tendency among farmers to depend heavily on imported feeds: unfortunate in an island in which tons of banana rejects are dumped weekly, and in which the by-product of the second most important crop, coconuts, can be one component of rations for cattle, pigs and poultry.

Earlier discussions indicated that farmers only rear as many animals as they can manage, thus shortage of labour is therefore no problem. As far as the disposal of livestock products are concerned, most of these are used mainly in the home. The excess over household needs find ready sale on the local market.

VI. Correlates of Farm Income

As mentioned earlier, subjects for the Saint Lucia survey sample were not selected randomly but were subjectively chosen by the district agricultural extension officers. It would thus be meaningless to subject data from this sample to rigid statistical analysis, nor would it be valid to confidently extrapolate from the sample to the general small farmer populations in Saint Lucia. The method of selection introduced certain biases in the sample. For example, whereas in the randomly selected samples of St. Vincent and Dominica the ratios of female to male farm operators are 1 : 2.5 and 1 : 4.7 respectively, the corresponding ratio in the Saint Lucia sample is 1 : 19, indicating a tendency for Saint Lucian agricultural extension workers to work more closely with and therefore select male rather than female farmers.

Because of these and related reasons percentages are used in attempting to infer relationships between farm income and farmer and farm enterprise factors for the Saint Lucia sample. It can only be loosely assumed that any relationships found within the sample are likely also to occur in similar proportions among small farmers of the island generally.

Four farmers in the sample refused to give information on their sales from crop and livestock enterprises during the year preceding the survey. Total farm sales for the reporting 116 were distributed as follows:

No sale in past year	.	6	farmers
Total sales less than \$1,000	.	3	"
\$ 1,000 . \$ 2,500	.	12	"
\$ 2,501 . \$ 5,000	.	36	"
\$ 5,000 . \$10,000	.	38	"
\$10,001 . \$25,000	.	16	"
More than \$25,000	.	5	"

The above indicate that the modal farm income level for the sample lay in the range \$2,501 - \$10,000. Farmers falling within this range were therefore categorised as having medium farm incomes, those below that range as having low farm incomes, and high income farmers were those with sales in excess of \$10,000. Based on this farm income classification 13 variables were inspected to identify their possible relationships with income level (*Table 54(c)*).

Sex - Because of the disproportionate distribution of sample subjects by sex no meaningful comparison can be made.

Farm Size - The relationship between farm size and farm income is in the expected direction, viz., the larger the farm the higher the level of income obtained from farm sales. The highest proportion of low income farmers fall in the one to five acre farm size and the highest proportion of high income farmers are in the farm size category 10.1 to 15 acres.

Number of Parcels - The data indicate no difference in income between farmers operating only one parcel and those having more than one parcel.

Age - A much larger proportion of farmers aged 39 and under have low incomes compared with those having high incomes in that age category. For the 40 years and over category the reverse income trend is observed. High income farmers are more likely to be found among those in the older age category.

Household Size - There is some slight indication from the data that farmers with a household size of 10 and above tend to have higher farm incomes as a group than farmers with smaller households. Similarly farmers with more than *five dependents* as a group tend to have higher incomes than farmers with five or less dependents.

Membership in Organisations - The data indicate a positive relation between farm income level and farm operator's membership in and participation in organisations. The higher the subject's organisation membership index (viz. a measure of the number of organisations to which he belongs and the level of his participation in the business of the organisation) the more likely he is to be among the high farm income earners.

Persons Consulted in Farm Planning - The data indicate that farmers who consult no one in making farm planning decisions are most likely to be medium income earners. Those who consult the extension officer are more likely than any other group to be high income earners.

Information Sources Consulted for Technical Information - A similar situation holds regarding this factor. Farmers who seek technical information from the extension officer when faced with a farming problem are far more likely to be high income earners than either those who seek information from no one or those who approach persons other than the agricultural extension officer.

Tenure - Farms which are owned (viz. freehold tenure) as a group contained more high income producers (25 per cent) than did farms held under other systems of tenure (nine per cent high income earners).

Distance of First Parcel from Home - Farms with the first parcel less than one mile from home contained a much higher proportion of middle income earners (70 per cent) than did those with the first parcel more than one mile from the farmer's home (50 per cent). Also there is some indication that the farms with the first parcel more than one mile from home tend to produce higher incomes.

Rainfall - The data indicate very positively that high income farms in the one to 15 acre group are more likely to lie in the more than 60 inches annual rainfall belt than in areas with less rainfall.

Major Crop - According to the data where banana is the major crop on a farm that farm is more likely to be a high income earner than a low income earner. The reverse situation holds for all other crops, including coconuts.

VII. Farmers' Expressed Community Needs

Responses to farmers' felt needs in regard to living standards in their communities and for agricultural services, and the kinds of action they suggest to solve community needs, are presented in *Tables 55, 56 and 57*.

Among the Saint Lucia sample, the largest proportion (54.2 per cent) identified the need for more and better roads as the most acute. Other infrastructural needs included water (38.3 per cent) and electricity (24.2 per cent). Some 25 per cent indicated the need for facilities such as telephone, or post-office and other public community facilities such as cemetery or toilets. The great majority of respondents identifying these needs considered it the responsibility of government rather than the local community or of individuals to provide solutions.

As in the other two samples, not many farmers indicated that they felt (or recognised) major agricultural needs. Twenty-three farmers indicated they wanted to see more employment opportunities provided, six farmers wanted an improved marketing system and three farmers explicitly stated that they needed more land for farming.

Both with a view to effectively collaborating with small farmers in programme planning for adoption of improved technologies and so as to introduce comprehensive beneficial changes to the small farm systems, indepth observations as distinct from survey data collections, should be pursued to enlarge our understanding of farmers in the world of their work, family, recreation, religious or ideological affiliations and their aspirations for tomorrow. To listen to farming populations as they speak and act must always remain a vital source of knowledge.

CHAPTER 5

SUMMARY AND DISCUSSION

Following the preceding descriptions of the small farmer samples in the three territories of this study, it seems worthwhile to underline some important features of these farming systems and illustrate their implications for the "on-farm" adaptive research of the Project.

In considering the features, two important facts must be kept in mind. First, the samples of both St. Vincent and Dominica were chosen by a random method whereas for St. Lucia the sample was composed of "the most cooperative farmers" selected on the judgment of district extension officers. Secondly, in St. Vincent and Dominica, only one to five acre holdings were included, whereas for St. Lucia, the holdings were one to 15 acres. Largely because of this first fact the characteristics observed in this study cannot be strictly inferred as being statistically representative of small farming in St. Lucia.

Notwithstanding these differences in sampling method and farm size, however, there were notable similarities which should be borne in mind for subsequent research with small farm holdings, and for programmes aimed at increasing adoption of improved technologies. Similarities and differences can be discussed in relation to socio-economic characteristics, agronomic and livestock practices, and resource aspects of small farm operators.

Socio-economic characteristics

Age - The mean age of the farm operators was closely clustered around 50 years. It was 47 years in St. Lucia, 49 and 52 years in St. Vincent and Dominica respectively. It is safe to say that in general, the small farmer population on the average is middle-aged. Very few farmers could be classified as young (e.g. 25 years and less) but about 25 per cent of the samples were in the 26 to 40 age group. In St. Vincent, age was significantly

related to total estimated farm income, in the sense that farmers less than 40 years old tended to have higher incomes than older farmers. The age difference was not significantly associated with level of income in Dominica but in St. Lucia showed a trend similar to that observed in St. Vincent.

Literacy and Educational Level - Between 60 and 70 per cent of small farmers are able to read and write. The highest proportion (34.2 per cent) that can "neither read nor write" was found in St. Lucia. It would seem to be an advisable safeguard to assume when dealing with St. Lucian and Dominican small farmers that one out of every three can neither read nor write. (The ratio is one out of five in St. Vincent.) Since their functional literacy (St. Lucia and Dominica) is mainly expressed through a French *patois* considerable attention must be directed to effectively communicating with farmers through this language.

The majority of farmers in all three territories had participated in formal education at the primary level. It was encouraging to note that in both Dominica and St. Lucia a few farmers had acquired at least some secondary education. This might well indicate the beginning of a trend that is likely to become more pronounced in the future. There is need to be fully conscious of the educational level (i.e. predominantly primary) and communication receiving skills of the farmers with whom research workers are involved if useful and precise information is to be shared between the researcher and the farmer clientele. This is of further importance in realising increased economic benefits for small farmers. The data indicated a very strong positive relationship between farm income and the consultation of some information source for technical information ($p=0.01$ in St. Vincent). There was also a significant difference when the source of technical information was the Extension Officer ($p=0.01$ in Dominica). If technical information contributes to improved farm incomes, attention must be paid to impart such information as effectively as possible.

Household Size - For both St. Vincent and Dominica, farms with households of five to nine persons had higher incomes than those with either less or more household members. It seems likely that a significant contribution to the operation of small farm agriculture is the labour available within the household. In order to maintain the availability of farm labour from within the family it is necessary to encourage management practices by which labour can be both efficiently and profitably utilised. Almost 70 per cent of the small farmers indicated that the family contributed labour to farming operations. It is unlikely that this will remain at as high a level in the future, hence it becomes important for the small farm unit to become as labour efficient as possible.

Food Consumption Patterns - The staple foods of the great majority of small farmers are mainly derived from "home-grown" root crops and bananas. Only in St. Vincent did a large proportion of the sample (78 per cent) indicate that rice is "used often".

Judging from their responses concerning food consumption patterns the farmers of all three islands seem to be nutritionally well fed. Like most island people the vast majority of small farmers in all three islands eat fish often. Similarly a large majority use milk often, and meat and eggs are also consumed fairly regularly. The frequent consumption of fruits is also the norm among the small farmers.

Keeping Farm Records - The number of small farmers keeping records in St. Vincent and Dominica is very low (seven per cent of the sample in both cases). In St. Lucia, again because the sample consisted of "progressive" farmers who cooperated with extension officers, the proportion of farmers keeping records is very much higher, viz., 20 per cent. In St. Lucia and Dominica, the two "patois" speaking islands, the main reason given by farmers for keeping records was inability to read and write. Other reasons put forward in all three islands by farmers for not keeping records were that record keeping was too time consuming and farmers were not convinced that record keeping is a necessary exercise.

Considering the importance of record keeping in agribusiness, the CARDI project field workers will need to find some simple method of record keeping which is not overly time consuming and will need to motivate farmers to use these records. Even the inability of farm operators to read and write should not be considered an insurmountable problem. In the samples from the islands the number of households in which neither the farm operator nor any other person in the household could read and write was relatively low, as shown below.

Dominica	.	14
St. Lucia	.	6
St. Vincent	.	2

With proper motivation, therefore, the farm operator or someone in his household can be encouraged to keep and use simple farm records.

Opinion Sources - The information obtained on opinion sources for farm planning decisions or about new varieties and practices revealed the importance placed by farm operators on the views of their spouses and sons and daughters. (The bias introduced in the St. Lucia sample by the selection method again shows up in the unusually high percentage of farmers who seek the opinion of the extension officer.) (Tables 22 and 23.)

Information Media - The radio is the communication medium most utilised by farmers for information about improved practices. Eighty-three per cent in St. Vincent

cited listening to the radio as the most important source of information on improved practices, while 76 and 88 per cent did likewise in Dominica and St. Lucia respectively. This situation, plus the relatively high level of functional illiteracy in the islands, points to the need for the maximum utilisation of the radio in communicating with small farmers.

