

PD-111-001
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**Selected Issues
in the Production
and Marketing of
Coffee in Haiti**

Prepared for the U.S. Agency for International
Development under contract number PDC-0000-I-21-3078-00

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May 1985



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EXECUTIVE SUMMARY

Since the early 1970s, the U.S. Agency for International Development has actively supported coffee production and marketing in Haiti by implementing two major projects, the Small Farmer Improvement Project (1974-1981) and the Small Farmer Marketing Project (1977-present). A third project is envisaged that will include both coffee production and marketing activities, in conjunction with soil conservation programs.

The project is based on three assumptions, however, and it is not clear that these assumptions are valid. The first is that economic incentives exist for farmers to increase coffee production. This assumption has been called into question since food-crop prices have risen substantially relative to coffee prices in recent years. The second assumption is that the private coffee market is characterized by a lack of competition and exorbitant profiteering. This assumption has been refuted by a recent study claiming that the sector is generally competitive and operates efficiently, and that coffee cooperatives cannot offer their members better prices than can the private sector (Capital Consult, 1983). The third assumption, closely related to the second one, is that coffee cooperatives provide real economic benefits to their members. The objectives of this study are to examine these three assumptions and to make recommendations concerning future AID interventions in the coffee sector.

PRINCIPAL CONCLUSIONS AND RECOMMENDATIONS

Farming Systems Overview

A primary tenet of this report is that interventions aimed at improving smallholder coffee production and marketing must be viewed in the context of the smallholder's overall farming system. Therefore, an informal survey of farmers in two areas of Haiti, Jacmel and St. Louis du Nord, was conducted to understand the principal aspects of the farming system and coffee's role in it.

Most farmers in the two study areas have farms of less than 2 carreau (2.6 hectares), and their principal objective is to provide their families with a steady flow of food staples throughout the year. Other important objectives include providing cash for purchasing basic necessities and maintaining liquid assets on the farm, such as livestock, to meet emergency cash needs.

Several elements of farmers' management strategies reflect these objectives. First, farmers are risk-averse; changes are adopted only after the farmer is sure that the change will benefit the household. Second, farm households diversify to hedge against risk and to take advantage of the different ecological niches in which they operate. Third, farmers have multiple objectives: they evaluate opportunities using many different criteria, not just one criterion such as profit. Thus, a farmer may have over 20 crop, livestock, and off-farm enterprises, 5 or 6 of which require substantial labor and land inputs, even though only one of these enterprises is, in a financial sense, the most profitable.

Principal farm-level constraints involve land and capital. Land tenure is insecure; this presents a strong disincentive to adopting soil conservation practices or using improved inputs. Farm size is an important constraint and is decreasing as the rural population increases. Cash is extremely scarce, especially during the hungry period preceding the harvest season, when farmers borrow money from rural traders (speculateurs).

Farming systems are changing rapidly in the two study areas, and most changes are for the worse. The natural resource base is eroding quickly as the cultivated area extends onto fields of greater slope and lower fertility. Nearly all of this increased area is planted to annual field crops, thus exacerbating soil erosion problems. The area planted to coffee is gradually decreasing as a result of declining prices relative to foodcrops. Only in the context of an understanding of farmers' objectives, management strategies, and constraints faced may coffee's role in the farming system be assessed.

Coffee's Role in the Farming System

Although coffee area and production in Haiti appear to be gradually declining, coffee remains an important cash source for most farmers in the humid mountain zone. However, cash inputs are not commonly used on coffee, primarily because technologies for improving coffee production in Haiti that are appropriate for small farmer circumstances do not exist.

For the farmers, the most important advantage to growing coffee is in providing security, since only coffee farmers are able to obtain loans from speculateurs. Furthermore, coffee is an important cash source for the family and is especially advantageous because it can be stored without fear of spoiling. It also provides cash to the household at a time when cash from other sources is scarce. Moreover, coffee's principal labor requirements, at harvest, take place when most other cropping activities are at a standstill. Coffee is also appreciated because it bears fruit in drought years, when field crops may fail altogether, and because of its role as a beverage.

On the negative side, coffee's low price and thus low profitability are the most frequently cited disadvantages of growing coffee. The cost of establishing a new coffee plantation is high, and the time required before coffee bears fruit is long. However, establishment costs within an existing plantation are minor, since shade trees are already in place.

Interestingly, coffee's important role as a soil conservation practice was not mentioned by any of the farmers visited. Farmers are aware of soil erosion and understand that yields are declining as a result of increased erosion. However, the farmers place a high discount value on future yields, that is, they are more concerned with eating today than eating tomorrow. Furthermore, they do not see any economic advantage to maintaining tree crop plantations only to conserve their soil.

A financial analysis of costs of and returns to an intercropped hectare of coffee and an intercropped hectare of maize and beans, coffee's principal competitor, shows returns to maize and beans to be approximately 60 percent higher on an annual basis. It is important to note, however, that the humid mountain zone is extremely heterogenous in both agroecological and socioeconomic aspects, and thus profitability is likely to vary considerably from by area.

An economic analysis, which shows costs and returns from society's perspective, yields very different results. Coffee is undervalued, because of the heavy coffee tax and because foreign exchange earned by exporting coffee is undervalued. Moreover, maize is overvalued, since imports are restricted and the foreign exchange used to import maize is overvalued. Thus, from society's perspective, coffee is about 20 percent more profitable than maize and beans. Furthermore, this analysis underestimates the value of coffee relative to maize and beans because it does not value coffee's soil-conserving qualities. Unfortunately, no data are available for making such a valuation.

Five suggestions for AID support of the coffee sector emerge from the analysis:

1. AID should continue supporting coffee production and marketing in Haiti.

Coffee is one of the most widely grown crops; efforts to increase production and improve marketing can therefore benefit large numbers of farmers. Although financially less profitable than certain other foodcrops, coffee is important to farmers for other reasons, particularly in providing access to credit. Moreover, coffee is as profitable or more profitable than other foodcrops when policy distortions, such as the coffee tax and food import restrictions, are taken into account. Removing these policy distortions should also be an important component of AID policy.

2. Land tenure issues must be addressed.

Land tenure is probably the most important constraint on agricultural development in the humid mountain zone of Haiti. There are two principal problems: first, many farmers do not have access to sufficient land to earn a living; second, where farmers have access to land through inheritance, renting, or sharecropping, they have no security in tenure. There is therefore no incentive to make land improvements or plant tree crops. Efforts to increase coffee production or disseminate soil conservation practices will be severely constrained if land tenure problems are not addressed simultaneously.

3. A farming systems approach to technology development and dissemination should be adopted.

Increased extension efforts are not likely to result in any significant increase in coffee production. Rather, adaptive research is needed to develop technologies that are tailored to particular sites and to the particular needs of Haitian small farmers. AID should support improved coffee production by helping to develop, test, and extend improved coffee technologies adapted to small farmer circumstances, following an approach similar to, or working with, AID's Agricultural Development Support II farming systems project. In this project, interdisciplinary teams of researchers and extension agents conduct farmer surveys and on-farm experiments to develop new technologies and to tailor these technologies to farmers' needs and circumstances.

4. Areas for intervention must be carefully selected.

The humid mountain zone of Haiti is extremely heterogenous; interventions in coffee production should be targeted at those areas where chances for success are highest. This means selecting areas where both agroecological and socioeconomic circumstances are conducive to increasing coffee production.

5. Coffee improvement should be integrated into broader measures for promoting soil conservation.

Coffee has important soil-conserving characteristics; therefore, it should play an important role in efforts to introduce soil-conserving measures and packages to small farmers. However, unless these new technological packages are profitable for farmers in the short run and are consistent with their objectives and priorities, they will not be adopted. Thus, it is not likely that farmers will implement soil conservation practices on land to which they have no title. Nor is it likely that farmers will implement practices that conserve the soil but do not provide the farmers with an adequate short-term return on their investment.

Competitiveness of the Coffee-Marketing Sector

Girault (1982) argues that the coffee market is tightly controlled by the exporters and speculators, who fix prices, allocate quotas, and earn exorbitant profits. However, an analysis of the Haitian coffee market indicates that, although the number of exporters is relatively small and concentrated, there is no evidence that they collude to fix prices and allocate quotas. The principal evidence is from Capital Consult (1983), which demonstrates that the market is characterized by considerable entry and exit as well as rapidly changing market shares. These factors negate the assumption of a tightly controlled, non-competitive market. Lundahl (1983) refutes Girault's findings at the speculator level: although exploitation likely exists in certain areas and circumstances, the sheer number of speculators makes it unlikely that they collude on prices. Moreover, the high interest rates offered by speculators to farmers reflect the high costs and risks of lending to small farmers, not the market power of speculators.

The lack of formal working agreements among exporters does not exclude the possibility that prices paid to farmers are lower than would occur if there were more competition in the industry. In individual markets in which a few firms control most of the coffee purchased, it is likely that some degree of tacit oligopsonistic behavior results in farmers receiving prices lower than they would were there more competition. Moreover, much of the competition among exporters is probably unfair competition, in which individual exporters are able to gain advantage over their competitors by paying less taxes or accumulating more export stamps from the Haitian government.

The AID Small Farmer Marketing Project was launched on the assumption that the coffee market was controlled by exporters who underpaid farmers and that cooperatives could offer farmers higher prices. Capital Consult, in arguing that the market operates competitively and efficiently, claims that cooperatives cannot offer farmers a higher return on their coffee than do speculators. However, even if the coffee export market operates efficiently and competitively, cooperatives still have the potential to pay their members higher prices than they receive from speculators and exporters. This is true because cooperatives can reap the profits now earned by these groups and transfer them back to their members in the form of higher prices and patronage refunds. The average rate of return to capital in Haitian industry is about 30 percent per year; thus, profits transferred to the cooperatives could be significant.

Two conclusions emerge from the above analysis concerning AID policy:

- Coffee cooperatives have the potential to pay farmers higher prices for coffee than does the private sector, whether or not one believes that the coffee market is competitive.
- The system of allocating export stamps and paying coffee taxes should be made more transparent to prevent abuses. AID should work with the Office of Promotion of Exportable Commodities (OPRODEX) to develop specific measures for monitoring the collection of taxes and the distribution of export stamps.

Cooperative Economic Performance

The ability of the cooperatives to offer their members real economic benefits was examined by preparing detailed income statements for selected cooperatives. Evaluating the cooperatives' economic performance is a straightforward issue; since cooperatives offer the same prices for coffee as do speculators, the question is do cooperatives earn profits and do these profits reach the farmer. Costs and returns data from six cooperatives, three of which were examined by Development Alternatives, Inc. (1984), show that all six earned profits, averaging 19,001 gourdes (gds.), ranging from 1 to 20 percent of the initial coffee price paid to farmers. About 62 percent of the profits were returned directly to farmers in patronage refunds, and 38 percent were retained by the cooperatives for investment purposes. However, only three of the six cooperatives offered patronage refunds to their members. Even if the subsidies allocated to cooperatives are costed, the results are still positive. Three of the six had operating profits and average earnings for all six were 9,560 gds.

The data thus indicate that many cooperatives offer their members higher economic benefits than they would receive by selling their coffee to speculators. However, performance is mixed. The two principal constraints identified to improving cooperative performance are social constraints and poor financial management.

Social circumstances in Haiti make it extremely difficult for the rural rich and poor to work together effectively in a single cooperative. The rural poor are extremely bitter and candid in expressing their views on the rural elite. In many cases, the cooperative is viewed by the small farmer as simply an extension of the power of the rural elite to yet another facet of the farmer's life. The primary reason that most cooperatives have come under the control of rural elites is that no special efforts were made to help small farmers organize cooperatives.

Poor financial management has two facets. First, cooperative records are disorganized and incomplete; thus, it is difficult for members and officers to inspect records. More important, information is not available for making effective management decisions. Only one of four cooperatives had drawn up a balance sheet and income statement for either of the two previous years; some of the cooperatives had several enterprises but no idea about the relative profitability of each.

The economic performance of two institutions supporting coffee cooperatives, the Union of Haitian Coffee Cooperatives (CCH) and the Pilot Center for Cooperative Coffee Exporting (CEPEC) was also examined. CCH administers a revolving credit program for cooperatives and supervises eight regional monitors who provide technical assistance to cooperatives. For 1983-1984, 19 of 23 loans had been repaid, accounting for 87 percent of funds disbursed. Records were extremely disorganized, however, and principal problems included irregular loan procedures, unpaid interest, and the fact that poor performance in managing a loan was sometimes rewarded by granting a larger loan.

The performance of the CCH monitors was also found to be weak in the two areas visited. Monitors assist cooperatives to improve their record keeping; however, little is done to assist cooperative officers in using the information to manage their cooperatives better. Moreover, supervision is inadequate, mostly as a result of understaffing at the central office.

CEPEC purchases coffee from cooperatives at approximately the same prices paid by exporters to speculators. CEPEC then sells coffee directly overseas. Thus, CEPEC performance can be compared with that of an exporter in the same manner that cooperative performance can be compared with that of a speculator.

In 1983-1984, CEPEC had an operating deficit of 796,931 gds., compared with a reported profit of 703,567 gds. the previous year. With subsidies costed, CEPEC losses amounted to 1,332,579 gds. in 1983-1984. Principal reasons for the decline in performance were a contraction in margin between buying and selling price over the two years and the loss of approximately 80,000 lbs. of coffee over normal sorting and moisture losses, allegedly a result of incorrect scales.

CEPEC plans to move into a new processing facility being constructed with AID funds. However, no feasibility study is available concerning the profitability of the new plant or the suitability of the scale or equipment.

The following conclusions may be drawn concerning AID support for the cooperative movement:

1. AID should continue supporting the cooperative movement through provision of assistance to CCH.

Many cooperatives offer their members higher economic benefits than they would receive by selling their coffee to speculators, even when subsidies are costed. In spite of CCH's weak performance thus far, it has a great potential for providing technical assistance to cooperatives. Primary emphasis should be on improving CCH's two primary functions, training and supervising regional monitors, and providing credit to cooperatives; new functions should be avoided.

2. CCH requires a full-time operations director to supervise and train the regional monitors.

Training should focus on two areas. First, methods must be adopted and disseminated for assisting small farmers to form and lead cooperatives. Second, on-site training is required to assist monitors to train cooperative officers in improving financial management and using records for effective decision making.

3. CEPEC should adopt an effective inventory control system to curtail losses in coffee.

Recent losses should be investigated to determine the causes and prevent recurrence. An improved two-way communication system should be established between CCH and CEPEC to exchange information on prices, stock levels, and planned delivery of coffee to the processing plant. Finally, a feasibility study for the operation of the new coffee plant should be conducted immediately.

CHAPTER ONE

INTRODUCTION

The United States Agency for International Development has funded two important projects in the Haitian coffee sector in recent years, the Small Farmer Improvement Project (PPC), 1974-1981, and the Small Farmer Marketing Project (PCC), 1977-present. Although both projects focused on increasing small farmer incomes, PPC failed, whereas PCC, which emphasized cooperative development, has had some success.

The principal problems in PPC were that the coffee technological package extended to small farmers was inappropriate; the local organizations created to receive inputs and credit were ineffective; and the coordination of the project through multiple, fragmented government agencies was impracticable. PCC, in contrast, has achieved some of its objectives, particularly the strengthening of the coffee cooperative movement. Cooperatives have increased in number, membership, and coffee sales, and many are economically viable. In many areas, cooperatives have competed effectively with private traders and exporters. Moreover, government agencies, particularly the Office of Promotion of Exportable Commodities (OPRODEX), have carried out their project responsibilities effectively (Development Alternatives, Inc. [DAI], 1984).

AID is now designing a project that will include support for both production and marketing activities in the coffee sector, in conjunction with soil conservation efforts. The project is based on three assumptions, however, and it is not clear that these assumptions are valid. The first assumption is that coffee is a profitable crop for farmers to grow, that is, that economic incentives exist for farmers to increase coffee production if they are offered technologies appropriate to their needs and circumstances. This assumption has been called into question because the prices of many foodcrops that compete with coffee,

such as maize and beans, have increased substantially compared with coffee prices in recent years. Moreover, coffee is less labor-intensive than most foodcrops; since land is the constraining resource in Haitian agriculture, a transfer of resources from coffee to foodcrops seems logical (Capital Consult, 1983). In fact, there are widespread reports that many farmers have replaced their coffee plantations with foodcrop fields.

The second assumption is that significant inefficiencies exist in the coffee-marketing sector and that a cooperative coffee-marketing network can transfer above-normal profits from exporters and rural traders (speculateurs) to small farmers.[1] For example, Girault (1982) argued that exporters collude to fix prices and speculateurs cheat farmers; thus, these groups obtain coffee at prices lower than would be the case in a market characterized by perfect competition. This view has been called into question by Capital Consult (1983), which argues that the coffee market is fiercely competitive and reasonably efficient, and that cooperatives cannot pay their members higher prices than can private sector.

The third assumption, related to the second one, is that coffee cooperatives provide real economic benefits to farmers. This was the tentative conclusion of the team that evaluated PCC in 1984, but this judgment was based on detailed costs and returns from only three cooperatives (DAI, 1984). A larger sample size is obviously necessary to confirm their findings.

OBJECTIVES

The objective of this study is to examine these three assumptions and to make recommendations for future AID intervention in the coffee subsector. Specific objectives are listed below.

1. Examine the role of coffee in the farming system. The analysis details the role of coffee in the farming system and its advantages and drawbacks from the farmers' point of view. Farmers' environment, objectives, enterprise pattern, and resource use are outlined, and the role of coffee in meeting farmers' objectives and priorities is explained. Relative costs and returns of coffee and other competitive crops are also examined. Finally, the concerns and practices of farmers regarding soil conservation and their attitudes concerning coffee's role as a soil-conserving measure are investigated.