Educational and Occupational Aspirations - The single most important factor in selecting a job was that of good money. This was most pronounced in St. Vincent (80 per cent). But while only a small proportion of respondents in St. Vincent and Dominica (13 and 17 per cent respectively) indicated farming as an occupation they would prefer for their sons, almost 50 per cent of the St. Lucia sample indicated a preference for farming as an occupation for their sons. Similarly, only in St. Lucia was agriculture perceived to be of more importance than law or medicine as the occupational choice for their sons. (Again an introduced sample bias?)

Relatively high educational aspirations were cited by the majority of the sample in all territories. The educational level desired for the offspring of the farmers was that of a University education by 53 per cent in St. Vincent, 55 per cent in Dominica and 62.5 per cent in St. Lucia. Quite clearly, small farmers who are parents place heavy emphasis on education for their children. The firmness of this attitude was further reinforced by the very high proportions in all territories who agreed with the statement that education is the best security in life for their offspring. Given this high esteem in which education and money-making are held by parents, it can be expected that until agriculture is proven to be economically highly rewarding and in keeping with a high educational standard, parents will neither be inclined to invest more resources in farming nor to encourage their offspring to choose agriculture as a worthwhile career.

Land Inheritance Custom - A very large majority of small farmers indicated their support of the current custom of parents dividing their land among their offspring. This custom remains an acute socio-cultural obstacle to the productive agricultural use of limited land in the islands.

Resources

Land and labour are the two resources most heavily employed in their farming by subjects in the survey sample. If we consider cultivated lands held under freehold and rental (including leasehold) tenurial systems as well as family lands to be farmers' investment in land for farming, then about 80 per cent of all farm parcels in St. Vincent and Dominica and over 90 per cent of all parcels in St. Lucia represent farmers' investment in land as

an agricultural production resource. As a group these farmers look upon land as a scarce and precious resource to be guarded jealously and utilised as carefully and efficiently as their knowledge and experience will permit. On 77 per cent of the 637 farm parcels in the three-island sample, there was no portion of land unutilised. Considering the hilly nature of much of the lands operated by these small farmers this must be very near maximum possible land usage.

The farm operator's labour, augmented by family help and shared labour with friends is that used exclusively for most farm operations. Not one farmer in either St. Vincent or Dominica reported using hired labour for any livestock enterprise, and less than three per cent of those in St. Lucia used hired labour for livestock production. Hired labour was used in crop enterprises mainly for drainage and weed control among bananas (17 per cent of Dominican and Vincentian farmers and 34 per cent of St. Lucian farmers), and land clearing, bank or mound preparation and weed control in the root and tuber crops. Except for St. Lucia, where nearly three-quarters of the farms were five acres or more in size, very little use was made of hired labour for tree-crop cultivation.

For the vast majority of farmers in St. Vincent and Dominica (about 95 per cent) the only farm implements or equipment consisted of five or less hand tools. Farm buildings were virtually non-existent. Although more than 70 per cent of all farmers reported making cash savings in one form or other, cash investment in farming in the form of purchased inputs was extremely low. Similarly 70 per cent of farmers in St. Vincent and Dominica, and nearly 60 per cent of those in St. Lucia, made no use of credit facilities available to them during the year preceding the survey.

The majority of farmers in St. Vincent and Dominica arrived at farm management decisions either alone or in consultation with their spouses. Apart from St. Lucia, in which the sample was hand picked by extension officers, the data clearly show that agricultural extension workers in the islands are not performing their function as farm management consultants for small farmers.

These data on the use of production resources by small farmers indicate a need for the following;

- (i) In-depth studies of the efficiency of labour usage on small farms.
- (ii) A study of the equipment and farm building needs for optimal economic production on small farms in these islands.
- (iii) The education of small farmers in the utilisation of available credit for increasing farm productivity.

- (iv) **Recognising the important role played by spouses in farm management decision making, the involvement of spouses (but preferably the entire family unit) in programmes of technical information and education geared to the development of the small farming sector.**

Agronomic and Livestock Practices

Livestock rearing plays a relatively minor role in the farming system of small farm operators in these islands. In Dominica less than one quarter of the farms in the sample had any livestock whatever, while in St. Vincent and St. Lucia about three-fifths of the sample also kept no livestock. Of the three groups, St. Lucian farmers seemed most inclined to livestock rearing. Roughly 22 per cent of St. Lucian farmers kept cattle, 20 per cent kept pigs and fifteen per cent reared sheep and goats. About 10 per cent kept poultry (backyard scrub chicken excepted).

In St. Vincent and Dominica cattle and sheep and goats were the farm animals most commonly reared (20 per cent and 18 per cent respectively in St. Vincent, and 12 per cent each in Dominica). In all islands the norm is to keep livestock principally for home consumption of their products.

A curious fact about the small farmers is that despite the rugged topography of the three islands, the difficult terrain and often long distances to be traversed on non-motorable roads between home and farm and the bulky nature of most farm produce, only six farmers of the total 360 sample owned any draught animals. (Five in Dominica and one in St. Lucia owned donkeys.) Heading is therefore the normal means of transporting inputs to the farm and produce from farm to home and market or nearest motorable road. This fact needs to be considered very seriously in developing farm improvement programmes since this could possibly act as a constraint to the greater use of bulky farm inputs such as fertilisers.

The mobility/stability characteristics of small farmers in the three islands seem to be mirrored in the type of crops which dominate their farming systems. In all three islands the small farmers are by and large middle-aged -- mean ages being 49, 52 and 47 for St. Vincent, Dominica and St. Lucia respectively. In St. Lucia farmers have been living in their present districts for more than 25 years on average, and in Dominica for about 50 years on average. We can interpret this to mean that small farmers in these two islands are relatively stable, or that they tend to settle or "establish roots" in one district. St. Vincent small farmers, on the other hand, have been living for an average of only about five years in their present locality, thus displaying a relatively high degree of geographical mobility.

This pattern is reflected in the cropping systems. Besides banana, which is a major cash crop in all three islands, the farming system of the St. Vincent sample is dominated by annual or short-term crops which account for the highest earnings on 82 per cent of farms in the sample. By contrast long-term crops or perennials are dominant in St. Lucia and Dominica, earning the most money on 70 per cent of St. Lucian small farms and 53 per cent of Dominican small farms.

In all islands the local food staples of dasheen, tannia, yam, sweet potato and plantain are widely grown for home use and the local market, some of these (notably sweet potato) also being grown in St. Vincent in particular for export to the Trinidad market. The potential should be explored for the export of these and other crops to a wider Caribbean market (e.g. the Leeward Islands, St. Maarten, the U.S. Virgin Islands) as well as to the large expatriate Caribbean populations in the North Atlantic seaboard countries.

Furthermore, besides the traditional export crops such as cocoa, coffee, citrus and bay, there are other crops like breadfruit, avocado and mango which are grown by many small farmers and which have high market potential in the wider Caribbean and North Atlantic markets. Some attention might be given to investigating more fully the production techniques and economics as well as post harvest handling and other important aspects of developing an economically efficient trade in these crops.

In developing multiple cropping systems for small farmers special attention will of course be paid to current cropping systems. Since land is a limited resource with small farmers and that which is available is used almost fully (the survey showed there is very little wastage), recommended multiple cropping systems most likely to be adopted by small farmers are those which are most compatible with current land use patterns. In St. Vincent where annual or short-term crop production is the norm the possibilities are vast and varied. An intensification and recombination of some of the existing intercropping and succession cropping practices is suggested.

For St. Lucia and Dominica in which much of the small farmers' land is already permanently under tree crops, and the majority of that which is not so occupied is given to staple root crop production, greater imagination and inventiveness will be needed in developing intercropping systems compatible with the already existing perennials. Not only will it be necessary to consider such factors as time of planting, root-room, growth period, etc., but other such less commonly considered features as the relative direction of intercrop rows in relation to season, sunrise and sunset positions and direction of dominant crop rows.

The Research and Development Division of the Windward Islands' Banana Association is already researching possible intercropping systems with pure stand bananas. CARDI could profitably cooperate with WINEAN Research in this line of work.

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APPENDIX

Table 1: Distribution of Farm Operators, by Territory and Sex.

Sex	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
Male	84	70	98	81.7	114	95	296	82.2
Female	36	30	22	18.3	6	5	64	17.0
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 2: Distribution of Farm Operators, by Territory and Age Group.

Age	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
25 & less	5	4.2	2	1.6	3	2.5	10	2.8
26 - 40	28	23.3	26	21.6	33	27.5	87	24.2
41 - 55	48	40.0	41	34.2	53	44.2	142	39.4
56 - 70	34	28.3	43	35.8	29	24.2	106	29.4
> 70	5	4.2	8	6.6	2	1.6	15	4.2
Total	120	100.0	120	100.0	120	100.0	360	100.0
Mean	49		52		47			
Mode	48		63		48			

Table 3: Distribution of Farm Operators, by Territory and Ethnic Origin

Ethnic Origin	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
African	96	80.0	106	88.4	92	76.7	294	81.7
Mixed	14	11.7	13	10.8	21	17.5	48	13.3
East Indian	8	6.7	0	00.0	5	4.2	13	3.6
Carib	1	0.8	1	0.8	2	1.6	4	1.1
N. A.	1	0.8	0	00.0	0	00.0	1	0.3
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 4: Distribution of Farm Operators, by Territory and Ability to Read and Write.

Ability to read and write	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
Can read and write	86	71.7	75	62.5	73	60.8	234	65.0
Can read only	9	7.5	1	0.8	6	5.0	16	4.4
Can write only	0	0.0	5	4.2	0	0.0	5	1.4
Can neither read nor write	25	20.8	39	32.5	41	34.2	105	29.2
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 5: Distribution of Farm Operators, by Territory and Level of Education

Level of Education	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
Post-Secondary	0	0.0	2	1.7	2	1.7	4	1.1
Complete Sec.	0	0.0	1	0.8	1	0.8	2	0.6
Some Secondary	0	0.0	4	3.3	1	0.8	5	1.4
Std. 4 - 7	79	65.8	57	47.5	51	42.5	187	60.0
< Std. 4	29	24.2	18	15.0	33	27.5	80	22.2
No formal Sch.	11	9.2	23	19.2	14	11.7	48	13.3
Not Ascertained	1	0.8	15	12.5	18	15.0	34	9.4
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 6: Distribution of Farm Operators, by Territory and Marital Status.

Marital Status	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
Single	24	20.0	8	6.7	32	26.7	64	17.8
Married	48	40.0	85	70.8	68	56.7	201	55.8
Common-Law	27	22.5	19	15.8	9	7.5	55	15.3
Divorced	0	0.0	0	0.0	0	0.0	0	0.0
Widowed	15	12.5	6	5.0	10	8.3	31	8.6
Separated	5	4.2	2	1.7	1	0.8	8	2.2
N. A.	1	0.8	0	0.0	0	0.0	1	0.3
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 7: Distribution of Farm Operators, by Territory and Size of Farm Household.

Number of persons in Household	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
1 - 5	51	42.5	54	45.0	38	31.7	143	39.7
6 - 10	57	47.5	54	45.0	59	49.2	170	47.2
11 - 15	11	9.2	10	8.3	20	16.6	41	11.4
16 - 20	1	0.8	2	1.7	3	2.5	6	1.7
Total	120	100.0	120	100.0	120	100.0	360	100.0
Mean	6		6		8			
Mode	8		3	8	8			

Table 8: Distribution of Farm Operators, by Territory and Number of Dependents.

Number of Dependents	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
None	23	19.2	21	17.5	7	5.8	51	14.2
1 - 5	65	54.2	58	48.3	54	45.0	177	49.2
6 - 10	30	25.0	35	29.2	40	33.3	105	29.2
11 - 15	2	1.6	6	5.0	17	14.2	25	6.9
16 - 20	0	0.0	0	0.0	2	1.7	2	0.5
Total	120	100.0	120	100.0	120	100.0	360	100.0
Mean	3.8		3.9		6			
Mode	3		3		3			

Table 9: Distribution of farm Operators, by Territory and Length of Residence in Locality.

Number of Years	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
1 - 10	41	34.2	4	3.3	17	14.2	62	17.2
11 - 20	26	21.7	7	5.8	13	10.8	46	12.8
21 - 30	24	20.0	16	13.3	31	25.8	71	19.7
31 - 40	18	15.0	25	21.0	20	16.7	63	17.5
41 - 50	3	2.5	27	22.5	20	16.7	50	13.9
51 - 60	2	1.7	22	18.3	14	11.6	38	10.6
61 - 70	4	3.3	14	11.7	5	4.2	23	6.4
71 - 80	0	0.0	3	2.5	0	0.0	3	0.8
81 - 90	0	0.0	1	0.8	0	0.0	1	0.3
Don't Know	2	1.6	1	0.8	0	0.0	3	0.8
Total	120	100.0	120	100.0	120	100.0	360	100.0
Mean	20		43		32			
Mode	5.5		45.5		25.5			

Table 10: Distribution of Farm Operators, by Territory and Occupation.

Type of Occupation	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
Farming Only	77	64.2	62	51.7	85	70.8	224	62.2
Fishing	2	1.7	6	5.0	2	1.7	10	2.8
Forestry	0	0.0	2	1.7	2	1.7	4	1.1
Trades	14	11.6	15	12.5	7	5.8	36	10.0
Agric.-Related Commerce	10	8.3	13	10.8	4	3.3	27	7.5
Non-Agric. Rel. Commerce	5	4.2	0	0.0	10	8.3	15	4.2
Road Gang	9	7.5	10	8.3	2	1.7	21	5.8
Civil Service	0	0.0	5	4.2	3	2.5	8	2.2
Other	3	2.5	7	5.8	5	4.2	15	4.2
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 11: Distribution of Farm Operators by Territory and Estimated Family Income.

Annual Income (E.C. \$)	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
<200	4	3.3	3	2.5	1	0.8	8	2.2
200 - 500	6	5.0	11	9.2	0	0.0	17	4.7
501 - 1,000	9	7.5	16	13.3	1	0.8	26	7.2
1,001 - 2,500	5	4.2	43	35.8	3	2.5	51	14.2
2,501 - 5,000	1	0.8	23	19.2	28	23.3	52	14.4
5,001 - 10,000	0	0.0	14	11.6	50	41.7	64	17.8
>10,000	0	0.0	2	1.7	33	27.5	35	9.7
N. R.	95	79.2	8	6.7	4	3.3	107	29.7
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 12: Distribution of Farm Operators, by Territory and Contributors, other than the Farm Operator, to Household Income.

Source of Contribution	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
Spouse	30	25.0	32	26.7	20	16.9	82	22.7
Sons	50	41.7	23	19.2	22	18.3	95	26.4
Daughters	34	28.3	9	7.5	25	20.8	68	18.8
Other Relations	16	13.3	13	10.8	4	3.3	33	9.2
Non-Relations	5	4.2	0	0.0	2	1.7	7	1.9

Table 13: Distribution of Farm Operators, by Territory, Foodstuffs consumed and relative frequency of Consumption.

Foodstuff and frequency of use	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
RICE								
Use often	93	77.5	31	25.8	53	46.1	177	49.9
Use seldom	27	22.5	88	73.4	59	51.3	174	49.0
Never use	0	0.0	1	0.8	3	2.6	4	1.1
Total	120	100.0	120	100.0	120	100.0	355	100.0
ROOT CROPS								
Use often	107	89.2	115	95.8	107	96.4	329	93.7
Use seldom	13	10.8	5	4.2	4	3.6	22	6.3
Never use	0	0.0	0	0.0	0	0.0	0	0.0
Total	120	100.0	120	100.0	111	100.0	351	100.0
BANANAS								
Use often	86	71.7	114	95.0	80	76.4	280	79.5
Use seldom	31	25.8	6	5.0	32	28.6	69	19.6
Never use	3	2.5	0	0.0	0	0.0	3	0.9
Total	120	100.0	120	100.0	112	100.0	352	100.0
VEGETABLES								
Use often	100	83.3	58	48.7	89	80.9	247	70.8
Use seldom	20	16.7	57	47.9	21	19.1	98	28.1
Never use	0	0.0	4	3.4	0	0.0	4	1.1
Total	120	100.0	119	100.0	110	100.0	349	100.0
MEAT								
Use often	73	60.8	76	63.9	86	78.2	235	67.3
Use seldom	46	38.4	43	36.1	24	21.8	113	32.4
Never use	1	0.8	0	0.0	0	0.0	1	0.3
Total	120	100.0	119	100.0	110	100.0	349	100.0
EGGS								
Use often	58	49.2	79	65.9	76	69.1	213	61.2
Use seldom	59	50.0	40	33.3	34	30.9	133	38.2
Never use	1	0.8	1	0.8	0	0.0	2	0.6
Total	118	100.0	120	100.0	110	100.0	348	100.0

NOTE: Non-responses are not included in the data for Tables 13 and 14.

Table 13 (continued): Distribution of Farm Operators, by Territory, Foodstuffs consumed and Relative Frequency of Consumption.

<i>Foodstuff and frequency of use</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	<i>%</i>
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>		
FISH								
Use often	87	72.5	96	80.0	90	82.6	273	78.2
Use seldom	33	27.5	24	20.0	19	17.4	76	21.8
Never use	0	0.0	0	0.0	0	0.0	0	0.0
Total	120	100.0	120	100.0	109	100.0	349	100.0
MILK								
Use often	90	76.3	93	78.1	98	89.1	281	81.0
Use seldom	28	23.7	24	20.2	12	10.9	64	18.4
Never use	0	0.0	2	1.7	0	0.0	2	0.6
Total	118	100.0	119	100.0	110	100.0	347	100.0
FRUITS								
Use often	77	64.7	94	79.0	102	93.6	237	78.7
Use seldom	42	35.3	25	21.0	7	6.4	74	21.3
Never use	0	0.0	0	0.0	0	0.0	0	0.0
Total	119	100.0	119	100.0	109	100.0	347	100.0
OTHER LOCAL FOODS								
Use often	3	5.8	67	59.8	58	74.3	128	52.9
Use seldom	33	63.5	44	39.3	18	23.1	95	39.3
Never use	16	30.7	1	0.9	2	2.6	19	7.8
Total	52	100.0	112	100.0	78	100.0	242	100.0

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Table 14: Distribution of Farm Operators by Territory, Foodstuffs consumed and Origin of Foodstuff.

Foodstuff	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
RICE								
Home grown	0	0.0	2	1.7	0	0.0	2	0.6
Purchased	119	100.0	116	98.3	117	100.0	352	99.4
Both	0	0.0	0	0.0	0	0.0	0	0.0
Total	119	100.0	118	100.0	117	100.0	354	100.0
ROOT CROPS								
Home grown	106	89.1	109	90.8	104	86.7	319	88.9
Purchased	4	3.4	8	6.7	5	4.2	17	4.7
Both	9	7.5	3	2.5	11	9.1	23	6.4
Total	119	100.0	120	100.0	120	100.0	359	100.0
BANANAS								
Home grown	100	88.5	111	92.5	104	87.4	315	89.5
Purchased	12	10.6	9	7.5	15	12.6	36	10.2
Both	1	0.9	0	0.0	0	0.0	1	0.3
Total	113	100.0	120	100.0	119	100.0	352	100.0
VEGETABLES								
Home grown	83	69.7	54	46.9	50	41.7	187	52.8
Purchased	12	10.1	47	40.9	44	36.7	103	29.1
Both	24	20.2	14	12.2	26	21.6	64	18.1
Total	119	100.0	115	100.0	120	100.0	354	100.0
MEAT								
Home produced	4	3.4	3	2.5	3	2.5	10	2.8
Purchased	103	87.3	88	74.0	109	91.6	300	84.3
Both	11	9.3	28	23.5	7	5.9	46	12.9
Total	118	100.0	119	100.0	119	100.0	356	100.0
EGGS								
Home produced	36	31.1	32	26.7	33	27.5	101	28.4
Purchased	60	51.7	69	57.5	68	56.7	197	55.3
Both	20	17.2	19	15.8	19	15.8	58	16.3
Total	116	100.0	120	100.0	120	100.0	356	100.0

Table 14 (continued): *Distribution of Farm Operators, by Territory, Foodstuffs consumed and Origin*

Foodstuff	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
FISH								
Own Fishing	4	3.4	19	15.8	6	5.0	29	8.1
Purchased	114	96.6	93	77.5	113.	94.2	320	89.4
Both	0	0.0	8	6.7	1	0.8	9	2.5
Total	118	100.0	120	100.0	120	100.0	358	100.0
MILK								
Home produced	14	11.8	21	18.0	20	16.7	55	15.4
Purchased	87	73.1	88	75.2	84	70.0	259	72.8
Both	18	15.1	8	6.8	16	13.3	42	11.8
Total	119	100.0	117	100.0	120	100.0	356	100.0
FRUITS								
Home grown	54	45.4	82	68.9	67	56.3	203	56.9
Purchased	42	35.3	17	14.3	12	10.1	71	19.9
Both	23	19.3	20	16.8	40	33.6	83	23.2
Total	119	100.0	119	100.0	119	100.0	357	100.0
OTHER LOCAL FOODS								
Home grown	1	2.9	75	67.0	40	45.0	116	49.2
Purchased	22	62.9	15	13.4	26	29.2	63	26.7
Both	12	34.2	22	19.6	23	25.8	57	24.1
Total	35	100.0	112	100.0	89	100.0	236	100.0

Table 15: Distribution of Farm Operators, by Territory and Time Spent on Farm During and Out of Cropping Season.

Time spent on Farm Per Day (Hours)	ST. VINCENT				DOMINICA				ST. LUCIA			
	During Crop Season		Out of Crop Season		During Crop Season		Out of Crop Season		During Crop Season		Out of Crop Season	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
< 2 Hours	0	0.0	17	14.0	1	1.0	0	0.0	3	2.5	8	6.5
2 - 4 "	11	9.0	69	58.0	15	12.5	68	57.0	9	7.5	39	31.5
+ 4 - 6 "	16	13.0	18	15.0	29	24.0	12	10.0	14	42.0	32	27.0
+ 6 - 8 "	80	67.0	10	8.0	56	47.0	25	20.0	38	31.0	24	20.0
> 8 "	9	7.5	2	1.5	19	16.0	15	13.1	56	47.0	17	15.0
No Response	4	3.5	4	3.5	0	0.0	0	0.0	0	0.0	0	0.0
Total	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0

Table 16: Distribution of Farm Operators, by Territory and Number of Family Members who contribute to Farm Labour.