2. Evaluate the competitiveness of the coffee market. Considerable research has already been conducted in the area of coffee market efficiency; what is lacking is a synthesis of the principal findings reported in these studies. This report reviews the arguments made for and against existence of an open competitive coffee market, pointing out the strengths and weaknesses of both sides. The implications of the findings for supporting cooperative development are also discussed.

3. Measure cooperative performance. The analysis focuses on the economic performance of the cooperatives: are they able to provide real economic benefits to their members? Cost and returns analyses are conducted for three selected cooperatives; in addition, two principal constraints to cooperative viability -- social constraints and poor financial management -- are discussed. The economic performance of the Pilot Center for Cooperative Coffee Exporting (CEPEC) is also examined, as is the role of the Union of Haitian Coffee Cooperatives (CCH) in supporting the coffee cooperatives.

It should also be noted that the purpose of this study is not to provide an overall analysis of the coffee sector in Haiti. Instead, its purpose is to examine selected areas of interest to AID, as outlined in the scope of work for this study. Thus, some topics of importance to understanding the coffee sector are not

covered in this analysis. For example, only CCH and CEPEC are included in the analysis in Chapter Five of institutions supporting Haitian cooperatives. OPRODEX and the National Cooperative Council (CNC) also support the coffee cooperative movement, but their activities were outside of the scope of work for this study.

METHODS

The methods for meeting the objectives were different for each objective. To understand the role of coffee in the farming system, the authors conducted an informal farmer survey in two selected areas:

- The coffee-producing areas northeast and northwest of Jacmel (La Vallee, Blockauss, Macary, and Fond Jean Noel) in southeastern Haiti; and
- The coffee-producing areas south and southwest of St. Louis du Nord (La Croix St. Joseph, Des Granges, Guichard, and Moreau) in northwestern Haiti.

These two areas were selected because they are important coffee-producing areas and because they were expected to be representative of the south and north respectively in terms of agroecological and socioeconomic circumstances.

The authors spent a week in each area, called the Jacmel study area and the St. Louis du Nord study area, respectively, in this report. From 10 to 15 farmers in each area were interviewed on their farms; in addition, cooperative members, extension agents, speculateurs, and other informants were interviewed. Farmer interviews lasted 60-90 minutes, and the emphasis was on the quality of the interviews rather than on the number. A questionnaire was not used; instead, interviews were informal so that farmers would feel comfortable expressing their opinions on the subjects discussed. Before the survey began, a list of topics to be discussed was drawn up; this list was modified substantially during the survey. In general, only a few of the

topics were covered with any single farmer, since going into depth on a few subjects was preferable to trying to get bits of information on a large number of subjects.

The advantage of an informal survey is that a great deal of information can be collected in a very short period of time and that information on complex subjects, such as reasons why farmers follow certain practices, can be easily obtained. The primary disadvantage is that the sample size is small and that data cannot be tested statistically and therefore may be subject to error.

For the analysis of coffee market efficiency, a review of the literature on the subject was the primary source of information. In addition, interviews with farmers, cooperative members, and speculators provided information on the coffee market, particularly at the local level.

Cooperative performance was evaluated by interviewing officers and members of five cooperatives operating within the two study areas. Costs and returns were analyzed, and income statements were assembled for three of the five cooperatives. Other strengths and weaknesses were also discussed. Visits to CCH and CEPEC were also made, and details on their economic performance are presented.

The chapters in this report correspond to the objectives listed above. Chapter Two presents an overview of farming systems in the two study areas, and Chapter Three discusses the role of coffee in the farming system. Coffee market efficiency is examined in Chapter Four, and cooperative performance is evaluated in Chapter Five.

NOTE

- 1 Speculateurs are traders living in rural Haiti who purchase coffee from farmers and resell to exporters. They also engage in other enterprises, such as the wholesaling and retailing of dry goods, purchasing and reselling farm produce, and providing credit.

CHAPTER TWO
FARMING SYSTEMS IN TWO SELECTED
STUDY AREAS OF HAITI

A primary tenet of this paper is that interventions aimed at improving smallholder coffee production and marketing must be viewed in the context of the smallholder's overall farming system. This chapter provides an overview of the farming systems in the two study areas, Jacmel and St. Louis du Nord, based on an informal, rapid reconnaissance survey as described in the previous chapter. First, background information on the Jacmel study area is presented, followed by an analysis of objectives, the enterprise pattern, and resource use of small farmers in the area. Next, observations concerning the farming systems of the St. Louis du Nord study area are presented. Finally, trends in the farming systems of the two areas are examined.

OVERVIEW OF FARMING SYSTEMS IN THE JACMEL STUDY AREA

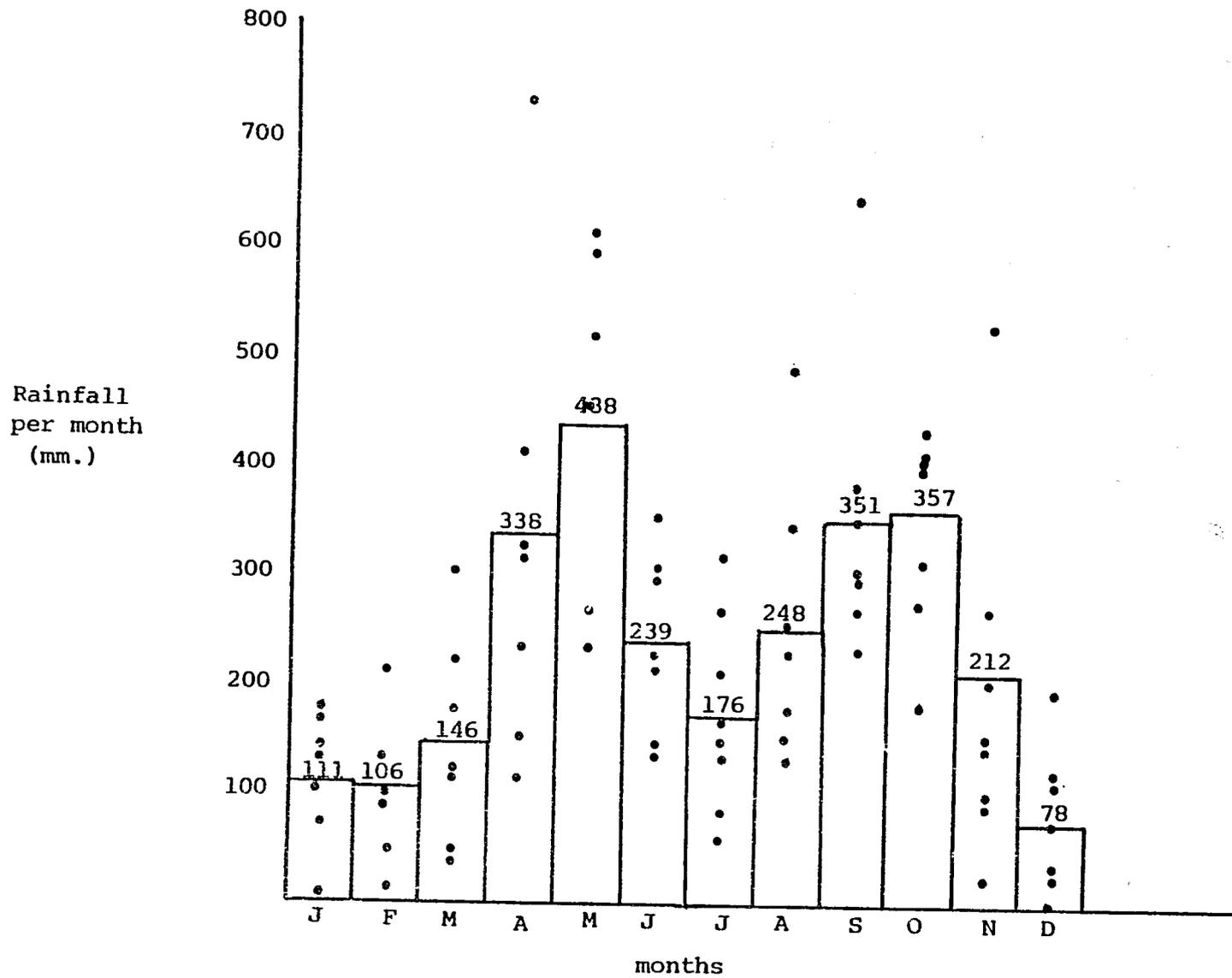
Background Information

The authors visited four villages in the coffee-producing areas near Jacmel: La Vallee and Blockauss, which are northwest of Jacmel, and Macary and Fond Jean Noel, which are to the northeast. These villages are all located in the humid mountain zone (Capital Consult, 1983) of Haiti, an ecological zone characterized by high rainfall (over 1,500 mm. per year), fairly deep soils with good moisture retention characteristics, moderate temperatures (16-24 degrees C.), and steep slopes.

Rainfall in Macary averaged 2,694 mm. per year over the period 1978-1984; rainfall distribution is shown Figure 1. Whereas rainfall is probably somewhat higher in Macary than in the other villages visited, the distribution of rainfall is probably similar. The figure shows that rainfall occurs primarily from April through November, with some tapering off in

FIGURE 1

AVERAGE MONTHLY RAINFALL IN MACARY, JACMEL AREA, 1977-1984



Source: Ministry of Agriculture, Macary.

Note: Bars show average monthly rainfall. Dots show actual rainfall per month in years for which data are available.

July. Some rain also falls during the dry season, from December through March. The figure also shows that the amount of rainfall varies considerably in any given month, as indicated by the range of points of actual rainfall received in each column. This variation in rainfall can cause problems for farmers, as will be discussed below.

Soil erosion, a critical problem in the humid mountain zone, is considerably more advanced in La Vallee than in the other villages visited. Two factors most likely cause this problem. First, population pressure on land is probably higher in La Vallee than in the other areas, leading to more intensive cultivation. Second, La Vallee is located at 700 meters, an altitude at which coffee is a somewhat marginal crop in the Jacmel area; the other three villages visited are all at 800-900 meters. Therefore, there is probably more field crop area relative to coffee area in La Vallee than in the other villages visited, leading to more soil exposure to heavy rainfall and thus more soil erosion.

With respect to the economic environment, all four areas visited have some access via roads with Jacmel and Port-au-Prince, although some roads are difficult to travel on or impassable during the months of heaviest rainfall. In some cases, roads and market contacts are as important determinants of what farmers grow as are agroecological circumstances. For example, both Fond Jean Noel and Macary are areas with high potential for vegetables and coffee. However, farmers in Macary put more emphasis on vegetables since they are more profitable and traders buy vegetables in Macary for sale in Port-au-Prince. In Fond Jean Noel, coffee is much more important than vegetables because market links with Port-au-Prince are lacking, largely because of poor road access.

Socially, it appears that Girault's classification of farmers into four distinct groups is relevant for all areas visited (Girault, 1982). These farmer groups are:

- Landless farmers, who earn their living sharecropping on lands of large farmers and hiring out their labor, either on a daily basis or by the task to be done;
- Small-scale farmers, who own up to 2 carreau (2.6 hectares), have few if any farm capital investments, such as cattle or drying slabs.[1] These individuals make up the majority of farmers in both study areas;
- Medium-scale farmers, who own 2-4 carreau (2.6-5.2 hectares) and have several farm investments, including drying slabs, several head of cattle, and a grain store. They also hire labor for use on the farm and in the home; and
- Large-scale farmers, who own tracts of land greater than 4 carreau (5.2 hectares) and, in addition, often are involved in cash-earning activities off the farm, such as trading and government administration.

The analysis below mainly concerns the second group -- small-scale farmers -- since these individuals make up the majority of farmers in both study areas. For example, in three highland villages adjoining the villages in the Jacmel study area, DuPont and Swanson (1984) found that farm size averaged 0.3-0.9 carreau (0.4-1.2 hectares). In Macary, informants estimate that about 70 percent of all farmers were in the 0-2 carreau category. Farmers representing the other three groups were also visited; where relevant, comments are made concerning their problems and circumstances.

Farmer Objectives and Priorities

Small farmers in the Jacmel area use the resources at their disposal to meet their own objectives and priorities in the context of the complex and often difficult socioeconomic and agroecological environment in which they live. Four critical small-farmer objectives identified in the field study are presented below. Smallholders seek to:

- Provide a steady flow of food staples from their farms to meet their own consumption needs throughout the year;
- Provide a flow of cash throughout the year to purchase basic necessities, such as salt, sugar, and clothes, on a regular basis as well as other basic necessities, such as food and seed, on an irregular basis when home produced supplies run short;
- Maintain liquid assets on the farm, such as livestock, which can be sold off on short notice to meet emergency cash needs, for example, to meet the expenses of a family death or illness. These assets provide a cushion of security against having to sell off productive capacity, land, for example, in the case of an urgent cash need; and
- Maintain control over limited production capacity by accepting the rural sociopolitical structure as given and acquiescing in the exigencies of this structure. Thus, a small farmer may not consider joining a coffee-marketing cooperative if he usually sells coffee to a speculateur.

Several principles common to small farmers throughout the world are reflected in the above objectives. First, small farmers are risk-averse; they are justifiably slow to adopt change unless they are reasonably certain of the outcome. The system they currently practice has been fine tuned over many generations and has succeeded in keeping the family alive. Changes in that system will be adopted only after farmers are sure that the change will benefit the household.

Second, farm households diversify; an average Haitian household probably has about 20 food-producing and income-generating activities. Diversification is essentially a hedge against risk, that is, if one or several enterprises perform poorly, the other enterprises can provide food and income. Furthermore, diversification allows farmers to take advantage of different ecological opportunities available to them, for example, by cultivating maize and beans on a lowland area and coffee on an upland field. Diversification is also a means to ensure cash and food supplies throughout the year, since harvest periods vary among the possible crops that a farmer may grow.

Third, farmers have multiple objectives; they evaluate opportunities using many criteria, not just profitability alone. Thus, a farmer may have over 20 crop, livestock, and off-farm enterprises, 5 or 6 of which require substantial labor and land inputs, even though only one of these enterprises is the most profitable. Other criteria besides profitability that are important for selecting activities include yield in drought conditions, ability of an activity to give food or cash at a time of year when food is normally short, and ability of an activity to provide immediate cash in case of emergency.

Enterprise Pattern and Food Supply

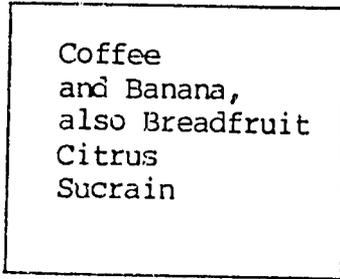
Figure 2 presents a composite farm map for a 1 carreau (1.29 hectares) farm in the Jacmel study area, consisting of four noncontiguous plots. A 0.50 carreau (0.64 hectare) field of tree crops dominated by coffee and bananas surrounds the homestead. Other tree crops likely to be found in this field, at a low density, include shade trees, such as sucraïn, citrus trees (especially oranges and chadeque), and breadfruit (arbre veritable). Other possible intercrops in the coffee and banana field include cocoa, yams, and avocado. Directly adjacent to the homestead, one is likely to find a small vegetable garden, including vegetables (eggplant, onions, and cabbage) and sugar cane.

Three other plots of 0.15-0.20 carreau (0.12 to 0.15 hectare) are located at some distance away from the homestead. Two of these plots are dominated by intercropped maize and beans, planted in March and April, with a second crop of beans planted in August. Other common intercrops on the maize and bean field

FIGURE 2

COMPOSITE FARM MAP OF A TYPICAL 1-CARREAU (1.29 HA.)
FARM IN JACMEL STUDY AREA [a]

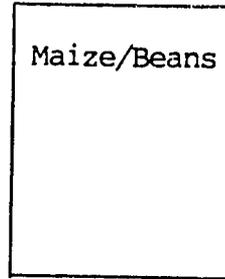
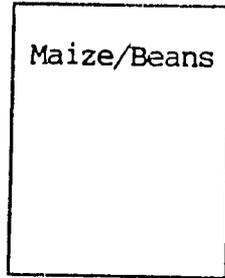
Field Surrounding
Homestead:
0.5 carreau
(0.65 ha.)



Other common
intercrops include:

- Cocoa
- Yams
- Avocado
- Shade Trees

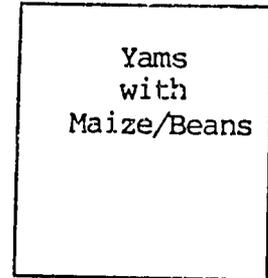
Second and
Third fields:
0.15-0.2 carreau
(0.19-0.26 ha.) each



Other possible
intercrops include:

- Yams
- Pigeon Pea
(Pois Congo)
- Sugar Cane
- Manioc
- Sweet Potato
- Sorghum
- Malanga

Fourth Field:
0.15-0.2 carreau
(0.19-0.26 ha.)



Other possible
intercrops include:

- Pigeon Pea
- Sugar Cane
- Manioc
- Sweet Potato
- Sorghum
- Malanga

Small garden at homestead
0.03 ca. (0.04 ha.). Crops
include cabbage, eggplant,
other vegetables, and
sugar cane.

Note:

a All fields are intercropped.

include yams and pigeon pea (pois congo), as well as sugar cane, manioc, sweet potato, sorghum, or cocoyam (malanga). The third plot is dominated by yams, and possible intercrops include the same range of crops intercropped with maize and beans.

Figure 3 shows the crop calendar for the principal crops grown in the Jacmel study area, as reported by farmers interviewed. Maize and bean plantings are concentrated in March and August, with bean harvests in May and June, and November, and maize harvests in July and August, and December. Yams are planted over the January to April period, with harvesting beginning in August and extending through the following January, depending on planting date, variety, and food or cash needs. Manioc and pigeon pea are planted in March and harvested the following year.

Principal food staples, as can be deduced from Figure 2, are bananas, maize, beans, and yams. Farmers' opinions on the advantages and disadvantages of each of these food staples help explain the reasons that all four are generally emphasized by most farmers. Beans have the advantage of having the shortest cycle of all possible crops, taking only three to four months from planting to harvest, as shown in Figure 3. This is an extremely important consideration for farmers who have problems with periodic food shortages, and nearly all farmers in the study area fall in this category. Beans are a very risky crop, however, susceptible to damage by drought; heavy rains (which may destroy bean flowers, thus curtailing yields); and disease, most notably mosaic. Furthermore, seed costs per area planted are fairly high.

Maize, which is almost always intercropped with beans, has a more stable yield but a longer cycle, about six months. Seed costs per unit of area planted are also very low. Yams are the highest yielding of the field crops on a per-unit land basis. However, they have the longest cycle, up to one year, although

FIGURE 3

CROP CALENDAR FOR JACMEL STUDY AREA [a]

Major Crops:

Beans

Maize

Yams

Banana [b]

Coffee

Minor Crops:

Manioc

Pigeon pea

Sweet potato

Malanga

Cabbage

	J	F	M	A	M	J	J	A	S	O	N	D
Beans		P	P		H	H		P			H	
Maize		P	P				H	H				
Yams	P	H	P	P	P			P				H
Banana [b]			P	P	P							
Coffee	H			P	P				H	H	H	H
Manioc			P	P								
Pigeon pea	H	P	P	P								
Sweet potato	H						P	P				H
Malanga	H	H	P	P								
Cabbage	H	H	H	H				P	P	P	P	P

Peak period for labor use

Period of food shortage

a P = Planting
H = Harvesting

b Bananas and manioc are harvested throughout the year.

harvesting may begin as early as six months after planting. Yams may also be planted over a four-month period, ensuring supplies to the family over an extended period. Bananas have the advantage of providing food throughout the year; disadvantages include the long cycle, one to two years and the fact that not all trees bear fruit every year. All four of the principal foodcrops may be sold in local markets if surpluses exist or if cash is needed.

The minor field crops also fulfill important roles. Pigeon pea is not a preferred crop, particularly in regard to its long cycle (one year) but has very low seed costs on a per-unit-area basis. Thus, when bean seed or cash for purchasing bean seed is lacking, pigeon pea may be substituted. Malanga does particularly well in swampy areas (bas fond), as does banana. Manioc and sorghum do better than most other crops on eroded or sandy soils. Manioc may also be stored in the ground for long periods and harvested when needed.

The primary role of coffee in the farming system is its use for obtaining loans when needed. Coffee is also an important source of cash for farmers, ranking first or second as a cash source for most of the farmers interviewed. Further advantages include low risk, and the low labor and capital requirements of maintaining a plantation. Primary disadvantages include establishment costs and low returns per unit of land area. The other tree crops included in coffee and banana fields serve primarily to shade the coffee trees as well as to provide fruit for home consumption and sale.

Livestock activities are also important for farmers in the Jacmel study area. About one-half of the farmers own at least one head of cattle, and cows are far greater in number than bulls. Most cattle are farmed out to other farmers, sometimes relatives, who live in the lowland areas where water and feed are in greater supply. Farmers in the lowland areas care for the

cows in exchange for ownership of every second calf born to the cow. The primary role of cattle, according to farmers, is security, as cattle can easily be sold if an urgent need for cash arises. Other livestock owned by farmers include goats and chickens. Goats serve a role similar to that of cattle but are particularly useful as a liquid asset, since smaller sums of cash are involved. Thus, cattle may be sold off for relatively large cash needs, goats for relatively small needs. Chickens are raised primarily for sale as well as for cock fighting. Pigs are virtually nonexistent since the government ordered their slaughter following an outbreak of African swine fever in the early 1980s.

Off-farm sources of income are also important. Hiring out household labor is probably the most frequent source of off-farm income for farmers owning very small farms. Market trading is also common. Many households also receive income from members living outside the village. For example, most older heads of household have at least one child living outside the area, usually in Port-au-Prince. Many younger household heads go to the Dominican Republic to harvest sugar cane to save up enough money to build a house in their home area or to purchase cattle.

The farmers' complex system of crop, livestock, and off-farm enterprises is designed to meet food and cash objectives throughout the year; however, food and cash shortages are encountered fairly frequently. Farmers claimed that their most severe period of food deficit is February through May, and a glance at the crop calendar helps explain why this is so.

The crop calendar shows that beans are harvested in June, maize in August, and the extended yam harvest can begin as early as September if food supplies are short. The coffee harvest also begins in September, so cash becomes available to buy food if necessary. A second crop of beans is harvested in November and maize in December. Thus, from June to December, food and cash are relatively ample. Beginning in February, however, food

supplies begin to run short. Yams are generally not available, except among those farmers well-off enough to delay their harvesting. Maize and bean supplies generally last only a few months after harvest, if that long, before they are consumed or sold. Moreover, maize and beans planted in August do not normally yield as well as those planted in March because of higher winter temperatures and greater bird damage to maize. Thus, from February until the bean harvest in late May and June, the only food staple available may be bananas, which are available sporadically throughout the year. Three minor crops, pigeon pea, sweet potato, and manioc, may be harvested as early as January, so these supplies help obviate the crisis. Nevertheless, February through May is the most critical period of food shortage for farm families in the Jacmel study area.

Figure 3 also helps explain why farmers claim that their busiest time of the year is in March and April. During these months, farmers are busy preparing land; planting seed; weeding their maize, beans, and yams; and planting bananas and coffee. Most minor crops must be planted at this time as well. The farmers' busiest period coincides with the hungry season; this finding has both fortunate and unfortunate effects. On the positive side, large farmers need laborers to help them plant their fields and a food-short family can thus earn cash during these months to buy food. On the negative side, food-short families are least able to exert the effort required for hiring out their labor during this period since they are short of food. Furthermore, they may be forced to neglect work on their own fields to earn cash needed immediately to supply food for the family. This situation, of course, will only aggravate their food supply situation after the harvest season that follows.

Resource Availability and Use

Land

Information on land tenure obtained informally appears to correspond to data available from formal studies. In Macary, for example, informants estimated that about 80 percent of the community's 3,000 households own land, while 20 percent are landless. About 60 percent fall within the range of 0.5 to 1.5 carreau (0.6 to 1.9 hectares) with the remaining 20 percent owning farms smaller or larger than this range. These figures are consistent with Dupont and Swanson's (1984) findings that 72-87 percent of the land in three mountain villages in the Jacmel area was owned or held under an undivided inheritance, 5-16 percent was rented, and 5 percent was sharecropped. Average area cultivated per household in the three villages ranged from 0.48 to 1.52 carreau (0.37 to 1.18 hectares).

Land rentals and sharecropping arrangements serve very different purposes for farmers. Farmers renting land are generally better off than those sharecropping -- for example, one farmer interviewed was renting not because he lacked land but because he wanted to grow a particular crop, maize, which did not do well on any of the fields he currently owned. Renting may also be very profitable: one farmer encountered was renting a coffee farm for a period of five years from a poorer farmer who had rented out the field because he needed cash urgently. A typical rental price in Macary is 250 gourdes (gds.) for 0.5 carreau (387 gds. per hectare) for a maize and bean field, although prices vary considerably according to quality of land and location.[2] Rental periods range from one season to nine years.

Sharecropping arrangements involve a 50/50 split of the harvest, with the sharecropper supplying all the inputs. Sharecroppers are typically landless or extremely small landowners who

lack the cash required to rent land. Landowners sharecropping out their land tend to be absentee farmers or farmers who own more land than they can effectively cultivate. Much sharecropped land is reported to be government-owned land that is leased to large farmers at nominal rates, who then sharecrop land out to small farmers. Sharecropped land tends to be infertile soil with poor moisture retention (*terre chaud*), on steep slopes, and located farthest from settled areas.

The system of sharecropping and renting inhibits agricultural development because there is no incentive for a farmer to conserve or improve land that he does not own. Sharecropping is particularly onerous since there is no incentive for the farmer to use improved inputs; he has to pay the full cost of an input such as fertilizer yet he retains only one-half of the extra yield resulting from fertilizer use. Neither system gives a farmer any incentive to implement soil-conserving practices. Rather, it is in the farmer's best interest to mine the soil as best he can since it does not belong to him. Thus, sharecropped and rented land is used almost exclusively for cultivating short-cycle annual crops, typically maize and beans, since the farmer has no guarantee that he will be allowed to harvest crops following the end of the current season. He also has no reason to be concerned about the long-term fertility of the land he farms. Moreover, many farmers cultivate land that they control but to which they have no legal title. Insecurity of tenure in these cases also discourages land improvement.

A typical *l-carreau* farm comprises several parcels, with a tree crop field generally adjacent to the homestead and annual crops cultivated on fields away from the homestead. Because of the shortage of land, fallow is generally not practiced. Rotations are limited as a result of intercropping, which itself can be viewed as a form of rotation. The authors encountered several rotations, however. Yams may be rotated with maize and

beans, though maize and beans are frequently found on yam fields and vice-versa. A field of intercropped maize, beans, and pigeon pea may be rotated with a field of beans the following year.

One curious aspect of land use is that coffee is often found on fields of relatively little slope and annual crops on fields with the steepest slopes. Although this practice has extremely negative connotations for soil erosion, it is easy to understand how the system developed. Fifty years ago, land was relatively abundant and both coffee and field crops were grown on fields of little slope. In recent times, however, cultivation has become much more intensive, with nearly all the increase in cultivated area allocated to field crops, particularly maize and beans. The only land available for this expansion was on land of increasingly greater slope. Given the high costs of establishing a coffee plantation, particularly the investment in shade trees, farmers found it more expedient to continue to plant coffee in their current plantations rather than moving them to the steeper slopes to free the coffee fields for annual crop cultivation.

Moreover, a farmer wishing to replace coffee with field crops would generally uproot coffee on the steepest fields to plant these with field crops. The reasoning is as follows: coffee yields are lower on fields of steep slope; thus, these are the fields that the farmer would be most willing to give up. Implicit in this argument is either an ignorance of the effects of soil erosion on the yields of annual crops planted on steep slopes or, more likely, a very high discount rate for the value of future yields, compared with present yields.

Labor Availability and Use

Household size averages four to five persons according to Dupont and Swanson (1984), which seems consistent with this study's findings. Dupont and Swanson also report that about three quarters of household heads are male; these households generally include a wife and children. About one quarter of

household heads are female; these women may be widowed, never married, or have husbands working in Port-au-Prince, Dominican Republic, or elsewhere.

The division of labor along sexual lines for carrying out farm tasks is sharply defined. Preparing land, planting tree crops, and collecting firewood are essentially male tasks. Women predominate in purchasing seed and marketing produce. Both sexes participate in weeding, harvesting, and post-harvest processing. Women are especially active in bean cultivation as beans are sometimes viewed as a woman's crop. Children and women are responsible for fetching water.

Although farms are small, seasonal labor constraints are generally severe, especially during the period of land preparation, planting, and weeding in March through May. Dupont and Swanson reported that between 30 and 77 percent of households in their three study areas used outside (nonfamily) labor. Outside labor includes work groups who provide labor in exchange for wages and food, labor exchange groups who work on the farm of each member, and individual wage laborers who are paid by the day or according to the task performed. Payments are made in cash or in kind -- in-kind payments are especially popular during harvest season. The use of individual wage laborers appears to be increasing. Daily wages range from 3 to 4 gds. per 6-hour day, depending on the season and the task. Farmers hiring laborers complained that it was difficult to find workers during the March through May period.

Cash Availability and Use

Cash use is extremely scarce in the Haitian smallholder system. On the farms the authors visited, practically the only use of cash appeared to be for seed and tools.

Not one of the 13 farmers visited used fertilizer, although Dupont and Swanson report considerable fertilizer use in nearby Haut Cap Rouge. Farmers claimed that fertilizer use was much greater during the late 1970s and early 1980s, when fertilizer was available on credit through PPC.

Two of the largest farmers visited, both in La Vallee, applied organic material, maize and bean straw, to their maize and bean crops. The straw was purchased from neighboring farmers, who sell because of cash needs. Most of the farmers visited who own cattle do not manure their fields, but animals graze on the fields periodically. One cattle owner who applied manure used it primarily on his coffee because coffee responded well to manure and because transportation costs from the homestead to the foodcrop fields was prohibitive.

For most farmers, the periods of greatest cash availability coincide with harvest periods: beans in June and November, maize in August and December, and coffee and yams from September through January. Greatest periods of cash needs occur February through May, when food is scarce and seed is needed for planting, and August and September, because of seed requirements and the costs of sending children to school. The need for cash during the February through May period appears to be more severe than during August and September, when coffee, yams, and maize are all available for sale. Thus, farmers frequently turn to relatives or speculateurs for assistance.

Speculateurs generally lend only to farmers with coffee; cash or in-kind loans range in value from 50 to 300 gds. and are repaid in coffee at the end of the season. All informants, both farmers and speculateurs, agreed that repayment is made based on the price of coffee on the day the farmer brings in his crop for repayment, not the price when the loan is actually made. On the question of interest rates, there were widely different reports. Several informants, including some small farmers, insisted that

the loans were interest-free and that the borrowers were in no way tied to any other services that had to be rendered to the speculateur, such as the supply of free labor. These farmers, as well as the speculateurs, claimed that the loans were interest-free to lock in the sale of the farmer's coffee to the speculateur as well as to attract the farmer to the speculateur's other services, that is, to buy retail goods.

Other farmers, however, insisted that loans were not interest-free. They gave examples of rates of 25-50 percent between April and October; these translate into 50-100 percent on an annual basis. There appeared to be agreement that less money is lent than formerly. Since the quantity of coffee sold in the Jacmel area has declined in recent years, the number of speculateurs has also declined. Moreover, the cost of capital has increased significantly, probably reflecting both a lower supply of capital available in rural areas and the increased demand among farmers for cash.

It is also of interest that of the farmers the authors visited only cooperative members at cooperative meetings expressed bitterness about speculateurs' moneylending practices; small farmers who used the services of the speculateurs expressed little bitterness. These small farmers did express considerable anger toward large landowners, whom they claimed exploited them through the sharecropping system and by monopolizing the benefits and services of government and foreign assistance programs. In some areas, these large landowners are also cooperative leaders.

OBSERVATIONS ON THE FARMING SYSTEMS IN THE ST. LOUIS DU NORD STUDY AREA

The authors visited four villages in the St. Louis du Nord area: La Croix St. Joseph, Des Granges, Guichard, and Moreau. All are within a range of 5-15 km. south or southeast of St. Louis du Nord. All are located at altitudes of about 500 meters, except Moreau, which is at 700 meters. These villages are also

in the humid mountain zone. The villages resembled the area around Macary and Fond Jean Noel more so than La Vallee, that is, cultivation is not as intensive and soil erosion not as advanced as in La Vallee. Data on rainfall were not available for the areas visited; but according to maps of the Service Meteorologique National, the area receives approximately 2,000 to 2,600 mm. per year (Cambrony, 1981). This is approximately the same amount of rainfall that the Jacmel study area received. Informants claimed that the distribution of rainfall is also similar to that of the Jacmel study area.

The socioeconomic environment also appeared to be similar to that of the Jacmel study area. For example, Girault's social strata seem relevant to the St. Louis du Nord area, as do the approximate proportions of farmers in each strata. Yet market orientation is somewhat different. The Jacmel area sends produce to Port-au-Prince, whereas the St. Louis du Nord area also exports directly to other countries, particularly the Bahamas and the United States. Most of this trade is illegal and is probably the major reason for the greater degree of economic activity in Port du Paix and St. Louis du Nord than in Jacmel.

The farming system of the St. Louis du Nord study area is very similar to that of the Jacmel study area so it will not be described in detail. However, the St. Louis du Nord area has several important differences, most of which are related to the principal food staples of the area, yams and bananas.

First, maize and beans are minor crops, not major ones. They tend to be planted only on fields at lower altitudes than the study area (0-400 meters), and only a minority of farmers have access to these fields. In addition to planting in March and April, beans are also planted in November and December. This latter season is very risky, however, because rainfall from December through February is highly variable. For example, several farmers reported a complete crop failure for their maize and beans planted in November and December 1984.

Second, although yams are planted from January to March in the Jacmel area, yam plantings continue until June in St. Louis du Nord. Extended plantings in St. Louis du Nord may be related to differences in rainfall; unfortunately, monthly rainfall data during this period for the St. Louis du Nord study area are not available.

These differences in crops and crop calendar have an important effect on the supply of food to the farm family. The principal period of food shortage in St. Louis du Nord is during June through August, not February through June as in Jacmel. In the St. Louis du Nord area, yams planted in May and June are ready for consumption the following February and March. Moreover, bananas are also available during the heavy rainfall periods in April and May. However, the St. Louis du Nord study area does not have a significant harvest of beans during May and June or maize during July and August, as does Jacmel; thus, it suffers from shortfalls in food from June through August. Bananas, although available throughout the year, are less available during dry months, June through August, compared with wet months, April and May. By September, the food crisis subsides as yams planted the previous January are ready to be eaten, even though they are not fully mature. Moreover, the coffee harvest begins in September, providing badly needed cash to the family.

Several other differences were also noted in St. Louis du Nord study area. First, as might be expected, yams are the most important foodstuff marketed, whereas maize and beans dominate the foodstuff market in the Jacmel study area. Second, yams are more frequently intercropped with coffee in St. Louis du Nord. This pattern significantly reduces coffee yields, since coffee roots are damaged during yam plantings, and yam vines are permitted to grow up the coffee tree. Third, the daily wage in the St. Louis du Nord study area is somewhat higher, ranging from 4-5 gds. per day as opposed to 3-4 gds. per day in Jacmel.

This difference may reflect a higher land/farmer ratio in St. Louis du Nord or a smaller population of landless farmers. Fourth, although out-migration appears to be as high in St. Louis du Nord as in Jacmel, many migrants from St. Louis du Nord go to the United States. These migrants may remit larger sums back to the St. Louis du Nord area than do their counterparts from Jacmel living in Port-au-Prince and the Dominican Republic.