Family contributors to Farm Labour	ST. VINCENT		DOMINICA		ST. LUCIA	
	No.	%	No.	%	No.	%
No Family Labour	33	27.5	23	19.2	44	36.7
1 Family Member	40	33.4	35	29.3	24	20.0
2 " Members	12	10.0	15	12.5	15	12.5
3 " "	1	0.8	12	10.0	13	10.8
4 " "	0	0.0	8	6.6	4	3.3
5 " "	1	0.8	8	6.6	3	2.5
6 " "	0	0.0	3	2.5	3	2.5
Number not specified	33	27.5	15	12.5	11	9.2
No Response	0	0.0	1	0.8	3	2.5
Total	120	100.0	120	100.0	120	100.0

Table 17: Distribution of Farm Operators, by Territory and Use of Shared Labour on Farm.

Shared Labour Practice	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	%
	No.	%	No.	%	No.	%		
Shared Labour Practised	34	28.3	50	41.7	35	29.2	119	33.1
Shared Labour not Practised	85	70.9	69	57.5	83	69.1	237	65.8
No Response	1	0.8	1	0.8	2	1.7	4	1.1
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 18: Distribution of Farm Operators, by Territory and Number Keeping Farm Records.

Farm Record-Keeping Practice	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Records Kept	9	7.5	8	7.0	25	20.0	42	11.7
No Records Kept	110	92.0	90	75.0	89	75.0	289	80.3
No Response	1	0.8	22	18.0	6	5.0	29	8.0
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 19: Distribution of Farm Operators, by Territory and Reasons for Not Keeping Farm Records

Reasons for Non-Use of Records	ST. VINCENT		DOMINICA		ST. LUCIA	
	No.	%	No.	%	No.	%
Have no time/takes too much time	43	38.8	12	10.7	14	14.7
Don't consider it necessary	25	22.5	31	27.6	16	16.8
Cannot read or write	11	9.9	27	24.1	22	23.2
No need because of small size of enterprise	9	8.1	1	0.9	1	1.1
Don't know how	5	4.5	5	4.5	0	0.0
No reason expressed	3	2.7	7	6.3	1	1.1
Other	10	9.0	7	6.3	35	36.8
No response	5	4.5	22	19.6	6	6.3
Not applicable (i.e. keeping records)	9	7.5	8	7.0	25	20.0

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Table 20: Distribution of Farm Operators by Territory, and Familiarity with New Variety or Practice.

	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Familiar with Innovation	2	1.6	4	3.2	22	18.3
Practising Innovation	0	0.0	3	2.5	16	13.3
Time Using New Practice/Variety:-						
< 2 years	0	0.0	1	0.8	10	8.3
2 - 5 "	0	0.0	2	1.6	5	4.2
> 5 "	0	0.0	0	0.0	1	0.8

Table 21: Distribution of Farm Operators, by Territory and Use of Fertilisers and Other Chemicals for Major Crops Cultivated.

CROPS	ST. VINCENT										DOMINICA										ST. LUCIA										TOTAL														
	Number of Farmers Growing Crop			Fertilisers			Chemical Sprays			Other Chemicals			Organic Manure			Number of Farmers Growing Crop			Fertilisers			Chemical Sprays			Other Chemicals			Organic Manure			Number of Farmers Growing Crop			Fertilisers			Chemical Sprays			Other Chemicals			Organic Manure		
	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%	No	No	%
Banana	36	25	69.4	7	19.4	0	-	0	-	102	76	74.5	26	25.4	3	-	0	-	106	103	97.2	52	49.1	21	19.8	0	-	244	207	84.8	55	34.8	24	9.8	0	-									
Plantain	25	22	88.0	0	-	0	-	0	-	46	39	84.4	6	-	0	-	0	-	60	30	50.0	8	-	0	-	0	-	131	91	69.5	14	10.7	0	-	0	-									
Roots & Tubers	107	75	70.1	1	-	1	-	0	-	107	64	59.8	3	-	2	-	0	-	110	53	48.2	6	-	1	-	0	-	324	192	59.2	19	3.1	4	-	0	-									
Vegetables	37	29	78.4	7	-	1	-	0	-	21	6	-	4	-	0	-	0	-	52	29	55.8	19	36.5	1	-	0	-	110	64	58.8	30	27.2	2	-	0	-									
Tree Crops	3	0	-	0	-	0	-	0	-	78	9	-	1	-	0	-	0	-	109	37	33.9	21	19.3	1	-	0	-	190	46	24.2	22	11.6	1	-	0	-									
Grain Legumes	32	13	40.6	0	-	0	-	0	-	8	1	-	0	-	0	-	0	-	11	6	-	1	-	0	-	0	-	51	20	39.2	1	-	0	-	0	-									
Corn (Maize)	10	5	-	0	-	0	-	0	-	2	1	-	0	-	0	-	0	-	4	3	-	0	-	0	-	0	-	16	9	-	0	-	0	-	0	-									
Pineapple	0	0	-	0	-	0	-	0	-	1	0	-	0	-	0	-	0	-	4	2	-	0	-	0	-	0	-	5	2	-	0	-	0	-	0	-									

Table 22: Distribution of Farm Operators, by Territory and Person Consulted most in Farm Planning.

<i>Person Most Consulted in Farm Planning Decision-Making</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
No-one	48	40.0	45	38.0	11	9.2
Spouse	46	38.3	27	22.5	18	15.0
Other Family Member	10	8.3	9	7.5	1	0.8
Relative	11	9.2	4	3.4	4	3.4
Neighbour	0	0.0	7	5.2	5	4.2
Extension Officer	2	1.7	22	18.3	65	54.0
Agricultural Salesman	0	0.0	4	3.4	0	0.0
Other	1	0.8	2	1.7	14	11.7
No Response	2	1.7	0	0.0	2	1.7

Table 23: Distribution of Farm Operators, by Territory and Opinion Sources for Decision on New Variety/Practice.

<i>Opinion Sources for Innovation Adoption</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Son/Daughter	45	37.5	47	42.3	43	36.7	135	38.8
Spouse	79	66.9	67	65.7	80	68.9	226	67.3
Relative	27	22.5	25	21.4	41	34.2	93	26.0
Neighbour	21	17.5	19	16.4	37	30.8	77	21.6
Extension Officer	47	39.2	36	33.3	80	67.8	163	47.1

NOTE: The computation of percentages is based on number in sample to which the particular factor applies. For example, farm operators with no sons or daughters are not included in computing relative importance of this opinion source.

Table 24: Distribution of Farm Operators, by Territory and Distance from Home to nearest Marketing Depot.

Distance (miles)	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	
	No.	%	No.	%	No.	%	No.	%
< 5	42	35.0	31	25.8	16	13.3	89	24.7
5 - 10 mls.	32	26.6	36	30.0	52	43.3	120	33.3
11 - 20 "	15	12.5	18	15.0	42	35.0	75	20.8
> 20 "	8	6.7	11	9.2	5	4.2	24	6.7
Not ascertained	23	19.2	24	20.0	5	4.2	52	14.5
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 25: Distribution of Farm Operators, by Territory and Suggestions for Improving Marketing System.

Suggestion	ST. VINCENT (n=120)		DOMINICA (n=120)		ST. LUCIA (n=120)		TOTAL (n=360)	
	No.	%	No.	%	No.	%	No.	%
Better Trasnport	15	12.5	37	30.8	26	21.6	78	21.7
Access Roads	59	49.2	40	33.3	35	29.1	134	37.2
Cooperatives	1	0.8	51	42.5	22	18.3	74	20.5
Collection Points	38	31.7	49	40.8	58	48.3	145	40.3
Grading and Standards	5	4.2	8	6.6	9	7.5	22	6.1
Storage	3	2.5	6	5.0	16	13.3	25	7.0

Table 26: Distribution of Farm Operators, by Territory and Information Sources consulted for Technical Problems.

Information Source Consulted	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Neighbour	7	5.8	4	3.3	3	2.5	14	3.9
Good Friend	13	10.8	26	21.7	1	0.8	40	11.1
Relative	15	12.5	4	3.3	1	0.8	20	5.5
Extension Officer	35	29.2	44	36.7	106	88.3	185	51.4
Agricultural Salesman	0	0.0	0	0.0	0	0.0	0	0.0
No-one	44	36.7	26	21.7	5	4.2	75	20.8
Other	4	3.3	16	13.3	4	3.3	24	6.7
Not Ascertained	2	1.7	0	0.0	0	0.0	2	0.6
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 27: Distribution of Farm Operators, by Territory and Information Sources consulted on Improved Practices.

Information Source	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Visit Government Farm	29	21.7	35	29.2	45	37.5	109	30.2
Visit large Estate	30	25.0	42	35.0	43	35.5	115	32.0
Visit Neighbour's Farm	72	60.0	76	63.3	85	70.8	233	64.7
Listen to Radio	100	83.3	91	75.8	105	87.5	296	82.2

Table 28: Distribution of Farm Operators, by Territory, Knowledge of Extension Officer and Frequency of Visits.

<i>Extension Officer</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Is known by farmer	61	50.8	78	65.0	99	82.5	238	66.1
Never Visits Farm	44	36.7	26	21.7	14	11.6	84	23.3
Visits Farm Sometimes	40	33.3	60	50.0	98	81.7	198	55.0

Table 29: Distribution of Farm Operators, by Territory and Kind of Technical Information Required from Radio.

<i>Kind of Information Required</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
How to grow crops	77	61.2	82	68.3	90	75.0	249	69.2
When to Plant	70	58.3	79	65.8	64	53.3	213	59.2
Time of Spraying	59	49.2	34	28.3	42	35.0	135	37.5
Kinds of Subsidies	25	20.8	30	25.0	19	15.8	74	20.5
Available Incentives	32	26.7	38	31.7	33	27.5	103	28.6
Market Prices	69	57.5	67	55.8	39	32.5	175	48.6
How to care animals	43	35.8	54	45.0	44	36.7	131	36.4

Table 30: Distribution of Farm Operators, by Territory and Membership in Groups.

Kind of Group	ST. VINCENT (n=120)		DOMINICA (n=120)		ST. LUCIA (n=120)		TOTAL (n=360)	
	No.	%	No.	%	No.	%	No.	%
Cooperative	6	5.0	38	31.7	21	17.5	65	18.0
Sou-Sou	6	5.0	3	2.5	4	3.3	13	3.6
Church Group	29	24.2	12	10.0	40	33.3	81	22.5
Agricultural Society	2	1.7	11	9.2	7	5.8	20	5.5
Village Council	1	0.8	11	9.2	41	34.2	53	14.7
Outdoor Sports Club	0	0.0	3	2.5	2	1.7	5	1.4
Indoor Sports Club	0	0.0	1	0.8	0	0.0	1	0.3

Table 31: Distribution of Farm Operators, by Territory and Single Most Important Factor in Job Selection.

Most Important Job Selection Criterion	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Good Money	96	80.0	39	32.5	58	48.3	193	53.6
Personal Liking of Job	23	19.2	33	27.5	6	5.0	62	17.2
Good Status	0	0.0	3	2.5	11	9.2	14	4.0
Benefit to Family	0	0.0	30	25.0	34	28.3	64	17.7
Chance to get ahead	0	0.0	12	10.0	5	4.2	17	4.7
Other	0	0.0	3	2.5	5	4.2	8	2.2
Not Ascertained	1	0.8	0	0.0	1	0.8	2	0.6
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 32: Distribution of Farm Operators, by Territory and Type Of Job Preferred for Sons.