FARMING SYSTEMS IN TRANSITION

This analysis tends to present a static view of farming systems in the two study areas but, in fact, the area is changing quickly. The most important factor causing change is the increasing population. The most important trends are discussed below.

1. Erosion of the natural resource base. Cultivated area continues to increase, extending onto fields of greater slope and lower fertility. Furthermore, most farmers no longer practice fallow, because of lack of available land. Thus, soil erosion is increasing and soil fertility is decreasing at alarming rates.

2. Increase in area planted to foodcrops. Nearly all of the increase in cultivated area is in annual foodcrops, primarily maize, beans, and yams, in response to increased food demand and increased foodstuff prices relative to coffee prices (Capital Consults, 1983). Maize and beans are particularly popular because they are short cycled, offering food and cash to the family three to five months after planting. However, these crops exacerbate soil erosion problems, since fields are exposed between seasons and during periods of heavy rainfall, when they are planted. Yams have a longer cycle than maize and beans, implying less time during the year when the fields are denuded. But yams, like maize and beans, are planted primarily in March and April, when rains are heavy and soil cover is lacking.

3. Decrease in area planted to coffee. New coffee plantations are rare, and some existing plantations have been uprooted to plant foodcrops. The most important reduction in coffee area in Jacmel in recent years took place during the 1980 hurricane; many shade trees and coffee trees were destroyed, and rather than replace or regenerate these orchards, farmers uprooted the remaining trees and planted foodcrops. Nearly all farmers visited plant new coffee seedlings on a regular basis, but these seedlings are almost always planted in existing plantations, not in new plantations.

4. Decrease in average farm size and increase in labor available per farm. Increased population and limited employment opportunities off the farm have caused farm size to decrease and labor available per farm to increase, leading to more intensive use of land -- less fallow, cultivation of more labor-intensive crops (annuals rather than tree crops), and increased exposure of soils to erosion.

The above forces have all contributed to increasing poverty in the rural areas. Poor farmers, faced with declining farm size and cultivation on more and more marginal land, are forced to cultivate the land more intensively, resulting in more soil erosion and lower soil fertility. Some farmers are no longer able to fallow their land, even though they know that average annual yield of fallowed land is greater than that for the same land cultivated continuously. Moreover, farmers increasingly sell their own crop refuse to richer farmers as manure, resulting in lower yields and greater soil erosion on their own fields. During periods of peak labor requirements, small farmers increasingly seek work on the farms of large landowners because of pressing cash and food needs, thus neglecting the essential tasks on their own farms. In addition, the number of landless peasants is probably increasing; these farmers sharecrop the land of wealthier neighbors in exchange for one-half of the produce harvested.

NOTES

- 1 A carreau is a local measure of area equal to 1.29 hectares.
- 2 \$1.00 = 5 gourdes.

CHAPTER THREE

ROLE OF COFFEE IN THE FARMING SYSTEM

This chapter presents the role of coffee in the farming system, highlighting the perspective of farmers on this subject. First, coffee husbandry and marketing are discussed, followed by the advantages and disadvantages of coffee production, as expressed by farmers. Next, this chapter examines other aspects of coffee production that have positive and negative effects. Finally, the chapter presents a detailed analysis of the profitability of coffee relative to other crops and the implications of the findings in this chapter concerning AID interventions to promote coffee production and marketing.

COFFEE HUSBANDRY AND MARKETING

Coffee is grown in association with other taller tree crops, primarily sucrain, citrus trees, breadfruit, and bananas. Shading helps to maintain high humidity in the coffee plantation and protects the coffee from occasional high winds. Although Haitian coffee is often considered to be overshadowed, heavy shading is necessary to maintain yields, given the low productivity potential of Haiti's coffee trees and low soil fertility (DAI, 1977).

Typica is the most widely cultivated coffee variety; it is not highly productive but has proved to be well adapted to the circumstances prevailing on Haitian coffee farms. Caturra, a higher-yielding variety released by the Ministry of Agriculture, is more susceptible to dieback, the most important coffee disease. Dieback can be prevented only with a fairly complicated pruning program. Unfortunately, the farmers visited in this study who were planting Caturra were not aware of the variety's pruning requirements.

Small farmers rarely establish new coffee plantations. Instead, they prefer to transplant volunteer coffee seedlings (seedlings that appear on their own, not because they are deliberately planted) within existing plantations. The farmers select those seedlings that appear the healthiest and replant them in an open place, where perhaps an older tree had died or had been uprooted because it did not produce well. Trees are planted by digging a small hole with a machete. Tree population is generally much higher than that recommended for maximum yields, although densities do not appear to reach the 20,000-30,000 per hectare estimated by the World Bank (1985).

Following harvest, farmers generally weed their coffee plantation, prune the trees, and in some cases thin the trees. Pruning generally consists of removing dead branches of coffee and other shade trees as well as branches of some shade trees where shading is excessive. Required weeding is minimal since leaves from shade trees and coffee serve as mulch and shade also restricts weed growth.

Fertilizer's beneficial effects on coffee yields are well known to many farmers in the Jacmel study area, primarily because of PPC in the 1970s. Yet very few, if any, farmers in the area use fertilizer on their coffee. Farmers complained that it was unavailable and, more important, that they lacked cash to purchase it. In the St. Louis du Nord area, farmers have never used fertilizer on coffee. One farmer in the Jacmel study area applied cattle manure to his coffee plantation, but most farmers do not apply animal manure to any of their crops. In general, it does not appear that agents of the Ministry of Agriculture have coffee technologies that can increase yields and are acceptable and feasible for farmers. This finding has been reported in several studies, including DAI (1977) and World Bank (1985).

Aside from dieback, there are no coffee diseases or pests of major importance. *Rosellinia necatrix*, a root disease, occurs in some areas because of nematodes in the soil. *Mycena citricolor*,

a leaf disease characterized by white spots that causes partial defoliation, is also found. In addition, rats ravage the crop in many areas, feeding on the coffee berry and damaging the bean.

Harvesting takes place from September to January, principally in December. Many farmers obtain loans based on their coffee crop during months preceding the harvest; they are thus committed to selling their harvest to the speculateur who lent them money. Some farmers, who lack cash during the month or two immediately preceding the main harvest, pick their coffee before it has fully matured. This practice results in a coffee of very poor quality. Moreover, since green berries cannot be easily separated from their stems at picking, they must be removed at a later time, often by the speculateur. Picking coffee that has not fully ripened also damages the trees, reducing yields in the following year.

Farmers who allow their coffee to ripen fully pass through their plantations several times between September and January. Hired labor is frequently used, and laborers are paid in coffee. Two systems of postharvest preparation were encountered. Most farmers produce "cafe nature," drying their coffee cherries on the ground or on a concrete slab. Drying takes place over a period of several days to several weeks, depending on rainfall, which can damage the coffee. Following drying, coffee is stored in the dried, cherry form, commonly called "cafe coque." When the farmer wishes to market coffee, he removes the pulp by pounding the coffee cherries, using a mortar and pestle. The resulting coffee is called "cafe pille."

The second method, much less common, is called "cafe lave." Cafe lave must be processed within 24 hours following harvest; thus, the farmer must deliver his coffee to a coffee factory or to a collection point immediately following harvest. The processor then removes the pulp, using running water and brushes, and dries the coffee, producing "cafe parche." Coffee produced using the lave method is of higher quality and thus fetches a

higher price. Yet even where facilities are available, as in Haut Cap Rouge, most farmers still prefer producing cafe pille for two reasons. First, for cafe lave, cherries must be transported in wet form and are thus about six times as bulky as transporting cafe pille. Second, cafe pille may be stored indefinitely whereas coffee cherries for cafe lave must be delivered for processing immediately after the harvest.

In both study areas, the number of coffee speculateurs has declined considerably in recent years. For example, in Marigot, a small market center serving Fond Jean Noel and Macary, the number of speculateurs has decreased from about 30 to 50 in past years to 6 to 9 at present. Moreover, a new link in the marketing chain has emerged in recent years in both study areas, that of illegal speculateurs who operate in rural areas (voltigeurs). These coffee traders purchase coffee from farmers at their homes and resell to speculateurs or to exporter agents. Many work for a single speculateur. The addition of this new link in the marketing chain probably reflects the increase in unemployment and underemployment in rural areas, as well as the increasing poverty of coffee growers.

COFFEE'S ROLE AS EXPRESSED BY FARMERS

By far, the most important advantage in the eyes of the farmer to growing coffee is in providing security, since only farmers cultivating coffee are able to obtain loans from speculateurs. Of the 11 farmers who were asked about the role of coffee in their system, 7 mentioned the credit aspect and 5 did so before commenting on other advantages to growing coffee. Probably only a small minority of farmers take out loans on their coffee in any given year, but it is important to them to have this option. These loans, described in Chapter Two, are generally taken out during the hungry season, February through May. Coffee

is generally the only crop that can be used to obtain loans from speculators, although farmers report isolated loans made for yams and sugar cane as well.

The next most important advantage of coffee is its role in providing cash to the family. As a cash source, coffee has the advantage over most other crops in that it can be stored without fear of spoilage; thus, coffee can be disposed of whenever cash is needed throughout the year. In fact, in recent years it appears that coffee is sold sooner and sooner following the harvest, because of the family's increasing cash needs. Moreover, coffee is important in providing cash to the household when cash from other sources is relatively scarce. This role is particularly important in the Jacmel study area, since coffee money comes into the household just before the most critical period of cash scarcity, February through May.

Farmers also appreciated the stability of coffee yields, relative to those of field crops. In a drought year, for example, foodcrops may fail completely while coffee will always give something. Farmers acknowledged that coffee production was cyclical and, further, that there were risks in coffee production. For example, on one farm where shade trees had died because of disease, the coffee underneath was dying as a result of overexposure to sunlight. However, farmers claimed that the yield variation and risk involved in cultivating coffee were still substantially less than those of most annual crops. Some also felt that the price was more stable than foodcrop prices.

Also important is coffee's role in the diet of the farm family and as a beverage to be provided to guests. Nearly all households retain some of their harvest for home consumption, although quantities retained are probably less now than in the

past because of the increased cash needs of rural households. Young farmers also tend to keep little, if any, coffee for home consumption, compared with older farmers.

On the negative side, the most important aspect that farmers mentioned was coffee's low price and, thus, low profitability. One farmer described the low profitability of coffee in terms of market power: "When I take my yams to the market it is I who determine the price. But with coffee, I am told a price which I have to accept." The following section examines coffee's profitability relative to other crops.

Farmers also noted an additional disadvantage to coffee production, related to low profitability. Coffee has significant establishment costs, and the period between planting and the first harvest is about four years. These establishment costs are not important if a plantation is already in place. Establishing coffee within an existing plantation is more like a minor variable cost than an establishment cost (see note on coffee establishment cost in notes to Table 1, presented at the end of this chapter). A farmer considering starting a new plantation, however, not only must establish coffee on the plantation, but also must plant shade trees, which require several years before they can provide adequate shade for coffee seedlings. Establishment costs for starting a new plantation are thus considerably greater than those of establishing coffee within an existing plantation.

OTHER ASPECTS CONCERNING COFFEE'S ROLE

Several other aspects, besides those mentioned by farmers, are important in explaining coffee's role in the system. Figure 3 shows that seasonal labor requirements for coffee production are complementary, rather than in competition with those of other important crops. Labor use in coffee, principally weeding and harvesting, takes place between August and February, at periods of the year when labor required for foodcrops is at low levels.

Second, some farmers appreciate coffee because of the low level of cash and labor inputs required throughout the year. For example, coffee does not require expenditures on seed every year or on land preparation. Moreover, weeding costs are low since coffee is densely planted and heavily shaded.

A third aspect, coffee's important role as a soil conservation measure, was not mentioned by any of the farmers visited. Moreover, when asked to name important problems in the area, only one farmer included soil erosion, and he appeared to do so only because he thought it was a topic the interviewer would want to hear about.

Yet farmers are aware of soil erosion and understand that yields decline as a result of increased erosion. But they place a high discount value on future yields, that is, they are more concerned with eating today than eating tomorrow. Furthermore, they frequently do not see any economic advantage to maintaining tree crop plantations to conserve their soil. One farmer, who had already replaced one of his tree crop plantations with maize and beans, argued this way:

Sure I know that if I had kept my coffee plantation I would be saving the soil. But saving it for what? I wasn't making any money off of that plantation. Its better for me to remove the trees and make some money growing maize and beans for a few years until the soil is exhausted.

This comment underscores the importance of increasing coffee profitability to improve soil conservation.

PROFITABILITY OF COFFEE RELATIVE TO OTHER CROPS

Coffee's principal competitor in most coffee-growing areas of Haiti is maize and beans. Profitability is analyzed from both financial and economic perspectives. A financial analysis

assesses profitability from the farmer's point of view, that is, the costs and returns are those that the farmer actually pays or receives. An economic analysis shows costs and returns from society's perspective. For example, an export tax on coffee is omitted from a financial analysis because only the price the farmer receives for his coffee is important in this analysis. In an economic analysis, however, the export tax is added to the price the farmer receives because, from society's perspective, both the price and the tax are benefits from producing coffee.

A financial analysis of coffee production relative to maize and beans comprises Tables 1 and 2 (presented at the end of this chapter). The data were collected from area farmers and assembled with the support of several other studies examining the costs of and returns to these crops in Haiti. The analysis examines the choice between an intercropped hectare of coffee and other tree crops and an intercropped hectare of maize and beans. This, in fact, is the choice farmers face since monocropping of these crops is not practiced.

The analysis shows that net returns per hectare, per year, are about 60 percent higher for maize and beans than for coffee. However, labor requirements per hectare per year are more than double those of coffee; thus, returns per person-day of labor are higher for coffee than for maize and beans. The analysis indicates that farmers with limited land but adequate labor or cash for hiring labor will tend to emphasize maize and beans. Conversely, farmers who lack labor or cash for hiring labor will tend to emphasize coffee. Three case studies from the farmer survey illustrate the tradeoffs between maize and beans and coffee:

1. A large farmer in La Vallee, owning 9 hectares of land has abandoned coffee as his principal cash crop in favor of maize and beans because of its high returns. The farmer has adequate resources to invest in maize and beans and will accept

the high risk of producing maize and beans. Since he farms full-time, he is able to manage his cash crop operation adequately. Returns to coffee, he claims, are too low to merit his attention.

2. Another farmer, of much lower income, cultivates 2.5 hectares of land in Fond Jean Noel, one-half of which he owns and one-half of which he rents. About two-thirds of his cultivated area is in coffee, his most important cash crop. He cultivates maize, beans, and yams, all primarily for home consumption. Even though foodcrops have a potentially high return, he claims that they are very risky and require high inputs of labor and management. He is fairly young and does not yet have adult children to assist him on the farm. Nor does he have adequate cash to spend for hiring labor. Since he does part-time work as a mason and carpenter, he does not have adequate time to manage a foodcrop operation. Coffee, he maintains, is a very profitable crop for him.

3. A third farmer, farming 0.6 hectares in Croix St. Joseph, is more typical than either of the other two farmers. He has about-half of his land in coffee and tree crops and one-half in intercropped maize, beans, and yams. He realizes that foodcrops provide higher returns than coffee but feels that yields are too variable to devote more than one-half of his farm to them. He appreciates coffee because he can use it to obtain credit, its yield is stable, and it supplies his household with cash at a period of the year when cash from other sources is scarce. For this household, as with the majority of coffee-cultivating households in Haiti, profitability is only one of many criteria that are important in deciding whether to pursue a given crop enterprise. Moreover, it is clear that at least two other criteria, yield stability and ability to obtain credit, are more important criteria to this farmer in choosing coffee as his principal cash crop than is profitability alone.

It is also important to note that coffee profitability varies throughout the coffee-growing zones of Haiti because of changes in both agroecological and socioeconomic circumstances. For example, in Haut Cap Rouge, coffee is not a very profitable crop because the altitude is too low. But Macary is in an area where the potential for cultivating coffee is very high, given agroecological factors such as rainfall, soils, and temperature. Furthermore, vegetable crops, primarily cabbage, are more profitable to local farmers living near roads because of the market links between Macary and Port-au-Prince. In nearby Fond Jean Noel, which has agroecological characteristics similar to those of Macary but lacks adequate transportation links with Macary or Port-au-Prince, vegetables are insignificant and coffee is probably the most important cash crop.

An economic analysis of returns to coffee and maize and beans, shown in Table 3 (presented at the end of this chapter), generates very different results than the financial analysis presented in Tables 1 and 2. Table 3 shows that coffee is undervalued, from the economic perspective, because of the heavy tax on coffee and because the foreign exchange earned from exporting it is undervalued. Maize, however, is overvalued because imports are restricted and because foreign exchange, used to import maize, is undervalued. The result is that from society's perspective coffee is about 20 percent more profitable than is maize and beans. These data are consistent with data presented in Elliott Berg Associates (1984); those show coffee to be more profitable than maize or beans in an economic analysis. Furthermore, both analyses underestimate the value of coffee relative to maize and beans, since they do not take into account the fact that coffee is soil conserving whereas maize and beans promotes erosion. Unfortunately, data are not available for quantifying or valuing these effects. In conclusion, although maize and beans is a more profitable enterprise than coffee from the farmer's perspective, coffee is more profitable from society's perspective.

RECOMMENDATIONS FOR AID INTERVENTIONS

The above analysis has examined the farming systems of two areas in Haiti and the role of coffee production in the farming system. Several recommendations can be made concerning possible AID interventions in the coffee sector.

- Continue supporting coffee production and marketing.

AID should continue supporting coffee production in Haiti. Coffee is one of the most widely grown crops; efforts to increase production and improve marketing can therefore benefit large numbers of farmers. Although financially less profitable than certain other foodcrops, coffee is important to farmers for other reasons. Coffee provides access to credit, is soil conserving, is a relatively stable source of cash, and provides cash at a time of the year when it would otherwise be scarce. Moreover, coffee is as profitable or more profitable than other foodcrops when policy distortions, such as the coffee tax and food import restrictions, are taken into account. Removing these policy distortions should also be an important component of AID policy.

- Address land tenure issues.

Land tenure is probably the most important constraint to agricultural development in the humid mountain zone of Haiti. There are two principal problems. First, many farmers do not have access to sufficient land to earn a living. At the same time, much government-owned land is controlled by large landowners. Second, where farmers have access to land through inheritance, renting, or sharecropping, there is no security in tenure. Therefore, there is no incentive to make land improvements or plant tree crops. Providing recommendations on land tenure problems is beyond the scope of this paper. However, efforts to

increase coffee production or disseminate soil conservation practices will be severely constrained if land tenure problems are not addressed simultaneously.

- Develop a farming systems approach to technology development and dissemination.

Technologies for improving coffee production in Haiti that are appropriate for small-farmer circumstances simply do not exist. In fact, one primary reason for the lack of success of PPC in the 1970s was that it sought to extend technologies to farmers that were not appropriate for them (DAI, 1977). One implication of the above argument is that simply assigning an extension agent to a coffee cooperative will not result in any significant increase in coffee production. Rather, adaptive research is needed to develop technologies that are tailored to particular sites and to the particular needs of Haitian small farmers. AID should support improved coffee production by helping to develop, test, and extend improved coffee technologies adapted to small-farmer circumstances, following an approach similar to, or working with, AID's Agricultural Development Support II farming systems project. In this project, interdisciplinary teams of researchers and extension agents conduct farmer surveys and on-farm experiments to develop new technologies and to tailor these technologies to farmers' needs and circumstances (Dupont and Swanson, 1984).

- Select areas for intervention carefully.

The mountain zone of Haiti is extremely heterogenous; interventions in coffee production should be focused on those areas where chances for success are highest. Thus, areas should be selected where both agroecological and socioeconomic circumstances are conducive to increasing coffee production. For example, it does not make sense to try to promote coffee in an area where farmers concentrate on vegetables, which are more profitable than coffee, as a cash crop.

- Integrate coffee improvement into broader measures for promoting soil conservation.

Coffee has important soil-conserving characteristics. It should therefore play an important role in efforts to introduce soil-conserving measures and packages to small farmers. However, unless these new technological packages are profitable for farmers to adopt in the short run and are consistent with their objectives and priorities, they will not be adopted. For example, it is not likely that farmers will implement soil conservation practices on land to which they have no title. Nor will farmers implement practices that conserve the soil but do not provide them with an adequate return on their investment.

TABLE 1
 COSTS AND RETURNS ANALYSIS FOR ONE HECTARE OF
 INTERCROPPED COFFEE [a]

	Person-days per Year	Gourdes per Year
Value of output [b]		
Coffee (20,000 trees)		1,430
Bananas (90 trees)		300
Chadeque (10 trees)		150
Cocoa (6 trees)		24
Oranges (4 trees)		60
Total Value of Output		1,964
Labor costs [c]		
Weeding	11	49
Pruning coffee	2	8
Harvesting coffee	30	135
Drying/pounding coffee	10	40
Other tree crops	5	20
Total labor costs	58	252
Other costs [d]		
Land		387
Establishment cost factor		68
Tool costs		3
Total other costs		458
Total costs		710
Net Returns to capital and management (total value of output minus total costs)		1,254
Net returns to labor, capital, and management per person-day (total value of output minus total other costs, divided by total labor costs in person-days)		26

 Notes:

- a This analysis estimates the costs and returns of a hectare of coffee intercropped with other tree crops on an average coffee farm in the two study areas examined. Coffee and associated intercrops are grouped together as one enterprise because the farmer views them as one enterprise. In fact, complementarities in terms of shade control, weed control, fertility, etc. are such that it makes no sense to try to allocate costs among the different crops and come up with separate costs and returns for each one.

The analysis in this table is financial, that is, it assesses enterprise profitability from the farmer's viewpoint. An economic analysis, in contrast, assesses profitability from society's viewpoint. The adjustments required for an economic analysis of coffee costs and returns are shown in Table 3.

The data were collected from four farmers, two from the Jacmel area and two from the St. Louis du Nord area, with supporting information from several other farmers and extension agents regarding the costs and returns of particular activities, as well as secondary sources, as noted below. Farmers reported on the costs of maintaining 0.25- to 0.60-carreau plots; figures were then converted to a per-hectare basis. Cost and returns data are extremely difficult for a farmer to estimate; thus, the data are subject to a rather wide margin of error. However, they are useful for comparing costs with other enterprises.

b Value of output

1. Coffee: The average yield, 200 kg. per ha., approximates the nationwide average yield of 250 kg. per ha. (Ministry of Plan, 1984). Daines (1979) estimated yields at 220 kg. per ha. for farmers participating in PPC. Average price for the 1984-1985 harvest season was about 3.25 gds. per lb.

2. Bananas: Farmers estimated that about one-third of their banana trees yielded a regime each year. Average price of a regime of bananas: 10 gds.

3. Chadeque: Sales per tree average 20 gds.

4. Cocoa: Assuming a tree gives about one kg. of cocoa (Cambrony, et. al., 1981) valued at about 4 gds. per kg.

5. Oranges: Sales per tree average 15 gds.

NOTES TO TABLE 1 -- Continued

c Labor costs

Person-days of labor and daily wages are for a 6-hour day. Average daily wage for coffee tasks is 4.5 gds. per day -- 3-4 gds. in the Jacmel area and 4-5 gourds in the St. Louis du Nord area, plus 0.50 gds. for food in both places.

The estimates for person-days of labor use in this analysis correspond to estimates from other studies:

Area	Source/Year	Person-days(6 hr.)
North	FAO, 1975 cited in Capital Consult, 1982)	33
Central Plateau	DARNDR, 1980	70
Nation-wide	Dorville, 1975	80
Nationwide	BID, 1974	80
North	Cambrony, et. al.	45
Average of above studies		62
Estimates made in this study with labor for other tree crops subtracted		53

Specific details on individual tasks are shown below:

1. Weeding: Done once in August. Approx. daily wage= 4.5 gds. per day
2. Pruning: Done once in January Approx. daily wage= 4 gds. per day. Primary pruning task is removing dead branches on coffee trees and branches on shade trees where shading has become too heavy.
3. Harvesting coffee: Estimating the number of person-days is difficult since harvesting takes place over several months. Daily wage is 1 marmite of cherry (equivalent to 1.25 lb. coffee pille) valued at 4 gds. plus 0.50 gds for food.
4. Drying coffee involves turning the coffee occasionally on the ground or other flat surface, and involves about one-person day of labor over a period of 3-10 days, depending on moisture content of coffee, rainfall and humidity during the drying period, etc. Following drying, the coffee (called "cafe coque") is pounded, using a mortar and pestle, to remove the dried pulp. Farmers estimated a person can produce 25 lbs. of coffee pille per day at a wage of 4 gds. per day.
5. Other tree crops: rough estimation of other tasks carried out on other tree crops. This estimate is mostly for harvesting labor.

NOTES TO TABLE 1 -- Continued

d Other inputs and tools:

Land: rental value of land in Macary: 250 gds. per 0.5 carreau; this equals about 387 gds. per hectare

Establishment cost factor: This cost would be considerable if one were to begin a new coffee plantation, planting coffee, shade trees, etc. In fact, farmers do not generally start new plantations; rather, they plant coffee and other tree species in their existing plantations every year. Thus, coffee establishment is much more akin to an annual variable cost than to an establishment cost. Coffee seedlings are selected from among volunteer seedlings; no nursery is planted. A farmer can plant about 200 seedlings per day; at a density of 20,000 plants per hectare, he would complete the task in 100 days. Assuming that the average coffee tree produces coffee for 25 years, he must plant 800 trees each year (taking 4 person-days) to maintain his plantation. Since his labor will not bear fruit for 4 years, the 3.3 person-days are increased by a compounding factor of 30 percent, which represents the approximate average return on capital, per year for four years: $4 \times 2.86 = 11.5$ person-days. This figure is rounded up to 15 person-days to take into account the establishment cost factors of the other tree crops in the coffee plantation. Labor is valued at 4.5 gds. per day.

Tool costs: A machete and mortar and pestle are the only tools that most coffee farmers use in coffee farming. At a total cost of 50 gds., the annual tool cost factor is arrived at by dividing by the average length of life of the tools (5 years) and the percentage of wear that is caused by work on the coffee farm as opposed to other crops (one-third).

TABLE 2

COSTS AND RETURNS ANALYSIS FOR ONE HECTARE OF
INTERCROPPED MAIZE AND BEANS, HUMID MOUNTAIN ZONE,
JACMEL AREA[a]

	Person-days[b]		Gourdes[b]		Total Gourdes
	first season	second season	first season	second season	
<hr/>					
Value of Output[c]					
Maize			910	0	910
Beans			1100	1540	2640
Total Value of Output			2010	1540	3550
Labor costs[d]					
Land preparation	35	35	157	140	297
Planting	12	9	54	36	90
Weeding	12	12	54	48	102
Harvesting	9	6	36	24	60
Post harvest	13	9	52	36	88
Total labor costs	81	71	353	284	637
Other costs[e]					
Maize seed			20	0	20
Bean seed			240	240	480
Tool costs			5	0	5
Land			193	193	386
Total other costs			458	433	891
Total Costs			811	717	1528
Net returns to capital and management (Total value of output minus total costs)			1199	823	2022
Net returns to labor, capital and management per person-day (total value of output minus total other costs, divided by total person-days)			19	16	17

 Notes:

- a This table shows estimates for costs and returns of a hectare of intercropped maize and beans on an average farm in the Jacmel study area. Maize and beans are grouped together because they are nearly always intercropped; thus, the farmer views them as a single enterprise. Complementarities between the two crops, such as weed control and shared land preparation, are such that it makes no sense to try to allocate costs between the two crops and calculate a separate cost of production for each crop.

The analysis in this table is financial, that is, it assesses enterprise profitability from the farmer's viewpoint. An economic analysis, in contrast, assesses profitability from society's viewpoint. The adjustments required for an economic analysis of maize and beans costs and returns are shown in Table 3.

The analysis includes one season of intercropped maize and beans, planted in March and a second season of monocropped beans, planted in August; this is the most common system of planting maize and beans in the study area.

The data were assembled partially from secondary data (see the studies cited below) and partially from interviews with farmers and extension agents in the Jacmel study area. Cost and returns data are extremely difficult to collect and there is likely to be substantial variation by farm; therefore, these data are subject to a wide margin of error. However, they are useful for comparing costs with other enterprises.

- b Person-days and gourdes per season and per year

The first two columns show person-days of labor for the first and second seasons, that is, for maize and beans during the first season and for beans alone during the second season. Person-days are for a six-hour day. In the columns marked gourdes, cost and returns are valued in gourdes (1 gourde = \$0.20). Costs and returns vary between tasks and seasons, as is discussed below.

- c Value of Output

Yields in this analysis are estimated at 700 kg. per ha. for maize and 250 kg. per ha. for beans during the first season, and 350 kg. per ha. for beans during the second season. These estimates are consistent with yield estimates from secondary sources:

NOTES TO TABLE 2 -- Continued

	Maize(kg.per ha.)	Beans(kg. per ha.)	Area
Madian Salagna, 1978	400-1,000		Haiti
Delcanda, 1980		310-730	South
Cambrony, 1981	300-500	300-800	North
Ministry of Plan, 1984	780	590	Haiti
DARNDR,1980		200	Central
Taylor, 1984	1,100		Les Cayes
Swanson, 1985	1,000	300	Haut Cap Rouge

Only Swanson, Taylor, and DARNDR, state explicitly that estimates are for intercropped maize and beans. Taylor assumes that insecticide is used, and Swanson assumes the use of fertilizer.

Prices are average prices at harvest time in local markets as estimated by farmers and extension agents in La Vallee and Haut Cap Rouge, 1985: 4.4 gds. per kg. for beans and 1.3 gds. per kg. for maize.

d Labor Costs

First season labor costs:

Person-days of labor and daily wages are for a 6-hour day. Average daily wage during land preparation, planting, and weeding is 4.5 gds. per day, including 0.50 gds. for lunch. Harvesting and post-harvest activities take place at periods of the year when labor is less constraining and are thus costed at 4 gds. per day.

The total number of person-days estimated in this study per intercropped hectare of maize and beans is 81 person-days per season; this corresponds to data found in other studies:

Area	Source	Crops	Person-days
Three Rivers	FAO,1976	Maize	90
North	Cambrony,1981	Maize	48
North	ODN,1983	Maize	79
South	FAO,1973	Maize	105
Central	DARNDR,1980	Intercropped maize/beans	75
Les Cayes	Taylor, 1984	Intercropped maize/beans	74
Three Rivers	FAO,1976	Beans	110
North	Cambrony,1981	Beans	37

NOTES TO TABLE 2 -- Continued

Second season labor costs:

Labor costs in person days for the crop of beans in the second season are as follows: land preparation and weeding are the same as for intercropped maize and beans. Planting, harvesting, and post-harvest activities are each two-thirds of the labor expended for intercropped maize and beans. Total second season labor expended is thus 71 person-days. Wages are 4 gds. per day, including 0.50 gds. for lunch.

e Other costs

Seed costs: 10 kg. of maize seed at 2 gds. per kg. and 40 kg. of bean seed at 6 gds. per kg. Seed is priced higher than produce harvested because the price of produce at harvest time is higher than the price of produce at planting time.

Tool costs: A machete and hoe are the two principal tools used in maize and bean cultivation. At a total cost of 50 gds., the annual tool cost factor is arrived at by dividing by the average length of life of the tools (5 years) and the percentage of wear that is caused by work on the maize and bean field as opposed to other crops (one-half).

Land: average rental cost of land for cultivating maize and beans, Makary, is 387 gds. per ha. per year.

TABLE 3

ECONOMIC ANALYSIS OF RETURNS TO COFFEE AND MAIZE/BEANS
TAKING INTO ACCOUNT FOREIGN EXCHANGE, TAX, AND
TRADE DISTORTIONS[a]

	Coffee	Maize/Beans
Net returns to capital and management[b]	1254	2022
Adjustment for coffee tax[c]	+610	-
Adjustment for maize import restrictions[d]	-	-182
Foreign exchange premium[e]	+224	-
Net returns	2,088	1,840

Notes:

a In Tables 1 and 2, a financial analysis was conducted to assess enterprise profitability from the farmer's viewpoint. In this table, an economic analysis is presented to show enterprise profitability from the viewpoint of society as a whole. Thus, in this analysis, distortions caused by government policies are eliminated to show what profitability would be in the absence of these policies.

It should be noted that the economic benefits of coffee relative to maize and beans are underestimated in this analysis, since coffee production is soil conserving, whereas maize and bean production promotes soil erosion. Unfortunately, data are not available for quantifying or valuing these effects.

Since the starting point for this analysis is returns at the farm level, the qualifiers stated in the notes to the two previous tables are also appropriate here, that is, that data on costs and returns are extremely difficult to collect and are thus subject to a wide margin of error.

b From Tables 1 and 2.

c In 1983-1984, the coffee tax amounted to 26 percent of the FOB price, or 3.05 gds. per kg.

NOTES TO TABLE 3 -- Continued

- d AID (1984) estimates that the local price of maize is about 20 percent higher than the border price. It is assumed that the effects of both import restrictions and the overvalued gourde are included in this estimate.
- e The Haitian gourde was estimated to be overvalued by 12 percent in International Monetary Fund (1984).

CHAPTER FOUR

COMPETITIVENESS IN THE COFFEE MARKETING SECTOR

One primary reason for AID's intervention in the coffee marketing sector in the 1970s was a belief that the sector was characterized by inefficiency, collusion, and exorbitant profits earned by speculators and exporters. PCC assumed that creation of a parallel cooperative marketing system would break the oligopsonistic power of the exporters, resulting in higher prices paid to farmers and greater efficiency in the coffee marketing sector. The primary source for this view of the coffee sector as basically noncompetitive is Girault, 1982.

In 1983, however, a report (Capital Consult) found that the coffee market was generally competitive and thus "there is no reason to believe that cooperatives will be able to pay a higher price to the farmer or to operate at a higher level of efficiency."

This section reviews the strengths and weaknesses of the two arguments concerning the competitiveness of the coffee sector. A description of the coffee marketing sector will not be presented, as this is adequately done in the above two reports as well as several others. Rather, the purpose of this section is to synthesize the arguments of the two reports and discuss the implications for continued AID support of the cooperative sector in coffee marketing.

THE ARGUMENTS CONCERNING COMPETITIVENESS IN THE COFFEE MARKET SECTOR

Girault traces the start of a high degree of collusion among exporters with the creation of the Association of Coffee Exporters (ASDEC) in 1960. This organization included virtually all coffee exporters. Girault documents several cases in which ASDEC fixed prices, fixed quotas among its members, and arranged

other agreements among members such as regional specialization. These accords, contends Girault, allow exporters to pay coffee prices to farmers that are lower than would be the case under competitive circumstances. Thus, the exporters are able to earn profits that are higher than in other sectors of the economy, where circumstances are more competitive. Girault presents costs and returns figures for coffee exporters in 1974-1975 that show exporter profits to average \$13.40 per sack, or \$536,000 for an exporter of 40,000 sacks. These profit levels are said to be excessive compared with those that would exist in a competitive situation.

One might ask, if profits are so high in coffee exporting, why is it that entrepreneurs from other sectors do not begin marketing coffee and competing with the traditional coffee exporters, thus driving down profit margins? Girault responds that the funds required to enter the coffee export business are so high, about \$1 million, that other entrepreneurs are unable to do so.