<i>Job Preferred for Sons</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Farming	11	13.0	19	17.0	50	45.9	80	26.1
Medicine/Law	7	8.2	22	19.6	14	12.8	43	14.1
Teacher	19	22.3	16	14.3	1	0.9	36	11.8
Other White Collar	3	3.5	2	1.8	4	3.7	9	3.0
Politician	0	0.0	0	0.0	0	0.0	0	0.0
Blue Collar	24	28.2	16	14.3	25	22.9	65	21.2
Other	15	17.5	32	28.5	3	2.7	50	16.3
No Preference	3	2.5	4	3.5	12	11.0	19	6.2
Not Applicable	35*		8*		11*		54*	
Not Ascertained	3	3.5	1	0.9	0	0.0	4	1.3
Total	120		120		120			
	85*	100.0	112*	100.0	109	100.0	306*	100.0

Table 33: Distribution of Farm Operators, by Territory and Kind of Job Preferred for Daughters.

<i>Job Preferred for Daughters</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Farming	1	1.1	0	0.0	3	2.8	4	1.3
Medicine/Law	1	1.1	5	4.6	1	1.0	7	1.9
Teacher/Nurse	58	66.7	67	61.5	57	53.8	182	60.3
Politician	0	0.0	0	0.0	0	0.0	0	0.0
White Collar	12	13.8	3	2.7	24	22.6	39	13.0
Housewife	0	0.0	1	0.9	1	0.9	2	0.6
Other	3	3.4	28	25.7	12	11.3	43	14.2
No Preference	8	9.2	4	3.6	8	7.5	20	6.6
Not Applicable	33*		11*		14*		58*	
Not Ascertained	4	4.6	1	0.9	0	0.0	5	1.7
Total	120		120		120			
	87*	100.0	109*	100.0	106*	100.0	302*	100.0

* Percentage computed excluding operators with no daughters.

Table 34: Distribution of Farm Operators, by Territory and Educational Level Desired for Offspring.

<i>Desired Educational Level</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
University	64	53.3	66	55.0	75	62.5	205	57.0
Secondary	28	23.3	41	34.2	27	22.5	96	26.7
Primary	0	0.0	3	2.5	0	0.0	3	0.8
As far as they can reach	15	12.5	3	2.5	15	12.5	33	9.2
Other	0	0.0	1	0.8	1	0.8	2	0.5
Not Applicable	12	10.0	5	4.2	2	1.7	19	5.3
Not Ascertained	1	0.8	1	0.8	0	0.0	2	0.5
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 35: Distribution of Farm Operators, by Territory and Esteem for Education as Best Security.

<i>Education is Best Security in Life for Offspring</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Agree	116	99.1	87	73.1	83	69.2	286	80.3
Disagree	1	0.9	24	20.2	33	27.5	58	16.3
Undecided	0	0.0	7	5.9	3	2.5	10	2.8
Not Applicable	3*		1*		0	0.0	4*	
Not Ascertained	0	0.0	1	0.8	1	0.8	2	0.6
Total	120		120		120	100.0	360	
	117	100.0	119	100.0	120	100.0	356	100.0

* Percentage computed out of total applicable respondents, i.e. those with no offspring excluded.

Table 36: Distribution of Farm Operators, by Territory and Land Bequethal Plan.

<i>Land Bequethal Plan</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Leave to One Child	2	1.7	5	4.2	29	24.1	36	10.0
Divide Land	111	92.5	111	92.5	89	74.2	311	86.4
Don't Know	1	0.8	1	0.8	0	0.0	2	0.6
Not Applicable	6	5.0	3	2.5	2	1.7	11	3.0
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 37: Distribution of Farm Operators, by Territory and Money Saving Practice.

<i>Money Saving Practice</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Save:								
In Bank	83	69.2	35	29.2	74	61.7	192	53.3
In Co-operative	0	0.0	20	16.6	5	4.2	25	6.9
In Insurance	0	0.0	0	0.0	1	0.8	1	0.4
At home	2	1.6	10	8.3	5	4.2	17	4.7
Other	7	5.8	14	11.7	0	0.0	21	5.8
Don't Save	28	23.4	41	34.2	35	29.1	104	28.9
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 38: Distribution of Farm Operators, by Territory and perceived importance of agriculture versus Law/medicine as a career for sons.

Career considered more Important	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	
	No.	%	No	%	No.	%	No.	%
Law/Medicine	31	29.2	46	40.3	31	27.0	108	32.2
Agriculture	31	29.2	34	29.8	53	46.0	118	35.2
Equally Important	43	40.6	31	27.2	31	27.0	105	31.5
Don't Know	0	0.0	2	1.8	0	0.0	2	0.6
Not Applicable*	14		6		5		25	
Not Ascertained	1	1.0	1	0.9	0	0.0	2	0.6
Total†	120		120		120		360	
	106	100.0	114	100.0	115	100.0	335	100.0

Table 39: Distribution of Farms by Territory and Farm Size.

Farm Size (acres)	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	
	No.	%	No	%	No	%	No	%
1.0 - 1.99	61	50.8	50	41.6	10	8.3	121	33.6
2.0 - 2.99	22	18.3	18	15.0	7	5.8	47	13.1
3.0 - 3.99	11	9.2	29	24.2	8	6.7	48	13.3
4.0 - 4.99	26	21.7	5	4.2	7	5.8	38	10.5
5.0 - 9.99	0	0.0	18	15.0	55	45.8	73	20.3
10.0 - 15.00	0	0.0	0	0.0	33	27.5	33	9.2
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 40: Distribution of Farms by Territory, Parcel Number and Wasteland per Parcel.

ST. VINCENT

Parcel Number	None		< ¼		¼ - ½		+½ - 1		> 1		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	103	85.8	7	5.8	6	5.0	2	1.7	2	1.7	120	100.0
2	34	89.5	1	2.6	1	2.6	2	5.3	0	0.0	38	100.0
3	10	90.9	1	9.1	0	0.0	0	0.0	0	0.0	11	100.0
4	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0
Total	148	87.0	9	5.3	7	4.1	4	2.4	2	1.2	170	100.0

DOMINICA

Parcel Number	None		< ¼		¼ - ½		+½ - 1		> 1		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	83	69.2	4	3.3	16	13.4	6	5.0	10	8.3	1	0.8	120	100.0
2	56	72.7	1	1.3	6	7.8	6	7.8	8	6.6	0	0.0	77	100.0
3	19	61.2	2	6.5	6	19.4	1	3.2	3	9.7	0	0.0	31	100.0
4	5	83.3	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0
Total	163	69.7	8	3.4	28	12.0	13	5.6	21	8.9	1	0.4	234	100.0

ST. LUCIA

Parcel Number	None		< ¼		¼ - ½		+½ - 1		> 1		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	91	75.8	3	2.5	13	10.0	2	1.7	11	9.2	120	100.0
2	55	70.5	4	5.1	7	9.0	3	3.9	9	11.5	78	100.0
3	28	87.5	0	0.0	1	3.1	2	6.3	1	3.1	32	100.0
4	3	100.0	0	0.0	0	0.0	0	0.0	0	0.0	3	100.0
Total	177	76.0	7	3.0	21	9.0	7	3.0	21	9.0	233	100.0

Table 41: Distribution of Farms by Territory, Parcel Number and Tenure System.

ST. VINCENT

Parcel Number	Free-hold		Lease-hold		Annual Rent		Family Land		Share-Cropping		Squatt. Gov't		Squatt. Private		Other		Total		N
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1	57	47.5	0	0.0	24	20.0	11	9.2	11	9.2	0	0.0	0	0.0	17	14.1	120	100.0	82
2	20	52.6	0	0.0	9	23.7	1	2.6	3	7.9	0	0.0	0	0.0	5	13.2	38	100.0	27
3	4	36.4	0	0.0	1	9.1	0	0.0	2	18.1	0	0.0	0	0.0	4	36.4	11	100.0	10
4	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	1
Total	81	47.6	0	0.0	35	20.6	12	7.1	16	9.4	0	0.0	0	0.0	26	15.3	170	100.0	120

DOMINICA

Parcel Number	Free-hold		Lease-hold		Annual Rent		Family Land		Share-Cropping		Squatt. Gov't		Squatt. Private		Other		Total		N
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1	45	37.5	2	1.7	17	14.2	31	25.8	9	7.5	7	5.8	2	1.7	7	5.8	120	100.0	43
2	22	28.5	3	3.9	11	14.3	30	39.0	2	2.6	4	5.2	3	3.9	2	2.6	77	100.0	46
3	6	19.4	0	0.0	7	22.6	10	32.3	3	9.6	3	9.6	0	0.0	2	6.5	31	100.0	25
4	3	50.0	0	0.0	0	0.0	1	33.3	1	33.3	0	0.0	0	0.0	1	33.4	6	100.0	6
Total	76	32.5	5	2.1	35	15.0	72	30.8	15	6.4	14	6.0	5	2.1	12	5.1	234	100.0	120

ST. LUCIA

Parcel Number	Free-hold		Lease-hold		Annual Rent		Family Land		Share-Cropping		Squatt. Gov't		Squatt. Private		Other		Total		N
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1	64	53.4	6	5.0	10	8.3	34	28.3	1	0.8	2	1.7	3	2.5	0	0.0	120	100.0	42
2	36	46.2	3	3.8	6	7.7	25	32.0	0	0.0	5	6.4	1	1.3	2	2.6	78	100.0	46
3	12	37.5	2	6.3	7	21.9	9	28.1	0	0.0	1	3.1	0	0.0	1	3.1	32	100.0	29
4	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	100.0	3
Total	112	48.1	11	4.7	26	11.2	68	29.2	1	0.4	8	3.4	4	1.7	3	1.3	233	100.0	120

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Table 42: Distribution of Farms by Territory, Parcel Number and Distance of Parcel from Home (miles).

ST. VINCENT

Parcel Number	< 1		1 - 3		4 - 6		6 +		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	45	37.5	41	34.2	22	18.3	10	8.3	2	1.7	120	100.0
2	12	31.6	16	42.1	9	23.7	1	2.6	0	0.0	38	100.0
3	2	18.2	4	36.4	4	36.4	0	0.0	1	9.0	11	100.0
4	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	1	100.0
Total	59	34.7	61	35.9	36	21.2	11	6.5	3	1.7	170	100.0

DOMINICA

Parcel Number	< 1		1 - 3		4 - 6		6 +		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	65	54.2	39	32.5	10	8.3	4	3.3	2	1.7	120	100.0
2	36	46.7	28	36.4	6	7.8	5	6.5	2	2.6	77	100.0
3	9	29.0	13	41.9	6	19.4	2	6.5	1	3.2	31	100.0
4	0	0.0	4	66.7	2	33.3	0	0.0	0	0.0	6	100.0
Total	110	47.0	84	35.9	24	10.3	11	4.7	5	2.1	234	100.0

ST. LUCIA

Parcel Number	< 1		1 - 3		4 - 6		6 +		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	83	69.2	19	15.8	8	6.7	8	6.7	2	1.6	120	100.0
2	38	48.7	26	33.3	5	6.4	6	7.7	3	3.9	78	100.0
3	12	37.5	16	50.0	2	6.25	2	6.25	0	0.0	32	100.0
4	2	66.7	1	33.3	0	0.0	0	0.0	0	0.0	3	100.0
Total	135	57.9	62	26.6	15	6.4	16	6.9	5	2.2	233	100.0

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Table 43: Distribution of Farms by Territory, Parcel Number

ST. VINCENT

Parcel Number	Mostly Steep		Undulating		Gradual Slopes		Mostly Flat		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	10	8.3	9	7.5	78	65.0	23	19.2	120	100.0
2	4	10.5	1	2.6	27	71.1	6	15.8	38	100.0
3	2	18.2	0	0.0	9	81.8	0	0.0	11	100.0
4	0	0.0	0	0.0	1	100.0	0	0.0	1	100.0
Total	16	9.4	10	5.9	115	67.6	29	17.1	170	100.0

DOMINICA

Parcel Number	Mostly Steep		Undulating		Gradual Slopes		Mostly Flat		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	8	6.7	21	17.5	54	45.0	37	30.8	0	0.0	120	100.0
2	13	16.9	18	23.4	32	41.5	14	18.2	0	0.0	77	100.0
3	8	25.8	6	19.4	9	29.0	7	22.6	1	3.2	31	100.0
4	1	16.7	3	50.0	0	0.0	2	33.3	0	0.0	6	100.0
Total	30	12.8	48	20.5	95	40.6	60	25.7	1	0.4	234	100.0

ST. LUCIA

Parcel Number	Mostly Steep		Undulating		Gradual Slopes		Mostly Flat		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	30	25.0	31	25.9	34	28.3	25	20.8	120	100.0
2	22	28.2	24	30.8	23	29.5	9	11.5	78	100.0
3	13	40.6	5	15.7	9	28.1	5	15.6	32	100.0
4	0	0.0	2	66.7	1	33.3	0	0.0	3	100.0
Total	65	27.9	62	26.6	67	28.8	39	16.7	233	100.0

Table 44: Distribution of Farms by Territory, Parcel Number and Soil Type.