Girault's analysis has several important problems. First, Girault's estimates of exporter profits are inflated because he fails to include many important costs in his analysis, such as interest on funds extended to speculators, depreciation, costs of negotiating sales, and loan defaults. Concerning interest on funds extended to speculators, for example, if an exporter purchases one-half of his 40,000 sacks of coffee with money advanced to speculators, he would advance about \$960,000 (assuming a price of 4 gds. per pound or 240 gds. per sack). Assuming an interest rate of 30 percent per year, which is the estimated average return to capital in the industrial sector in Haiti (Inter-American Development Bank, 1982) and assuming that three months pass between the time the exporter pays out the money and receives payment for the coffee from an overseas buyer, the interest cost on funds advanced to speculators totals \$72,000. This item alone bites significantly into the alleged profit of \$536,000.

A second problem in Girault's analysis, as pointed out in the Capital Consult report, is the apparent failure of ASDEC agreements on prices and quotas to hold for more than short periods of time. Thus, Capital Consult claims that a high degree of competition exists in the coffee-exporting sector, as evidenced by the high turnover of firms and changing market shares over the years. This argument is convincing, especially when one looks at the record for the past 10 years. Of the 20 firms exporting coffee in 1982, 10 firms, representing 42 percent of the export volume, had begun exporting coffee only during the previous 30 years. This rate of entry is especially high given that the coffee export market contracted over the period; this normally would discourage new entrants. Moreover, over the seven-year period, 1978-1984, the number one position in coffee sales was held by four different firms, and seven different firms were represented among the top four.

Rapidly changing market shares also tend to negate Girault's assumption of a tightly controlled noncompetitive market. Wiener's share rose from 10 percent in 1973 to 16 percent in 1975; Novella went from 8 percent in 1980 to 14 percent in 1981; and Bennett from 14 percent in 1981 to 26 percent in 1983 (OPRODEX, 1985). These changes in shares appear to have come about largely through price competition. For example, informants from the Jacmel region claim that Bennett eliminated Dufort from this area in the early 1980s by offering speculators and farmers higher prices for their coffee.

A third problem with Girault's argument is the barrier to entry he claims exists because of the high capital requirements, about \$1 million, required to export coffee. This amount has not prevented numerous firms from entering the market. Furthermore, as Capital Consult (1983) points out, many small firms are able to export coffee profitably at very low levels of output. For example, several firms sell 1,000 sacks per year, valued at about \$55,200 in 1983-1984.

A fourth problem is Girault's contention that speculators exert considerable market power at the local level, colluding on prices, earning exorbitant profits and charging farmers usurious rates of interest on loans. In refuting Girault, Lundahl claims that the existence of collusive behavior seems inconceivable given the large numbers of speculators: 859 licensed speculators in 101 marketing centers in 1975 and many more unlicensed ones (Lundahl, 1983). Furthermore, the number of speculators has declined significantly in recent years; this decline appears to be associated with the decline in coffee exports and low, decreasing speculator profits. Interest rates on speculator loans are high -- rates of 100-200 percent per year for loans to small farmers during the hungry season appear to be common. Credit is extremely scarce in rural Haiti, however, and the risks of lending money are fairly high. Thus, the high interest rates reflect the scarcity of capital and the risks involved, not the market power of speculators. Of course, it is likely that, in isolated circumstances, speculators earn exorbitant profits by exercising market power. For example, where speculators also hold important positions in an area, farmers may be compelled to sell at least a portion of their coffee to these individuals regardless of the competitiveness of the price.

The evidence thus shows that the coffee-exporting market is not tightly controlled and is characterized by some degree of competition. Yet the lack of formal working agreements among exporters does not exclude the possibility that prices paid to farmers are lower and profits higher than would occur if there were more competition. For example, a recent study of grocery chains in major metropolitan areas of the United States revealed that the higher the percentage of total sales by the three or four largest firms in a given market, the higher the prices in that market and the greater the profits (Cotterill and Mueller, 1979). It is inconceivable in this case that there were formal

agreements among the grocery chains to maintain high prices. Instead, the stronger the firms were in their markets, the less competitive forces exerted themselves to depress prices and lower profits. Could this same situation also exist in the coffee-exporting sector in Haiti?

Capital Consult claims that it does not, that the market is competitive and operates efficiently, and that profits are reasonable, that is, they approximate profit levels in other sectors. Some arguments that Capital Consults makes in support of this position are weak, however. The report claims, for example, that the existence of a domestic market for coffee, in which the price is fixed in a competitive fashion, is evidence of the competitiveness of the export sector since farmers can sell to the domestic market as well as to the exporters. This argument neglects the fact that domestic prices are determined primarily by export prices. For example, when world market prices quintupled over the period 1973-1975, domestic coffee prices also quintupled (Capital Consult, 1983).

With regard to exporters' profits, Capital Consult claims that "if coffee exporting were so highly profitable and controlled by the leading exporting houses, one would expect the latter to invest backwards in the industry with the objective of further controlling coffee production." However, coffee exporters do not invest in coffee production for the same reason U.S. grain exporters do not invest in grain production -- exporting and producing these commodities requires such different sets of management skills, techniques, and scales of operations that it is not feasible for exporters to produce effectively. Moreover, since producers in both countries are so numerous and lack market power, there is no reason for exporters to worry about supplies being restricted.

Capital Consult's most convincing arguments in support of the competitiveness of the coffee market is that there is considerable exit and entry into the market and significant

changes in market shares of exporters over the years. In the absence of data on profit levels and prices, however, it still seems reasonable to quote Scherer's figure that when the top four firms control over 40 percent of the market oligopoly begins to rear its head (Scherer, 1976). In Haiti, over the period 1979-1984, the top four firms controlled 49-66 percent of the market. Moreover, since many of the firms have regional bases of operation, the percentage of the market controlled by the top three or four firms in any particular coffee-producing area is probably much higher.

In fact, to the degree that competition exists in the coffee-exporting sector, the basis of this competition has to be examined. In the scenario of perfect competition as depicted in economic theory, exporters offer producers prices that are as high as possible while still permitting profits commensurate with profits in other sectors. The more efficient the exporter's operation, the higher the price he can offer to producers and still make his normal profit. In the Haitian scenario, the basis for competition appears to be different. Individual exporters are most likely able to gain unfair advantage over each other by two means: paying less taxes than their competitors and gaining preferential access to export stamps, which in theory are distributed on a first-come, first-served basis.

Taxes are paid according to a rather complex formula that includes both a lump sum component and an ad valorem component; thus, the tax is a function of the sale price. Until recently, this system was subject to abuse since the sale price could be manipulated by the exporter and buyer. Recently, OPRODEX has introduced a reference price system, whereby the exporter must pay tax on the world market price quoted on the day the sale is reported to OPRODEX. It is not clear, however, that abuses have been eliminated or that exporters pay taxes at the same rates.

The second area of unfair competition is in gaining access to export stamps, which are allocated to Haiti by the International Coffee Organization and distributed to exporters by OPRODEX. The number of stamps allocated to Haiti is more than sufficient to cover the Haitian coffee supply; this might lead one to believe that the stamps have no value. However, the stamps are very valuable to exporters in countries that produce coffee in excess of their quotas. In several instances, the International Coffee Organization has found non-Haitian coffee being imported illegally into consumer countries in Haitian sacks with Haitian export stamps. OPRODEX policy is to distribute stamps on a first-come, first-served basis at no charge. However, any time an item of such high value is distributed freely on a first-come, first-served basis, there is a strong likelihood that political or financial manipulation will determine who receives the stamps.

Thus, an analysis of the Haitian coffee market indicates that, although the number of exporters is relatively small and concentrated, there is no evidence that they act together to fix prices and allocate quotas. Rather, there is some degree of competition among them, as evidenced by the high turnover in firms involved in coffee exporting and the fluctuations in market shares among participants. But much of the competition is, in fact, probably unfair competition in which individual exporters are able to increase their market shares by accumulating more export stamps and paying less taxes than their competitors. Moreover, in individual markets in which a few firms control most of the coffee purchased, some degree of tacit oligopsonistic behavior likely exists. This results in farmers' receiving prices lower than they would if there were more competition.

IMPLICATIONS FOR AID SUPPORT OF COOPERATIVES

PCC was launched on the assumption that the coffee market was controlled by the exporters and that cooperatives could thus offer farmers higher prices than could the exporters. Capital Consult (1983) claimed that the market operated competitively and thus that cooperatives would not be able to pay farmers higher prices. The conclusions in this paper point to a limited degree of market power exerted by the exporters; thus, cooperatives should be able to offer farmers higher prices than the exporters. However, even if the coffee export market operates efficiently and is as competitive as Capital Consult claims, cooperatives should still be able to pay their members higher prices than they receive from exporters and speculators.

This is true because cooperatives can transfer the profits now earned by exporters back to their members in the form of higher prices and patronage refunds. The average rate of return to capital in Haitian industry is about 30 percent per year. These profit levels appear high by U.S. standards but are normal for developing countries, where capital is a scarce resource and is thus rationed toward its most profitable uses. Cooperatives have the potential to offer higher prices to their members than speculators and exporters, by purchasing coffee at the going prices, reaping normal profits, and redistributing these profits back to their members. Thus, the cooperatives are able to offer their members higher prices, not necessarily because speculators and exporters exploit farmers or because they operate less efficiently but because of a transfer of normal profits from exporters and speculators to cooperatives. In Chapter Five, the record of several cooperatives will be examined to see if they are indeed able to pay higher prices to farmers than do their competitors.

Two conclusions emerge from the analysis. First, AID support for coffee cooperatives is justifiable on economic grounds as well as social grounds, whether or not one believes that the coffee market operates efficiently. If one holds the view that the market is characterized by a lack of competition and exorbitant profit taking, cooperatives will be able to offer higher prices to farmers and still earn reasonable profits. If one believes that the market is competitive and profits approximate those in other sectors, cooperatives still have the potential to reap these profits and distribute them back to farmers in terms of higher prices and patronage refunds.

The second conclusion concerns the government's role in the coffee-marketing sector. The system of allocating export stamps and paying coffee taxes should be made more transparent to prevent abuses. AID should work with OPRODEX to develop specific measures to monitor the collection of taxes and the distribution of export stamps to eliminate reported abuses. AID should consider financing any added costs that this system of monitoring tax collection or distributing and monitoring the use of export stamps would entail.

CHAPTER FIVE

COOPERATIVE ECONOMIC PERFORMANCE

Chapter Four outlined the potential of the cooperatives to pay their members higher coffee prices than they receive from speculators and exporters. This chapter evaluates cooperative performance, focusing on cooperative profitability and pricing. First, the economic profitability of cooperatives is examined. Second, the two principal factors limiting cooperative performance are discussed: social constraints and poor financial management. Third, the economic status of two organizations supporting the farmer cooperatives, CCH and CEPEC, are evaluated. Finally, recommendations are made concerning AID support of the coffee cooperative movement.

ECONOMIC PROFITABILITY OF COOPERATIVES

Detailed income statements for the three cooperatives examined in this study are presented in Annex A. Table 4 summarizes income and other data from five cooperatives visited for this study and three others examined in a 1984 evaluation of PCC. Although the seven cooperatives included in the table were not selected at random, they are most likely representative of the 82 coffee cooperatives and pre-cooperatives currently functioning in Haiti.[1] The table shows that the selected cooperatives vary considerably according to criteria such as age of the cooperative, number of members, degree of subsidy, social composition and region. In fact, cooperatives in Haiti differ significantly according to these criteria.

Cooperatives generally pay their members an initial price that matches the current speculator price. Therefore, cooperative and speculator performance may be compared by examining the cooperative's operating profit and ability to pay a dividend at the end of the year. The table shows that the six cooperatives for which data were available all earned an operating profit in

TABLE 4
PERFORMANCE OF SELECTED COOPERATIVES

	Year of Analysis	Year Started	No. of Members	Social Class of Leaders	State of Records	Subsidies	Operating Profit (subsidies not costed)	Patronage Refund to Members	Operating Profit (subsidies costed)
I. Cooperatives Evaluated in this study									
EFOJEN Fond Jean Noel	84/85	1980	62	Dominated by a large farmer	Fair	High (salary)	109 gds. (.05 gds./lb.)	0	-7,968 gds.
CACRON Haut Cap Rouge	83/84	1961	294	Medium and small farmers	Poor	Low (interest)	1,090 gds. (0.05 gds./lb.)	0	-120 gds.
CRUDECS St. Louis du Nord	83/84	1980	106	Large farmers, speculateurs	Excellent	Low (interest)	30,618 gds. (0.44 gds./lb.)	26,700 gds. (0.39 gds./lb.)	29,518 gds.
CONALD St Louis du Nord	83/84	1976	140	Medium and small farmers	None	Low (interest)	Not available	0	---
CACIDES St Louis du Nord	—	1984	39	Speculateurs, large and medium farmers	Excellent	Low (interest)	---	---	---
II. Cooperatives Evaluated in 1984 Evaluation									
COCAMUC Camp Perrin	82/83	1981	80	Medium and small farmers	Poor	High (salary, motor-cycle)	4,468 gds. (0.49 gds./lb.)	4,803 gds. (0.53 gds./lb.)	-9,872 gds.
CAVDAC Chardonnières	82/83	1973	1,500	Medium and small farmers	Excellent	Low, (interest, building)	45,017 gds. (0.46 gds./lb.)	39,205 gds. (0.40 gds./lb.)	31,846 gds.
AUDECADH Thiotte	82/83	1981	198	Dominated by large farmers, speculateurs	Excellent	None	32,707 gds. (0.17 gds./lb.)	0	32,707 gds.

Notes: Data for cooperatives evaluated in this study are from Annex A. Data from cooperatives evaluated in 1984 evaluation are from Development Alternatives, Inc. (1984).

the year analyzed. These profits ranged from 0.05 to 0.49 gds. per lb. of coffee purchased, or from 1 to 20 percent of the initial price paid to farmers (that is, the speculateur price). Some of these profits were distributed to the members, and some were retained by the cooperative for investment. If one assumes that all profits earned by the cooperative belong to the members, then cooperative membership permitted farmers to earn from 1 to 20 percent more money for their coffee, or 0.05 to 0.49 gds. per lb. The unweighted average of earnings for the six cooperatives was 19,001 gds, or 0.28 gds. per lb. This represents an economic benefit to the farmer of 9 percent over prices offered by speculateurs.

In fact, 62 percent of the operating profits were returned directly to farmers in patronage refunds and 38 percent were retained by the cooperatives for investment purposes. Three of the seven cooperatives examined paid a patronage refund to their members; these dividends ranged from 0.39 to 0.53 gds. per lb. of coffee sold, or 10 to 20 percent higher than the speculateur price.

Even if the subsidies allocated to the cooperatives are costed out, the results are still positive. Table 4 shows that even with subsidies costed, three of the six cooperatives earned positive operating profits. Moreover, the average earnings for all six cooperatives was 9,560 gds.

The data thus show conclusively that many cooperatives are able to offer their members higher prices than those paid by speculateurs, even when subsidies are taken into account. However, performance is variable. The next section discusses some constraints to cooperative performance at the local level, highlighting social problems.

CONSTRAINTS TO IMPROVED PERFORMANCE

Two principal constraints were identified to improving cooperative performance: social constraints and poor financial management.

Social Constraints

Social circumstances in Haiti make it difficult if not impossible for the rural rich and poor to work together effectively in a single cooperative. The rural poor express extremely bitter and candid views against the rural elite and, at times, the government. From the peasants' perspective, all organizations introduced from the outside, with the possible exception of the Catholic church, have been introduced to exploit them. Moreover, many if not most coffee cooperatives have been founded by, and are dominated by, the same members of the rural elite who exploit the peasants on a daily basis. A peasant who sharecrops on Mr. X's land, borrows money from Mr. X at rates of 100-200 percent per year and works as a wage laborer for 3 gds. per day for the same Mr. X is simply not going to be interested in joining Mr. X's coffee cooperative. Time and again, the authors found that farmers viewed the cooperative as simply an extension of the power of the rural elite to yet another facet of the farmer's life.

But cooperatives are supposed to be small farmer institutions in Haiti; how have they developed into institutions dominated by the rural elites? The primary reason is that cooperative development simply never focused on small farmers. Typically, seminars to develop an interest in cooperatives were held during the late 1970s and 1980s in a number of areas, and rural elites were invited to attend. They then went back to their home areas to organize cooperatives, with the understanding that money and equipment from the government and AID was available to help the cooperatives get started. The cooperatives were

generally dominated by members of the rural elite and included some poor farmers as well. In some cases, the founders and leaders were speculators themselves; they thus had a direct interest in limiting membership in the cooperative. In one area, for example, farmers explained that joining the cooperative was not an option for them since they sold their coffee directly to the cooperative president. Thus, asking an average farmer in such a community why he is not a member of the local cooperative is like asking him why he is not a member of the Rotary Club of Port-au-Prince.

It is a common occurrence in development that a new technology or institution meant primarily for small farmers is captured by the rural elite. In Haiti, it is even more difficult to reach the rural poor than in many other countries because of the high rate of illiteracy, the social isolation of the rural poor from the rural elite, and the poor performance of the government in offering services to the rural poor. Since no special effort was made to direct cooperative development at the small farmer, it is understandable that cooperatives would benefit those in the best position to take advantage of the benefits.

There are exceptions to the general finding that cooperatives are institutions of the rural elite, however. For example, cooperatives formed with the assistance of Catholic priests in southwestern Haiti, such as CAVDAC in Chardonnières, can legitimately be called popular institutions. Long periods of time and intensive efforts were required to develop the interest and participation of small farmers in these cooperatives. In cooperatives in which strong leaders from the outside have not been present to nurture their growth, as in CONALD cooperative in St. Louis du Nord, development has been limited.

It should be made clear that the position expressed here is not opposed to cooperatives being led by the rural elite or speculators. However, if the cooperative movement is to fulfill

its objectives of benefiting the Haitian small farmer, it must explore new ways to involve greater numbers of small farmers. Moreover, as expressed by the president of a small farmer cooperative, the interests of small farmers are often very different from those of the rural elite, and it is often not possible for the two groups to work together productively in a single cooperative. For example, it is in the interests of a speculateur selling coffee to the cooperative to be sure that his suppliers do not join the cooperative.

Several impediments other than alienation from rural elites also prevent small farmers from joining cooperatives. A major constraint is the 25-gds. membership investment share required from each member. Farmers claimed that this fee was too high, and even though it is refundable, it was not viewed as such. One innovative approach to surmounting this constraint is that of CONALD in St. Louis du Nord. CONALD permits small groups of farmers, 5-15 members per group, to contribute toward the payment of a single 25-gds. investment share. After one to two years, the members are encouraged to each contribute their own 25-gds. share. The authors visited one farmer who had first joined the cooperative with four others by contributing 5 gds. toward the payment of the membership investment share. Later, he purchased his own 25-gds. investment share. Other cooperatives should explore the use of this approach for encouraging membership among limited-resource farmers.

Poor Financial Management

A second impediment to cooperative improvement is poor financial management. The problem has two aspects. First, records and books are disorganized and incomplete. For the four cooperatives visited that had already completed a year of operation, in two cases it was very difficult to draw up costs and returns accounts, and in the case of CONALD, St. Louis du Nord, it was impossible. CCH has made considerable progress in

introducing improved record-keeping methods to the cooperatives, via their regional monitors. For example, records for CACRON in Haut Cap Rouge are vastly improved for 1984-1985, compared with 1983-1984. What is not clear is whether the cooperative manager has actually been trained to implement the system or whether the monitor is implementing the system himself.

A second more important problem concerns the use of records for managing the cooperative enterprise. It is certainly important that a cooperative keep records so that members and CCH officials can inspect the sources and uses of funds. But the primary purpose of keeping records is to provide management with the information necessary for effective decision making. There is little indication that cooperatives use their records for this purpose.

For example, only one of the four cooperatives studied, CRUDECS of St. Louis du Nord, had assembled balance sheets or income statements for either of the two previous years. CACRON, Haut Cap Rouge, has four different enterprises but no idea about the relative profitability of each. Furthermore, the cooperative is stocking all of its coffee awaiting a higher price rather than following the more prudent policy of selling coffee throughout the season. At EFOJEN, Fond Jean Noel, columns have been drawn up showing coffee purchases per month over the past year, but the columns have never been summed. This same cooperative had a loan outstanding of 5,000 gds., for which it was paying 1 percent interest per month, even though it had purchased no coffee during the preceding six weeks and was not likely to purchase any significant quantity of coffee until the start of the next season, six months away.

Table 4 also shows that cooperatives dominated by rural elites have significantly better record-keeping systems than those dominated by medium and small farmers. Rural elites are better educated than small farmers; thus, the manager of CRUDECS, St. Louis du Nord, is an accounting teacher. Moreover, the rural

elite insist that clear, accurate records be maintained so that the sources and uses of funds can be traced out by members who wish to do so. Cooperatives dominated by rural elites also appear to earn higher operating profits than those dominated by medium and small farmers.

Despite these problems in financial management, all six cooperatives analyzed in Table 4 had positive operating profits. A primary reason for this success is the price policy followed by nearly all cooperatives, adopted at the suggestion of CCH. Cooperatives purchase coffee from farmers at the current price offered by speculators. Thus, should the speculator price go up or down, the cooperative adjusts its price. The cooperative then sells its coffee to CEPEC, whose prices (including quality bonuses) are equivalent to those offered by the exporters to speculators. The margin between the cooperative's purchase price and sale price is then available to cover costs, be reinvested, or be refunded to members. All but one cooperative visited followed speculator prices in establishing its own prices; the one exception was EFOJEN, Fond Jean Noel. It was not clear how prices were established at this cooperative, since they often fluctuated several times in a given day. The manager claimed that he often raised prices arbitrarily to "capture" a member who was not happy with the original price offered.

PERFORMANCE OF SELECTED SUPPORT INSTITUTIONS

The Union of Haitian Coffee Cooperatives

CCH was established in 1979 to serve as a federation of coffee cooperatives. The development of CCH and its relations with other institutions that affect the cooperative movement are described in DAI, 1984. CCH's principal functions are to:

- Staff, train, and supervise eight regional monitors, who assist cooperatives in financial management, membership drives and education, and other tasks;

- Administer a revolving credit fund for cooperatives, begun in 1983, with funds from the Caribbean Basin Initiative; and
- Perform miscellaneous functions, such as organize cooperative meetings and assemblies, conduct surveys of cooperatives, and represent the cooperative movement in discussions with the government.

An analysis of CCH's financial system (AID, 1984) found numerous irregularities. Among the principal problems noted were:

- The accountant has no accounting background;
- The bank statement is not reconciled to the checkbook on a monthly basis; and
- The balance sheet shows several mistakes, including an accounting error of 2,500 gds. and about 15,000 gds. in "questionable expenses."

Under the revolving credit program, CCH lends money to cooperatives to purchase members' coffee, at an interest rate of 1 percent per year, not compounded. During the 1983-1984 year, 323.5 million gds. was lent to 23 cooperatives; as of February 1985, 19 (83 percent) of the loans had been repaid in full, accounting for 87 percent of the funds disbursed. Only 83 percent of the total available funds have been lent the CCH director explained that he wants to lend cooperatives relatively small amounts in the first years of the program, because of their inexperience in handling loans.

AID, 1985 claimed that the loan program was managed efficiently, based on the repayment rate that was considered to be high. However, the loan program is poorly managed:

- The records on loans, according to several sources, are very disorganized;
- Necessary signatures were missing from loan documents in several cases;

- No due date was given for the loan in many cases, or inexplicably, the due date preceded the loan disbursement date;
- No interest was paid to CCH, in many cases;
- Loans were granted without the proper forms being completed, in some cases; and
- Poor performance in managing a loan appears to have been rewarded, in some cases. For example, CODENCEF, Fond Beron, repaid its 1983 loan 10 months late with no interest and then received a loan three times as large on the day the loan was finally repaid.

The performance of the CCH monitors was also found to be poor in the two areas the authors visited. Although the monitors assist the cooperatives to institute new record-keeping systems, their work is clearly inadequate. Only one of the four cooperatives examined had prepared a balance sheet and income statement for either of the two previous years. Where this was done, it was without the assistance of the CCH monitor. In one region, the monitor seemed to lack the motivation to work; in the other, the monitor lacked the necessary training.

The training of monitors, although perhaps sufficient in terms of effort, appears to be inappropriate. The monitors spend at least one day per month in Port-au-Prince receiving training from the CCH director. What is needed, however, is on-site training: trainers should visit monitors in the field and assist them in implementing their programs.

In one area, cooperative officers claimed that the CCH monitor handled all of the cooperative's financial matters and that he refused to let them look at any record. When asked why he could not order the monitor to release the books, the president claimed that he feared the monitor, since he was "an agent of the government." There also appeared to be financial irregularities in this cooperative, since it bought and sold coffee at the same price as a neighboring cooperative, had similar costs but only a small operating profit, whereas its neighbor operated very profitably.

A primary reason for CCH's inadequacies in both administering the loan program and supervising the monitors is the lack of staff at the central office. The director has other duties, such as teaching, in addition to his CCH responsibilities, and he is clearly overextended. One person should be given the full-time responsibility of training and supervising the cooperative monitors.

CCH plans to take control of CEPEC, the cooperative coffee-processing plant, which is run by OPRODEX. However, CCH should not be permitted to take over any new functions until it is able to perform its current functions in a reasonably efficient manner.

Pilot Center for Cooperative Coffee Exporting

CEPEC, the coffee-processing operation, which processes and exports cooperative coffee, began operations in 1981 and is administered through OPRODEX. CEPEC purchases coffee from cooperatives at prices determined by OPRODEX and sells coffee directly to customers overseas.

CEPEC's purchase price, including the quality bonuses paid to cooperatives, is approximately equal to prices paid by private exporters. Cooperatives reported that the advantages of selling to private exporters are that they offer interest-free loans and that they purchase coffee at the cooperative. Thus, the cooperative forgoes transportation costs to CEPEC and the costs of sending personnel to Port-au-Prince to negotiate the sale. Only two of the six cooperatives visited had sold any coffee to exporters during the past two years, however, and the quantities involved were relatively small. Officers of these two cooperatives reported that even though the private exporter's price is sometimes higher, they sell most of their coffee to CEPEC out of loyalty and in hopes that they will receive a patronage refund from CEPEC profits.[2]

In the analysis of cooperative profitability in the previous section, the cooperative was compared with a speculateur because both faced approximately the same purchase and sale prices. Similarly, it is relevant to compare CEPEC with an exporter since both buy coffee at approximately the same prices and sell it to customers overseas at approximately the same prices. Table 5 presents CEPEC's 1983-1984 income statement, which shows an operating deficit of 796,931 gds. The table also shows that when CEPEC's subsidies are costed, the operating deficit rises to 1,332,579 gds. This compares unfavorably with the organization's reported profit of 703,567 gds. for the previous year, or a deficit of only 66,019 gds. when subsidies were costed (DAI, 1984).

There are two principal reasons for CEPEC's poor performance in 1983-1984, as compared with 1982-1983. First, and most important, there was a contraction in the margin between purchase price and export price that affected all exporters. CEPEC's own sale price remained about the same between the two years, while the price paid to cooperatives for their coffee increased by over 30 percent. This caused CEPEC's own margin between sale and purchase price to decline from 2.84 to 2.02 gds.[3]

The reason for the contraction is not clear. OPRODEX reports that the producer share of the world coffee price rose from 51 percent in 1982-1983 to 59 percent in 1983-1984; most of this rise has been at the expense of exporters' share (OPRODEX, 1985). Many observers report that the decrease in exporters' share has been caused by increased competition among exporters that bid up prices paid to farmers while export prices remained constant. In any event, the contraction in margin was responsible for a decline in CEPEC's profits of approximately 900,000 gds., over one-half of the decline in profitability between 1982-1983 and 1983-1984.

TABLE 5

CEPEC INCOME STATEMENT [a]

	Quantity Lbs.	Analysis without Subsidies Costed [b] gds. gds./lb		Analysis with Subsidies Costed [b] gds. gds./lb.	
COFFEE SALES AND PURCHASES					
Sales revenue	1,125,450	7,443,180	6.61	7,443,180	6.61
Cost of coffee sold [c]		5,177,558	4.60	5,177,558	4.60
VARIABLE COSTS [d]					
Hired labor		157,188		157,188	
Transp. from coops. to CEPEC		70,695		70,695	
Sacks		55,262		55,262	
Transportation to port		19,255		19,255	
Port fees		19,063		19,063	
Bank fees		37,746		37,746	
Payments to customers to cover losses		10,649		10,649	
Interest on capital borrowed		0		352,000	
Coffee tax		1,965,258		1,965,258	
Miscellaneous		22,417		22,417	
Total variable costs		2,357,533	2.09	2,709,533	2.41
FIXED COSTS [e]					
Salaries		26,563		154,663	
Rent		0		41,160	
Utilities		0		5,951	
Depreciation		119		8,556	
Total fixed costs		26,682	.02	210,330	.19
LOSSES IN INVENTORY [f]					
Est. normal losses (67,541 lbs.)		310,688	.28	310,688	.28
Other losses (79,924 lbs.)		367,650	.33	367,650	.33
Total inventory losses		678,338	.61	678,338	.61
OPERATING PROFIT (LOSS)		(796,931)	(.71)	(1,332,579)	(1.18)

 Notes:

- a All data in this income statement, unless otherwise stated, are from "Centre Pilote D'Exportation du Cafe des Cooperatives (CEPEC), 1984. CEPEC reported a deficit of 650,931 gds. in this report. The deficit is less than the one reported here primarily because of differences in pricing coffee in inventory.

Period of analysis: October 1, 1983, through September 30, 1984.

- b Subsidies: AID subsidies include interest on funds loaned, salaries, rent, utilities, and equipment depreciation. OPRODEX subsidies include office furnishings. Costs in gds. per lb. indicate costs per lb. of coffee sold.
- c Cost of coffee sold = value of beginning inventory plus coffee purchased minus closing inventory. Coffee in inventory is valued at the average annual weighted purchase price.

Closing inventory = beginning inventory plus coffee purchased minus coffee sold. This does not equal the actual closing inventory since there were inventory losses. These losses are itemized separately in the table as losses in inventory.

	Lbs	Gds./lb.	Gds.
Opening inventory	215,475	4.60	991,185
Plus purchases	1,136,360	4.60	5,227,743
<u>Minus closing inventory</u>	226,385	4.60	1,041,371
Cost of goods sold			5,177,557

- d Variable costs

Payments to customers to cover losses: these are payments made to overseas customers who reported to CEPEC that the coffee they received was underweight.

Interest: AID provides CEPEC with an interest-free loan. Interest rate for such a loan from a private bank would be 16 percent.

NOTES TO TABLE 5 -- Continued

e Fixed Costs

Equipment paid for by AID include a dryer and motor, hulling machine, grader and motor, polisher and motor, and a scale. The total purchase value is 84,159 gds. Equipment provided by OPRODEX include office furniture and an air conditioner, valued at 1,500 gds. Equipment is depreciated over a 10-year period using straight line depreciation. All equipment has been purchased since 1979.

f Losses in inventory

Normal coffee losses due to sorting and moisture losses are estimated at 6% by the CEPEC director. However, CEPEC losses this year amounted to over 13% of the total quantity of coffee sold. Thus, losses above the estimated normal losses of 6% are included as "other losses." The reasons for these other losses, according to the CEPEC director, were faulty scales at CEPEC that resulted in overweighing of cooperatives' coffee, and faulty scales at the port that underweighed the coffee being sold.

The second reason for CEPEC's poor performance is the loss of approximately 79,924 lbs. of coffee (7.1 percent of total sales) above normal moisture and sorting losses. Normal losses are estimated by the CEPEC director to be about 67,541 lbs. (6 percent of coffee sold).[4] Assuming that this estimate is correct, an additional 79,924 lbs. is unaccounted for. The CEPEC director claims that the discrepancy is a result of faulty scales at CEPEC that overweigh the coffee purchased, and faulty scales at the port that underweigh the coffee to be exported. Furthermore, he states that "two or three" lbs. of coffee are added to each sack of coffee exported to ensure that moisture losses will not reduce the weight of the sack below the weight purchased. No records of these "two or three" pounds per sack are to be found. In addition, it is not clear why the total amount of coffee losses from inventory increased from 114,779 lbs. (9.3 percent of coffee sold) in 1982-1983 to 147,465 lbs. (13.1 percent of coffee sold) in 1983-1984.

The extra-normal loss of coffee in 1983-1984 cost CEPEC between 300,000 and 450,000 gds., depending on whether the coffee lost is valued at its cost or sale price.[5] In addition, CEPEC paid 10,648 gds. to customers overseas who reported to CEPEC that the coffee they received was underweight. It is clear that CEPEC is in dire need of an effective inventory control system.

Two other reasons for the decline in profits are the decrease in quantity of coffee sold between the two years and the increase in costs. Coffee sold between the two years decreased by about 10 percent; this decline was associated with a decline in CEPEC's purchases of coffee of about 19 percent. The principal reasons given for the decrease in coffee purchased was a shortage of funds for purchasing coffee and a lack of space at the processing plant for storing coffee.

Another reason for the decline in profits was that CEPEC's total variable and fixed costs declined by only 1 percent while coffee sales and purchases declined by 10 and 19 percent, respectively. Those cost components that actually increased between the two periods included coffee taxes and payments made to customers reporting that coffee received was underweighed.

Another area for serious concern is CEPEC's relationship with the member cooperatives of CCH. Three of the six cooperatives visited reported serious problems in selling coffee to CEPEC. Problems raised by cooperative members included inability to find out CEPEC's price without visiting the facility, late payments, and lack of confidence in the integrity of the director. What appears necessary is more communication between CEPEC and the cooperatives. CEPEC should spend time explaining to cooperative officials its coffee price structure and the nature of the coffee export business and the world coffee market. Member cooperatives, in turn, should supply CEPEC with information concerning coffee stocks and flows so that CEPEC can be prepared to purchase and export cooperatives' coffee.

Aside from the acute problems in inventory management, CEPEC appears to be well managed in other respects. The export prices received by CEPEC are slightly higher than the average exporter price in Haiti (OPRODEX, 1985). Moreover, coffee is sold regularly, about twice a month, to hedge against price fluctuations, keep the cash flow at a reasonable level, and clear the plant of excess stocks. Furthermore, records on sales and purchases appear to be in good order, and the balance sheet and income statement were done correctly and appear to be accurate.

CEPEC plans to move to a new and much larger processing facility, which is being constructed with funds supplied by AID. The facility will greatly increase CEPEC's processing capacity and will thus solve many problems concerning lack of storage space. However, it is distressing that no feasibility study is

available concerning the profitability of the new operation, nor have any projected costs and returns been calculated. These, of course, should have been completed before construction was ever started. Realistic projections should be established immediately, as well as plans for financing the facility and phasing out projected subsidies.

RECOMMENDATIONS FOR AID SUPPORT TO THE COOPERATIVE MOVEMENT

Data presented in this chapter demonstrate that many cooperatives pay their members higher coffee prices than do speculators, even when subsidies are costed. The record is mixed, however, and CCH has an important role to play in helping existing cooperatives to improve their financial management and small farmers to organize effective cooperatives. The role of CEPEC, which can be compared to that of a private exporter, is less sanguine. After earning a respectable profit in 1982-1983, CEPEC was beset by a contraction in the margin between its buying price and selling price and by acute problems in inventory control. The result was a huge deficit in 1983-1984. Several recommendations concerning AID support for the cooperative movement are offered below.

- Continue supporting the cooperative movement through provision of assistance to CCH.