ST. VINCENT

Parcel Number	S O I L T Y P E									
	HEAVY		LIGHT		BOTH		NO RESPONSE		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	55	45.9	64	53.3	0	0.0	1	0.8	120	100.0
2	19	50.0	17	44.8	1	2.6	1	2.6	38	100.0
3	7	63.6	4	36.4	0	0.0	0	0.0	11	100.0
4	0	0.0	1	100.0	0	0.0	0	0.0	1	100.0
Total	81	47.6	86	50.6	1	0.6	2	1.2	170	100.0

DOMINICA

Parcel Number	S O I L T Y P E									
	HEAVY		LIGHT		BOTH		NO RESPONSE		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	79	65.9	34	28.3	6	5.0	1	0.8	120	100.0
2	44	57.1	29	37.7	2	2.6	2	2.6	77	100.0
3	22	71.0	7	22.6	2	6.4	0	0.0	31	100.0
4	5	83.3	1	16.7	0	0.0	0	0.0	6	100.0
Total	150	64.1	71	30.3	10	4.3	3	1.3	234	100.0

ST. LUCIA

Parcel Number	S O I L T Y P E									
	HEAVY		LIGHT		BOTH		NO RESPONSE		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	77	64.2	23	19.2	17	14.1	3	2.5	120	100.0
2	51	65.4	15	19.2	11	14.1	1	1.3	78	100.0
3	21	65.6	4	12.5	7	21.9	0	0.0	32	100.0
4	2	66.7	1	33.3	0	0.0	0	0.0	3	100.0
Total	151	64.8	43	18.5	35	15.0	4	1.7	233	100.0

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Table 45: *Distribution of Farms by Territory, Parcel Number and Rainfall (ins. p.a.).*

ST. VINCENT

Parcel Number	60 +		40 - 60		< 40		Not Applicable		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	77	64.2	42	35.0	0	0.0	1	0.8	120	100.0
2	20	52.6	17	44.8	0	0.0	1	2.6	38	100.0
3	9	81.8	2	18.2	0	0.0	0	0.0	11	100.0
4	1	100.0	0	0.0	0	0.0	0	0.0	1	100.0
Total	107	62.9	61	35.9	0	0.0	2	1.2	170	100.0

DOMINICA

Parcel Number	60 +		40 - 60		< 40		Not Applicable		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	87	72.5	30	25.0	0	0.0	3	2.5	120	100.0
2	56	72.7	18	23.4	0	0.0	3	3.9	77	100.0
3	22	71.0	9	29.0	0	0.0	0	0.0	31	100.0
4	5	83.3	1	16.7	0	0.0	0	0.0	6	100.0
Total	170	72.6	58	24.8	0	0.0	6	2.6	234	100.0

ST. LUCIA

Parcel Number	60 +		40 - 60		< 40		Not Applicable		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	88	73.3	30	25.0	2	1.7	0	0.0	120	100.0
2	64	82.0	12	15.4	2	2.6	0	0.0	78	100.0
3	29	90.6	3	9.4	0	0.0	0	0.0	32	100.0
4	3	100.0	0	0.0	0	0.0	0	0.0	3	100.0
Total	184	79.0	45	19.3	4	1.7	0	0.0	233	100.0

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Table 46: Distribution of Farms by Territory, Parcel Number and Type of Road to Parcel.

ST. VINCENT

Parcel Number	Home on Parcel		Motorable road		Trail / Foot-path		Unpaved dry weather road		Unpaved year round road		Combinations		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	2	1.7	22	18.3	29	24.2	40	33.3	0	0.0	27	22.5	120	100.0
2	0	0.0	8	21.1	7	18.4	16	42.1	0	0.0	7	18.4	38	100.0
3	0	0.0	1	9.0	3	27.3	4	36.4	0	0.0	3	27.3	11	100.0
4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	1	100.0
Total	2	1.2	31	18.2	39	22.9	60	35.3	0	0.0	38	22.4	170	100.0

DOMINICA

Parcel Number	Home on Parcel		Motorable road		Trail / Foot-path		Unpaved dry weather road		Unpaved year round road		Combinations		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	6	5.0	23	19.2	30	25.0	1	0.8	7	5.8	52	43.4	1	0.8	120	100.0
2	0	0.0	23	29.9	22	28.6	4	5.2	1	1.3	26	33.7	1	1.3	77	100.0
3	0	0.0	5	16.1	13	42.0	0	0.0	0	0.0	11	35.5	2	6.4	31	100.0
4	0	0.0	2	33.3	3	50.0	0	0.0	0	0.0	1	16.7	0	0.0	6	100.0
Total	6	2.6	53	22.6	68	29.1	5	2.1	8	3.4	90	38.5	4	1.7	234	100.0

ST. LUCIA

Parcel Number	Home on Parcel		Motorable road		Trail / Foot-path		Unpaved dry weather road		Unpaved year round road		Combinations		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	13	10.8	38	31.7	26	21.7	1	0.8	1	0.8	41	34.2	0	0.0	120	100.0
2	0	0.0	6	7.6	22	28.2	1	1.3	0	0.0	47	60.3	2	2.6	78	100.0
3	0	0.0	4	12.5	3	9.4	0	0.0	0	0.0	24	75.0	1	3.1	32	100.0
4	0	0.0	1	33.3	0	0.0	0	0.0	0	0.0	22	66.7	0	0.0	3	100.0
Total	13	5.6	49	21.0	51	21.9	2	0.9	1	0.4	114	48.9	3	1.2	233	100.0

Table 47: Distribution of Farms by Territory, Parcel Number and Distance to Market.

ST. VINCENT

Parcel Number	< 1 mile		1 - 3 miles		4 - 6 miles		> 6 miles		Not Ascertained		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	8	6.7	27	22.5	26	21.7	56	46.6	3	2.5	120	100.0
2	1	2.6	4	10.5	11	29.0	21	55.3	1	2.6	38	100.0
3	0	0.0	4	36.4	3	27.2	4	36.4	0	0.0	11	100.0
4	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	1	100.0
Total	9	5.3	35	20.6	40	23.5	82	48.2	4	2.4	170	100.0

DOMINICA

Parcel Number	< 1 mile		1 - 3 miles		4 - 6 miles		> 6 miles		Not Ascertained		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	16	13.3	34	28.3	13	10.8	53	41.2	4	3.3	120	100.0
2	5	6.5	20	26.0	9	11.7	40	52.0	3	3.8	77	100.0
3	2	6.4	6	19.4	6	19.4	16	51.6	1	3.2	31	100.0
4	0	0.0	2	33.3	0	0.0	4	66.7	0	0.0	6	100.0
Total	23	9.8	62	26.5	28	12.0	113	48.3	8	3.4	234	100.0

ST. LUCIA

Parcel Number	< 1 mile		1 - 3 miles		4 - 6 miles		> 6 miles		Not Ascertained		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	10	8.3	12	10.0	23	19.2	73	60.8	2	1.7	120	100.0
2	2	2.5	17	21.8	12	15.4	45	57.7	2	2.6	78	100.0
3	2	6.2	7	21.9	7	21.9	15	46.9	1	3.1	32	100.0
4	0	0.0	0	0.0	0	0.0	3	100.0	0	0.0	3	100.0
Total	14	6.0	36	15.4	42	18.0	136	58.4	5	2.1	233	100.0

Table 48: Distribution of Farms by Territory, Parcel Number and Type of Transport to Market.

ST. VINCENT

Parcel Number	Own Vehicle		Hired Vehicle		Head Personally		Paid Labour Heading		Public Transport		Combinations		Not Ascertained		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	1	0.8	2	1.7	17	14.2	0	0.0	99	82.5	0	0.0	1	0.8	120	100.0
2	1	2.6	0	0.0	3	7.9	0	0.0	34	89.5	0	0.0	0	0.0	38	100.0
3	0	0.0	0	0.0	1	9.1	0	0.0	19	90.9	0	0.0	0	0.0	11	100.0
4	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	1	100.0
Total	2	1.2	2	1.2	21	12.4	0	0.0	144	84.7	0	0.0	1	0.5	170	100.0

DOMINICA

Parcel Number	Own Vehicle		Hired Vehicle		Head Personally		Paid Labour Heading		Public Transport		Combinations		Not Ascertained		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	3	2.5	23	19.1	26	21.6	4	3.3	42	35.0	21	17.5	1	0.8	120	100.0
2	3	3.9	20	26.0	15	19.6	3	3.9	26	33.7	9	11.6	1	1.3	77	100.0
3	1	3.2	2	6.4	10	6.4	2	6.4	12	38.7	4	12.9	0	0.0	31	100.0
4	0	0.0	0	0.0	1	16.7	1	16.7	2	33.3	2	33.3	0	0.0	6	100.0
Total	7	3.0	45	19.2	52	22.2	10	4.3	82	35.0	36	15.4	2	0.9	234	100.0

ST. LUCIA

Parcel Number	Own Vehicle		Hired Vehicle		Head Personally		Paid Labour Heading		Public Transport		Combinations		Not Ascertained		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	9	7.5	4	3.3	5	4.2	3	2.5	14	11.7	85	70.8	0	0.0	120	100.0
2	7	9.0	3	3.8	4	5.1	1	1.2	10	12.8	51	65.4	2	2.6	78	100.0
3	4	12.5	2	6.2	0	0.0	0	0.0	3	9.4	23	71.9	0	0.0	32	100.0
4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	100.0	0	0.0	3	100.0
Total	20	8.5	9	3.9	9	3.9	4	1.7	27	11.6	162	69.5	2	0.9	233	100.0

Table 49: Distribution of Farms by Territory and Number of Hand Tools owned per Farm.

<i>Number of tools owned per farm</i>	<i>ST. VINCENT</i>		<i>DOMINICA</i>		<i>ST. LUCIA</i>		<i>TOTAL</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
None	0	0.0	2	1.6	0	0.0	2	0.6
1 - 5	107	89.2	100	83.4	35	29.2	242	67.3
6 - 10	11	9.2	18	15.0	56	46.7	85	23.6
11 - 15	2	1.6	0	0.0	26	21.6	28	7.7
16 - 20	0	0.0	0	0.0	3	2.5	3	0.8
Total	120	100.0	120	100.0	120	100.0	360	100.0

Table 51(a): Modal Crop Production Practices, St. Vincent

<i>Production Practice</i>		<i>Banana</i>	<i>Plantain</i>	<i>Sweet Potato</i>	<i>Tannia</i>	<i>Dasheen</i>	<i>Yar.</i>	<i>Pigeon Peas</i>	<i>Tomato</i>	<i>Carrot</i>	<i>Ginger</i>
Disposal Mainly for home use											
	Scld										
	Both	X	X	X	X	X	X	X	X	X	X
Intend to plant next year	Yes	X	X	X	X	X	X	X	X	X	X
	No										
	Don't know										
Usual planting month	January										
	February										
	March							X			
	April										
	May				X	X					X
	June			X		X	X	X			
	July										
	August										
	September										
	October										
	November										
	December										
	Year round	X	X								
	Feb. - Apr.										
	May - Jul.								X		
Aug. - Oct.											
Nov. - Jan.									X		

Table 50: Distribution of Farms by Territory, Parcel Number and Number of Long-term and Short-term Crops Cultivated.

ST. VINCENT

Parcel Number	Number of Long-term crops grown per Parcel			Number of Short-term crops grown per Parcel		
	1	2	2+	1	2	2+
1	47	8	0	16	36	63
2	10	0	0	9	14	13
3	3	1	0	3	2	3
4	0	0	0	0	0	1
Total	60	9	0	28	52	80
Percent (n=170)	35.3	5.3	0.0	16.5	30.6	47.1

DOMINICA

Parcel Number	Number of Long-term crops grown per Parcel			Number of Short-term crops grown per Parcel		
	1	2	2+	1	2	2+
1	24	35	52	32	19	32
2	27	25	14	9	19	20
3	13	1	12	7	9	6
4	2	0	3	2	1	1
Total	66	61	81	50	48	59
Percent (n=234)	28.2	26.1	34.6	21.3	20.5	25.2

ST. LUCIA

Parcel Number	Number of Long-term crops grown per Parcel			Number of Short-term crops grown per Parcel		
	1	2	2+	1	2	2+
1	8	7	101	15	12	70
2	9	11	50	12	11	27
3	7	3	18	4	11	10
4	2	0	0	0	0	3
Total	26	21	169	31	34	110
Percent (n=233)	11.2	9.0	52.6	13.3	14.6	47.2

Table 51(a) continued: *Modal Crop Production Practices, St. Vincent*

<i>Production Practice</i>		<i>Banana</i>	<i>Plantain</i>	<i>Sweet Potato</i>	<i>Tannia</i>	<i>Dasheen</i>	<i>Yam</i>	<i>Pigeon Peas</i>	<i>Tomato</i>	<i>Carrot</i>	<i>Ginger</i>
Usual harvesting month	January										
	February				X						
	March										
	April										
	May										
	June										
	July										
	August										
	September										
	October			X							
	November										
	December					X	X				X
	Year round	X	X								
	Feb - Apr.									X	
	May - Jul.										
	Aug. - Oct.										
	Nov. - Jan.								X	X	
Cropping System	Pure Stand	X	X	X				X	X	X	X
	Mixed Stand				X	X	X	X			
	Both										
Variety planted	Improved										
	Local						X				
	Don't know	X	X	X	X	X		X	X	X	X

Table 51(a) continued: Modal Crop Production Practices, St. Vincent

Production Practice		Banana	Plantain	Sweet Potato	Tannia	Dasheen	Yam	Pigeon Peas	Tomato	Carrot	Ginger
How planted	Flat	X	X					X			X
	Mounds				X		X				
	Furrows										
	Ridges			X		X			X	X	
	Beds										
Planting method	Rows	X	X	X	X	X	X	X	X	X	X
	Irregular										
	Both										
Period month(s)*	Highest price	15	13	13	14	14	14	11	17	13	13
	Lowest price	17			17	17	17	1	14		

* 13 - Year round
14 - Feb. - April

15 - May - July
16 - Aug. - October.

17 - Nov. - January

Table 51(b): Modal Crop Production Practices, Dominica

Production Practice		Banana	Plantain	Dasheen	Tannia	Yam	Sweet potato	Cassava	Coconut	Citrus	Cocoa	Coffee	Bay	Breadfruit
Disposal	Mainly for Home use			X	X	X						X		X
	Sold												X	
	Both	X	X				X	X	X	X	X			
Intend to plant next year	Yes	X	X	X	X	X	X	X						
	No								X	X	X	X	X	X
	Don't know													
Usual planting month	January													
	February													
	March													
	April													
	May													
	June													
	July													
	August													
	September													
	October													
	November													
	December													
	Year round	X	X	X						X				
Feb. - Apr.				X		X								
May - Jul.					X	X	X			X	X	X		
Aug. - Oct.													X	
Nov. - Jan.														

Table 51(b) continued: Modal Crop Production Practices, Dominica.

Production Practice		Banana	Plantain	Dasheen	Tannia	Yam	Sweet potato	Cassava	Coconut	Citrus	Cocoa	Coffee	Bay	Breadfruit
Usual Harvesting month	January													
	February													
	March													
	April													
	May													
	June													
	July													
	August													
	September													
	October													
	November													
	December													
	Year round	X	X	X	X				X					
	Feb. - Apr.							X						
May - Jul.														
Aug. - Oct.						X			X				X	
Nov. - Jan.					X					X	X	X		
Cropping System	Pure Stand						X	X						
	Mixed Stand	X	X	X	X	X			X	X	X	X	X	X
	Both													
Variety planted	Improved	X					X			X		X		
	Local		X	X	X	X		X	X		X	X	X	X
	Don't know													

Table 51(b) continued: Modal Crop Production Practices, Dominica.

Production Practice		Banana	Plantain	Dasheen	Tannia	Yam	Sweet potato	Cassava	Coconut	Citrus	Cocoa	Coffee	Bay	Breadfruit
How planted	Flat	X	X	X					X		X	X	X	X
	Mounds				X	X		X		X				
	Furrows													
	Ridges						X							
	Beds													
Planting method	Rows	X	X	X	X	X	X	X	X	X	X	X	X	
	Irregular													X
	Both													
Period month(s)	Highest price	5	17	16	16	11/12	11/12	13	13	14	13	15	13	n.a.
	Lowest price	17	15	14	14	1	1			17		17/14		n.a.

* 13 - Year round

15 - May - July

17 - Nov. - January

14 - Feb. - April

16 - Augus. - October

n.a. = not ascertained.

Table 51(c): Modal Crop Production Practices, Saint Lucia.

Production Practice		Banana	Plantain	Yam	Dasheen	Tannia	Coconut	Breadfruit	Citrus	Mango	Cocoa	Avocado	Coffee
Disposal	Mainly for home use												X
	"												
	Sold												
	Both	X	X	X	X	X	X	X	X	X	X	X	X
Intend to plant next year	Yes	X	X	X	X	X	X		X	X	X	X	X
	No							X					
	Don't know												
Usual planting month	January												
	February												
	March												
	April												
	May												
	June												
	July												
	August												
	September												
	October												
	November												
	December												
	Year round		X					X					
	Feb. - Apr.												
May - Jul.	X	X	X	X	X		X	X	X	X	X	X	
Aug. - Oct.													
Nov. - Jan.													

Table 51(c) continued: *Modal Crop Production Practices, Saint Lucia.*

<i>Production Practice</i>		<i>Banana</i>	<i>Plantain</i>	<i>Yam</i>	<i>Dasheen</i>	<i>Tannia</i>	<i>Coconut</i>	<i>Breadfruit</i>	<i>Citrus</i>	<i>Mango</i>	<i>Cocoa</i>	<i>Avocado</i>	<i>Coffee</i>
Usual harvesting month	January												
	February												
	March												
	April												
	May												
	June												
	July												
	August												
	September												
	October												
	November												
	December												
	Year round	X	X			X	X						
	Feb Apr.												
	May Jul												
Aug Oct.							X		X		X		
Nov Jan.			X	X				X		X		X	
Cropping system	Pure stand												
	Mixed stand	X	X	X	X	X	X	X	X	X	X	X	X
	Both												
Variety planted	Improved	X							X				
	Local		X	X	X	X	X	X		X	X	X	X
	Don't know												

Table 51(c) continued: Modal Crop Production Practices, Saint Lucia

Production Practice		Banana	Plantain	Yam	Dasheen	Tannia	Coconut	Breadfruit	Citrus	Mango	Cocoa	Avocado	Coffee
How planted	Flat	X	X		X	X	X	X		X	X	X	X
	Mounds			X					X		X		
	Furrows												
	Ridges												
	Beds												
Planting method ¹	Rows	X	X	X	X	X	X						
	Irregular						X	X	X	X	X	X	X
	Both												
Period month(s) *	Highest price	16	17	17	17	13	13	15	11/12	5	1 1/2	8	13
	Lowest price	17	16	14	14			16	1	7/8		10	

13 - Year round
14 - Feb. - April

15 - May - July
16 - Aug. - October

17 - Nov. - January

Table 52: Distribution of Farms by Island, Parcel Number and Type of Livestock Reared.

ST. VINCENT

Parcel Number	Type of Livestock Reared									
	None		Cattle		Pigs		Sheep/Goats		Rabbit	
	No.	%	No.	%	No.	%	No.	%	No.	%
1 (n=120)	70	58.3	28	23.3	6	5.0	24	20.0	0	0.0
2 (n= 38)	29	76.3	5	4.2	0	0.0	6	15.8	0	0.0
3 (n= 11)	9	81.8	1	9.1	0	0.0	1	9.1	0	0.0
4 (n= 1)	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	109	64.2	34	20.0	6	3.5	31	18.2	0	0.0

DOMINICA

Parcel Number	Type of Livestock Reared									
	None		Cattle		Pigs		Sheep/Goats		Rabbits	
	No.	%	No.	%	No.	%	No.	%	No.	%
1 (n=120)	86	71.7	13	10.8	7	5.8	22	18.3	4	3.3
2 (n= 77)	63	81.8	11	14.3	2	2.6	6	7.8	0	0.0
3 (n= 31)	26	83.9	4	12.9	0	0.0	1	3.2	1	3.2
4 (n= 6)	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	181	77.4	28	12.0	9	3.8	29	12.4	5	2.1

ST. LUCIA

Parcel Number	Type of Livestock Reared									
	None		Cattle		Pigs		Sheep/Goats		Rabbits.	
	No.	%	No.	%	No.	%	No.	%	No.	%
1 (n=120)	58	48.3	30	25.0	38	31.7	28	23.3	7	5.8
2 (n= 78)	59	75.6	16	20.5	6	7.7	5	6.4	1	1.3
3 (n= 32)	28	87.5	3	9.4	3	9.4	1	3.1	1	3.1
4 (n= 3)	2	66.7	1	33.3	0	0.0	0	0.0	0	0.0
Total	147	63.1	50	21.5	47	20.2	34	14.6	9	3.9

NOTE: More than one type of livestock may be kept on the same parcel.

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Table 53: Distribution of Farms by Island, Parcel Number and Type of Poultry Reared.

ST. VINCENT

Parcel Number	Type of Poultry Reared											
	None		Broilers		Layers		Ducks		Turkey & Geese		Broilers & Layers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1 (n=120)	119	99.2	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0
2 (n= 38)	38	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3 (n= 11)	11	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4 (n= 1)	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	169	99.7	0	0.0	0	0.0	1	0.6	0	0.0	0	0.0

DOMINICA

Parcel Number	Type of Poultry Reared											
	None		Broilers		Layers		Ducks		Turkey & Geese		Broilers & Layers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1 (n=120)	107	89.1	13	10.8	0	0.0	0	0.0	0	0.0	0	0.0
2 (n= 77)	75	97.4	2	2.6	0	0.0	0	0.0	0	0.0	0	0.0
3 (n= 31)	30	96.7	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0
4 (n= 6)	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	218	93.2	15	6.4	0	0.0	0	0.0	1	0.4	0	0.0

ST. LUCIA

Parcel Number	Type of Poultry Reared											
	None		Broilers		Layers		Ducks		Turkey & Geese		Broilers & Layers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1 (n=120)	100	83.3	8	6.7	0	0.0	0	0.0	6	5.0	6	5.0
2 (n= 78)	77	98.7	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3
3 (n= 32)	30	93.8	2	6.2	0	0.0	0	0.0	0	0.0	0	0.0
4 (n= 3)	3	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	210	90.1	10	4.3	0	0.0	0	0.0	6	2.6	7	3.0

Table 54(a) Relationship of some independent variables with Farm Income, St. Vincent.

Independent Variables	Number of Farms with Income of		Chi Square Value	P
	\$0 - \$2500	> \$2500		
1. Sex: Male Female	68 31	14 5	0.03	.90
2. Farm Size: 1 - 3 acres 3.1 - 5 "	74 25	7 12	10.64	.01
3. Number of farm parcels: 1 More than 1	67 32	12 7	0.147	.80
4. Age: 39 and under 40 years plus	21 78	9 10	4.46	.05
5. Household size: Less than 5 5 - 9 10 +	32 50 17	3 16 0	7.91	.02
6. Number of Dependents: Less than 5 5 +	62 37	12 7	0.05	.90
7. Persons consulted in farm planning (a) No one consulted Some one consulted (b) Spouse consulted Some other person consulted	39 60 40 20	8 9 5 4	.11 .08	.80 .90
8. Organisation membership index Less than 2 2 - 5	81 18	17 2	.23	.70
9. Tenure: Freehold Other	44 55	12 7	1.55	.30
10. Distance of first parcel from home: Less than 1 mile 1 mile plus	36 63	7 12	.05	.90
11. Major crop on farm, (by acreage) (a) Banana Other crop (b) Sweet potato Other crop (c) Tannia Other crop (d) Carrot Other crop	19 80 28 71 17 82 10 89	8 11 2 17 4 15 2 17	3.53 4.16 .01 .13	.10 .05 .98 .80
12. Information source consulted for technical information (a) No source consulted Some source consulted (b) Extension officer consulted Some other source consulted	42 55 23 32	1 18 11 7	8.29 1.33	.01 .30
13. Rainfall: Up to 60 " p.a. More than 60 " p.a.	39 59	3 16	3.01	.01

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Table 54(b): Relationship of some independent variables with Farm Income, Dominica.

Independent Variables	Number of Farms with Income of		Chi Square Value	P
	\$0 - \$2500	> \$2500		
1. Sex: Male Female	81 21	15 1	0.75	.50
2. Farm Size: 1 3 acres 3 1 5 "	74 17	7 20	27.17	.001
3. Number of farm parcels: 1 More than 1	36 66	5 11	0.001	.95
4. Age: 39 and under 40 years plus	18 84	6 10	2.25	.20
5. Household size: Less than 5 5 - 9 10 +	40 44 18	2 13 1	8.05	.02
6. Number of dependents: Less than 5 5 +	60 42	6 10	1.76	.20
7. Persons consulted in farm planning:				
(a) No one consulted	40	5	.11	.80
Some one consulted	62	11		
(b) Spouse consulted	23	3	0.08	.90
Some other person consulted	39	8		
8. Organisation Membership index: Less than 2 2 - 5	59 43	8 8	.10	.80
9. Tenure: Freehold Other	39 63	5 11	.07	.90
10. Distance of first parcel from home: Less than 1 mile 1 mile plus	58 44	6 10	1.38	.30
11. Major crop on farm, (by acreage)				
(a) Banana	52	9	.02	.95
Other crop	50	7		
(b) Coconuts	9	0	.52	.50
Other crop	94	16		
(c) Bay	8	1	.09	.90
Other crop	95	15		
(d) Citrus	7	0	.25	.70
Other crop	96	16		
(e) Dasheen	9	0	.52	.50
Other crop	94	16		
(f) Sweet potato	3	3	4.32	.05
Other crop	100	13		
12. Information source consulted for technical information				
(a) No source consulted	23	2	.342	.90
Some source consulted	79	14		
(b) Extension officer consulted	31	12	8.547	.01
Some other source consulted	48	2		
13. Rainfall: Up to 60" p a More than 60" p a	25 74	5 11	.065	.90

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Table 54(c): Relationship of some independent variables with annual farm income, Saint Lucia.

Independent Variables	Low < \$2,500		Medium \$2,500-\$10,000		High > \$10,000		Total	
	No.	%	No.	%	No.	%	No.	%
1. Sex								
Male	19	16.4	71	61.2	20	17.2	110	94.8
Female	2	1.7	3	2.6	1	0.9	6	5.2
Total	21	18.1	74	63.8	21	18.1	116	100.0
2. Farm Size								
.1 - 5	11	35.5	19	61.3	1	3.2	31	100.0
5.1 - 10	8	15.1	38	71.7	7	13.2	53	100.0
10.1 - 15	2	6.3	17	53.1	13	40.6	32	100.0
3. Number of Parcels								
1	8	20.0	25	62.5	7	17.5	40	100.0
> 1	13	17.1	49	64.5	14	18.4	76	100.0
4. Age (years)								
39 and under	9	28.1	21	65.6	2	6.3	32	100.0
40 +	12	14.3	53	63.1	19	22.6	84	100.0
5. Household Size								
< 5	5	20.0	15	60.0	5	20.0	25	100.0
5 - 9	12	20.0	39	65.0	9	15.0	60	100.0
10 +	4	12.9	20	64.5	7	22.6	31	100.0

Table 54(c) continued: Relationship of some independent variables with annual farm income, Saint Lucia.

Independent Variables	Low \$2,500		Medium \$2,500-\$10,000		High \$10,000		Total	
	No.	%	No.	%	No.	%	No.	%
6. Number of Dependents								
0 - 5	10	23.8	27	64.3	5	11.9	42	100.0
> 5	11	14.9	47	63.5	16	21.6	74	100.0
7. Persons contacted in farm planning								
No one	1	11.1	8	88.9	0	0.0	9	100.0
Extension Officer	8	12.3	41	63.1	16	24.6	65	100.0
Spouse	5	29.4	11	64.7	1	5.9	17	100.0
Others	7	28.0	14	56.0	4	16.0	25	100.0
8. Organisation membership index								
< 2	13	20.6	44	69.9	6	9.5	63	100.0
2 - 5	8	15.1	30	56.6	15	28.3	53	100.0
9. Tenure								
Freehold	9	14.3	38	60.3	16	25.4	63	100.0
Others	12	22.6	36	67.9	5	9.5	53	100.0
10. Distance of first parcel from home								
< 1 mile	13	16.3	56	70.0	11	13.7	80	100.0
> 1 mile	8	22.2	18	50.0	10	27.8	36	100.0
11. Major crop on farm								
(a) Bananas	8	11.4	49	70.0	13	18.6	70	100.0
Other crops	13	28.3	25	54.3	8	17.4	46	100.0

Table 54(c) continued: Relationship of some independent variables with annual farm income, Saint Lucia.

<i>Independent Variables</i>	<i>Low \$2,500</i>		<i>Medium \$2,500-\$10,000</i>		<i>High \$10,000</i>		<i>Total</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
11. Major crop on farm (cont'd)								
(b) Coconuts	6	25.0	14	58.3	4	16.7	24	100.0
Others	15	16.3	60	65.2	17	18.5	92	100.0
12. Information source consulted for Technical Information								
None	0	0.0	4	100.0	0	00.0	4	100.0
Extension Officer	16	15.5	66	64.0	21	20.5	103	100.0
Others	5	55.5	4	44.5	9	0.0	9	100.0
13. Rainfall								
< 40"	0	0.0	0	0.0	1	100.0	1	100.0
40 - 60"	10	34.5	18	62.1	1	3.4	29	100.0
> 60"	11	12.8	56	65.1	9	22.1	86	100.0

Table 55: Distribution of Farm Operators, by Territory and Major Felt Needs.

Kind of Need	ST. VINCENT		DOMINICA		ST. LUCIA		Total Respondents (n=360)	
	No.	%	No.	%	No.	%	No.	%
Roads	81	67.5	51	42.5	65	54.2	197	54.7
Water	27	22.5	35	29.2	46	38.3	108	30.0
Electricity	22	18.3	37	30.8	29	24.2	88	24.4
Hospital/Health Care	3	2.5	26	21.7	19	15.8	48	13.3
Community Facilities (Cemetery, Toilets, etc.)	2	1.6	17	14.	27	22.5	46	12.8
Schools/Education	12	10.0	16	13.3	16	13.3	44	12.2
Recreational Facilities	12	10.0	12	10.0	18	15.0	42	11.7
Telephone/Post Office	0	0.0	0	0.0	31	25.8	31	8.6
Improved Community Spirit	3	2.5	7	5.8	13	10.8	23	6.4
Transport Facilities	4	3.3	4	3.3	4	3.3	12	3.3

Table 56: Distribution of Farm Operators, by Territory, Major Needs and Suggested Solutions.

Suggested action for solving problem	R O A D S						W A T E R						E L E C T R I C I T Y						H O S P I T A L					
	St. Vincent		Dominica		St. Lucia		St. Vincent		Dominica		St. Lucia		St. Vincent		Dominica		St. Lucia		St. Vincent		Dominica		St. Lucia	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Individual Action	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Small Group Action	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	.8	0	0.0
Community Action	1	.83	11	9.2	0	0.0	0	0.0	0	0.0	1	0.8	1	.8	0	0.0	0	0.0	0	0.0	3	2.5	0	0.0
Government Action	78	65.0	46	38.3	64	53.3	26	21.7	34	28.3	45	37.5	19	15.8	36	30.0	29	24.2	3	2.5	21	17.5	19	15.8
Other Action	1	.83	5	4.2	1	.8	0	.8	1	.8	1	.8	1	.8	1	.8	0	0.0	0	0.0	1	0.8	0	0.0
No suggestion	1	.83	0	0.0	0	0.0	1	.8	0	0.0	0	0.0	1	.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Not a felt need	39	32.5	58	48.3	55	45.8	93	77.5	85	70.8	73	60.8	98	81.7	83	69.2	91	75.8	117	97.5	94	78.3	101	84.2
Total	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0	120	100.0

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Table 57: Distribution of Farm Operators by Territory and Major Agricultural Needs Indicated

Kind of Need	ST. VINCENT		DOMINICA		ST. LUCIA		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Easy Availability of Agricultural Inputs	0	0.0	1	0.8	1	0.8	2	0.6
Improved Marketing Systems	6	5.0	16	13.3	6	5.0	28	7.8
Improved Credit Facilities	4	3.3	8	6.7	1	0.8	13	3.6
More land for farming	7	5.8	2	1.7	3	2.5	12	3.3
More employment opportunities	24	20.0	18	15.0	23	19.2	65	18.1