Despite CCH's weak performance thus far, it has a great potential for providing technical assistance to individual cooperatives. CCH's primary problem is that it has tried to do too much. Primary emphasis should be on improving CCH's two principal functions: training and supervising regional monitors and providing credit to cooperatives. No new functions should be given to CCH until it has shown that it can perform these two functions effectively. If the parties concerned do decide to give CCH new functions, such as taking over CEPEC, they should be sure that CCH is also given the means to carry out each new

function. In the case of taking over CEPEC, providing CCH with technical assistance to supervise CEPEC operations and establishing a realistic work plan for CCH staff to take over the functions of technical assistance personnel would be necessary. Similarly, subsidies should be continued, but a plan for phasing out them should be established.

- Provide full-time operations director for CCH to supervise and train the regional monitors.

A supervisory system should be established emphasizing field visits by CCH supervisory staff as well as work programs and schedules to be followed by the monitors. The training of regional monitors should focus on two areas: establishing viable small-farmer cooperatives and improving financial management:

- Promote small-farmer cooperatives.

CCH's biggest challenge is to develop methods for establishing cooperatives led and controlled by small farmers and, where possible, increasing their membership and participation in existing cooperatives. Currently, most cooperatives are led by members of the rural elite, including speculators. The primary objective of PCC is to increase small farmer income. Unless cooperative development is focused on helping small farmers establish and develop their own cooperatives, most of the benefits will continue to accrue to rural elites. Much can be learned from the experiences of other organizations in Haiti (see, for example, Coffey et al., 1983) and other countries in establishing viable small-farmer institutions. Moreover, lessons can also be learned from the experiences of individual Haitian coffee cooperatives in trying to encourage small-farmer participation, such as CONALD in St. Louis du Nord.

-- Improve financial management.

This step is also of critical importance, especially for small-farmer cooperatives since they are generally more poorly managed than are cooperatives led by rural elites. Record keeping is critical, but of even greater importance is training cooperative officials how to use that information for effective decision making. Most of the training of the regional monitors should be on-the-job training in the field, not training in seminars in Port-au-Prince.

- Avoid overburdening cooperatives with new functions in a project to promote coffee production.

In Chapter Four, recommendations were made concerning AID support for improving small farmer coffee production. Cooperatives can be useful organizations to work with to develop and extend new coffee technologies. For example, cooperative members can become involved in on-farm experiments and demonstrations, and the cooperative can serve as a focus for group extension efforts and the distribution of inputs. However, agricultural research and extension are public goods; they should be supported by public funds. Cooperatives should not be required to support a new AID project financially, except for token commitments to ensure cooperative interest and participation. Moreover, the project must not overburden cooperatives with management tasks relating to production, and thus curtail the cooperative's effectiveness in carrying out its primary activity, marketing coffee.

- Adopt an effective inventory control system at CEPEC to curtail losses of coffee.

The primary reason for CEPEC's deficit in 1983-1984 was changes in price relationships beyond its control. However, losses of coffee in inventory also played an important role. An effective inventory control system should be adopted immediately.

Moreover, the coffee losses should be investigated to identify the specific causes of the losses in order to keep them from recurring.

- Improve communication between CEPEC and member cooperatives of CCH.

CEPEC personnel should visit member cooperatives to explain how CEPEC functions and the nature of the coffee exporting business. A system for reporting CEPEC prices to cooperatives also should be established. Furthermore, CEPEC could benefit greatly from receiving periodic information on coffee stocks held at member cooperatives and cooperatives' plans for marketing coffee. The CCH and CEPEC directors should meet periodically, once per month, to plan improved information flows between the two organizations.

Information on cooperative coffee stocks and delivery plans could be collected by the regional monitors. Unfortunately, saddling CCH with yet another function contradicts the previously made recommendation that CCH not be given any new tasks until it can adequately perform its current tasks. However, once technical assistance and/or increased supervisory staff are provided to CCH, collecting data on stocks and planned coffee deliveries from cooperatives to CEPEC should receive high priority.

- Conduct a feasibility study immediately on the operation of the new coffee plant.

If such a study was ever carried out, it is not currently available to AID. Nor is any justification available for the scale of the plant under construction or for the types of technologies selected. Cost and returns projections and a plan of operation for CEPEC's new processing plant must be established immediately. Other information that should be provided includes sources and amounts of fixed and operating capital required,

financial projections (including cash flows) for the first five years of operation, subsidies required, and a plan for phasing them out. Furthermore, a decision must be made about which institution will manage the facility.

NOTES

- 1 The table includes both cooperatives and pre-cooperatives, according to terminology used by CCH. In fact, this distinction is related to performance since some pre-cooperatives, such as CRUDECS, outperform some of the established cooperatives, such as CACRON.
- 2 The CEPEC director believes that the CEPEC price, including bonuses, is higher than the exporters' price. It should be noted that the relevant comparison is the price CEPEC pays per lb. of cooperative coffee compared with the exporter's price for the same coffee. The CEPEC price should include only those bonuses that are actually paid to the farmer. Costs of selling coffee should also be included in the comparison, such as transportation and personnel travel.
- 3 The margin between CEPEC's purchase price and sale price averaged 2.35 over the past four years (CEPEC, 1984).
- 4 Girault (1983) estimates normal losses to be 3.7 percent and JWK International's (1976) estimate is 7.1 percent.
- 5 This extra-normal loss of coffee was not mentioned in the director's annual report (CEPEC, 1984) detailing reasons for CEPEC's deficit, nor was it mentioned in his presentation to CCH on the same subject.

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A-1

ANNEX A

INCOME STATEMENTS FOR SELECTED COOPERATIVES

TABLE A-1

INCOME STATEMENT FOR EFOJEN
(Cooperative Esperancede Fond Jean Noel)

BASIC DATA [a]

Period of Analysis: September 1984 through August 1985
(provisional)

First Year to Market Coffee: 1980/81

Number of Members: 62

Quantity of Coffee Sold: 2,370 lbs.

Approximate Percentage of Coffee Sold in Area: <1%

Average Coffee Sale Price: 4.15 gds/lb.

Average Coffee Purchase Price: 3.50 gds/lb.

Approximate Speculatur Price: 3.60 gds/lb.

COSTS AND RETURNS

	Analysis without Subsidies Costed		Analysis with Subsidies Costed[b]	
	gds.	gds./lb.	gds.	gds./lb.
Income[c]				
Sales Revenue	9220	3.89	9220	3.89
Quality Bonus	616	.26	616	.26
Income from Coffee Sales	9836	4.15	9836	4.15
Cost of Coffee Purchased from farmers[d]	8309	3.51	8309	3.51
Variable Costs[e]				
Hired Labor	25		25	
Transportation	202		202	
Personnel Travel	116		116	
Interest Payments	800		1677	
Office Materials	0		10	
Building Repairs	200		200	
Total Variable Costs	1343	.57	2230	.94

TABLE 1 -- Continued

Fixed Costs[f]

Salary of Manager	0		7200	
Equipment Depr.	75		75	
Building Depr.	0		0	
Total Fixed Costs	75	.03	7275	3.07
Total Costs	9727	4.10	17814	7.52
Operating Profit (loss)	109	.05	(7978)	(3.37)

Notes:

a Basic Data

Period of Analysis: The data presented are provisional data for the 1984/85 season, as of March 7, 1985. The cooperative's last purchase of coffee from farmers was on February 14, 1985, and all coffee purchased has already been sold to CEPEC. It is not likely that much, if any, coffee will be purchased in the remaining months of the fiscal year. The only additional variable costs which are expected to be incurred concern interest costs as discussed below under variable costs.

Number of Members: There were 183 members in 1979. Of the current 62 members, only 23 sold to the cooperative this year.

Approximate Percentage of Coffee Sold in Area: Observers agreed that 237,000 lbs. (about 1,580 sacks), 100 times the cooperative's 1984-1985 sales, is a very conservative estimate for coffee production in Fond Jean Noel.

Average Coffee Sale Price: Two sales of coffee, both to CEPEC. First sale, in November, 1984 at 3.90 gds. per kg. Second sale in February, 1985, at 4.44 gds. per kg. Both prices include quality bonuses of 0.26 gds. per kg.

Average Coffee Purchase Price: Range was from 3.25 to 3.75 over a period from September 18 to February 14.

NOTES TO TABLE 1 -- Continued

Approximate Speculateur Price: Average price in Marigot for the 1984-1985 season, as estimated by cooperative members and other local farmers was 3.75 gds. per kg. Range was from 3.0 gds. per kg. in August, 1984 to 4.0 gds. in March 1985. Sale price to illegal speculateurs operating in Fond Jean Noel itself is about 0.15 gds./kg. less than the Marigot price to cover their own costs. Thus, the average speculateur price for Fond Jean Noel is 3.60 (3.75 minus 0.15).

b Analysis with Subsidies Costed: Subsidies funded by CCH include interest on capital borrowed, office materials, and the salary paid to a cooperative manager. Contributions made by members to the cooperative, such as members' unpaid labor or the use of land and buildings owned by members are not considered as subsidies in this analysis and thus are not costed.

c Income: See note on average coffee sale price above. All 1984-1985 sales were to CEPEC.

d Cost of Coffee Purchased from Farmers: See note on average coffee purchase price above.

e Variable Costs:

Hired Labor: 9 person-days to sort and transport coffee from cooperative to road.

Transportation: 17 gds. per sack, from Fond Jean Noel to CEPEC. CEPEC reimbursed cooperative for 9 gds. per sack. Thus, cost to cooperative was 8 gds. per sack.

Personnel Travel: Manager made three trips to Port-au-Prince concerning coffee sales to CEPEC.

Interest Payments: The cooperative borrowed 10,000 gds. from CCH in September at 1 percent per month, not compounded. It payed back 5,000 gds. in November plus 200 gds. in interest. A loan of 5,000 gds. is still outstanding as of March 6, 1985. It is assumed that the loan, plus 600 gds. interest, will be repaid in March. Market interest rate for lending money to an institution such as a cooperative is estimated to be 25 percent. This rate is thus used in the analysis with subsidies costed.

Office Materials: Assorted office materials donated by CCH.

Building Repairs: Including costs of materials and hired labor.

NOTES TO TABLE 1 -- Continued

f Fixed Costs

Salary of Manager: 600 gds. per month

Equipment Depreciation: Cooperative owns one balance, purchased for 750 gds. with an expected life of 10 years. Straight line depreciation used to cost balance at 75 gds. per year.

Building Depreciation: Cooperative office/store is owned by cooperative treasurer. The building was constructed in 1957.

TABLE A--2
 INCOME STATEMENT FOR CACRON
 (Cooperative Esperancede Fond Jean Noel)

BASIC DATA [a]

Period of Analysis: 1983/84
 First Year to Market Coffee: 1961
 Number of Members: 294
 Quantity of Coffee Sold: 23,293 lbs.
 Cooperative Share of Coffee Sold in Area: about 5%
 Average Coffee Sale Price: 4.44 gds./lb.
 Average Coffee Purchase Price: 3.86
 Approximate Speculateur Price: approximately 3.86

COSTS AND RETURNS [b]

Income [c]	Analysis Without Subsidies Costed		Analysis With Subsidies Costed	
	gds.	gds./lb.	gds.	gds/lb.
Coffee Sales Revenue				
Coffee Pile	59,351	4.10	59,351	4.10
Washed Coffee	44,041	5.00	44,041	5.00
Total	103,392	4.44	103,392	4.44
Other Income				
Maize Milled	821		821	
Coffee Huller	107		107	
Total Income	104,320		104,320	
Cost of Coffee Purchased from Farmers [d]	89,967	3.86	89,967	3.86
Variable Costs [e]				
Hired Labor	1,662		1,662	
Fuel and Oil	1,363		1,363	
Maintenance	945		945	
Commissions	1,593		1,593	

TABLE 2 -- Continued

	Analysis Without Subsidies Costed gds. gds./lb.	Analysis With Subsidies Costed gds. gds/lb.
Variable Costs (continued)		
Administration	1,045	1,045
Interest	1,100	2,310
Miscellaneous	441	441
Total Variable Costs	8,151	9,361
Fixed Costs[f]		
Salaries	3,622	3,622
Building Depr.	588	588
Equipment Depr.	837	837
Land Depr.	66	66
Total Fixed Costs	5,113	5,113
Total Costs	103,231	104,441
Operating Profit (loss)	1,089	(121)

Notes:

The costs of hulling coffee and milling maize are not separated out from the costs of processing and selling coffee in the cooperative's books. Thus, it was not possible to carry out separate costs and returns analyses for these different activities. Nor was it possible to calculate the separate costs and returns for the two different kinds of coffee the cooperative markets: cafe pille and washed coffee. It is therefore not possible to calculate the relative profitability of selling washed coffee versus cafe pille, or of marketing coffee versus milling maize versus hulling coffee.

a Basic Data

Period of Analysis: September 1983 through August 1984. There were no stocks of coffee on hand at the beginning or the end of the year indicated.

Quantity of Coffee Sold: 62 percent of the coffee sold was cafe pille, and 38 percent was washed coffee.

NOTES TO TABLE 2 -- Continued

Average Coffee Sale Price: 5.00 gds. per lb. for washed coffee all in one sale. Seven sales of cafe pille were made at an average price of 4.10 gds./lb.

Average Coffee Purchase Price: Exact data not available. This figure is probably slightly higher than the real figure. Estimate was arrived at by dividing total amount of money paid out to farmers by the quantity of coffee sold. Quantity sold is slightly less than quantity purchased, as a result of to moisture and sorting losses between purchase and sale.

Approximate Speculateur Price: Both cafe pille and coffee cherries for processing washed coffee are bought at the current speculateur prices.

- b Costs and Returns: Data on costs and returns in the cooperative books were extremely disorganized; thus, some errors in this analysis may have occurred. Interest on capital borrowed was the only subsidy received by this cooperative. Contributions made by members to the cooperative, such as members' unpaid labor or the use of land and buildings owned by members are not considered as subsidies in this analysis and thus are not costed.
- c Income: See note on average coffee sale price above.
- d Cost of Coffee Purchased from Farmers. See note on average coffee purchase price above.
- e Variable Costs: Variable costs per lb. of coffee sold are not included since some of the costs are for hulling coffee and milling maize.

Fuel, Oil, and Maintenance: These are for the coffee huller, the maize mill, and the coffee depulping equipment.

Commission for Cherry Purchases: These are paid to agents who purchase cherry coffee in various areas for transportation to the cooperative to be processed as washed coffee.

Interest: Funds borrowed from CCH at an interest rate of 1 percent per month, not compounded. Market interest rate for lending money to an institution such as a cooperative is estimated to be 25 percent. This rate is thus used in the analysis with subsidies costed.

f Fixed Costs

Salaries: The manager, a night watchman, and a worker receive salaries during the four-month marketing season.

NOTES TO TABLE 2 -- Continued

Building Depreciation: Cooperative building constructed in 1961; no cost is allotted since it is assumed depreciation took place over a 20-year period. A depot was constructed in 1977 at a cost of 11,762 gds., annual depreciation over a 20-year period is 588 gds., using straight-line depreciation.

Equipment Depreciation: Coffee huller and maize huller each purchased for 3,800 gds., depreciation is over a 10-year period using straight line depreciation. No cost is allotted for the depulper since it was purchased in 1961 and it is assumed that depreciation took place over a 10-year period. Balance purchased in 1981 for 750 gds., depreciated over a 10-year period.

Land Depreciation: Land purchased in 1982 at 1,325 gds. Depreciated over a 20-year period. It is assumed that the annual depreciation cost approximates the annual alternative value of the land in terms of production foregone.

TABLE 3

INCOME STATEMENT FOR CRUDECS
(Cooperative Rurale et Urbane de St. Louis du Nord)

BASIC DATA[a]

Period of Analysis: October 1, 1983-September 1, 1984

First Year to Market Coffee: 1980/81

Number of Members: 106

Quantity of Coffee Sold: 68,912 lbs.

Approximate Percentage of Coffee Sold in Area: 3-5%

Average coffee sale price: 4.59 gds.

Average Coffee Purchase Price: 4.05 gds.

Approximate Speculateur Price: 4.05 gds.

COSTS AND RETURNS[b]

	Analysis Without Subsidies Costed		Analysis With Subsidies Costed	
	gds.	gds./lb.	gds.	gds./lb.
Income				
Sales Revenue	295,437	4.29	295,437	4.29
Quality Bonus	20,861	.30	20,861	.30
Total Income	316,298	4.59	316,298	4.59
Cost of Goods Sold (price paid to farmers)				
	281,315	4.08	281,315	4.08
Variable Costs [c]				
Hired Labor	810		810	
Personnel Travel	2,052		2,052	
Interest	1,000		2,100	
Miscellaneous	353		353	
Bank Costs	50		50	
Total Variable Costs	4,265	.06	5,365	.08

TABLE 3 -- Continued

	Analysis Without Subsidies Costed		Analysis With Subsidies Costed	
	gds.	gds./lb.	gds.	gds./lb.
Fixed costs[d]				
Equipment Depr.	100		100	
Total Fixed Costs	100	.00	100	.00
Total Costs	285,680	4.14	286,780	4.16
Operating Profit (total income minus total costs)	30,618	.44	29,518	.43
Distribution of Profits to members (Ristourné)	26,700	.39	--	--
Profits Retained by Cooperative	3,918	.05	--	--

Notes:
a Basic Data

Period of Analysis: There were no stocks of coffee on hand at the beginning or the end of the year indicated.

Quantity of Coffee Sold: All coffee sold was cafe pille, that is, unwashed coffee.

b Costs and Returns: Data on costs and returns in excellent order. Interest on capital borrowed was the only subsidy received by this cooperative. Contributions made by members to the cooperative, such as members' unpaid labor or the use of land and buildings owned by members are not considered as subsidies in this analysis and thus are not costed.

c Variable Costs:

Interest: Funds borrowed from CCH at an interest rate of 1 percent per month not compounded. Market interest rate for lending money to an institution such as a cooperative is estimated to be 25 percent. This rate is thus used in the analysis with subsidies costed.

d Fixed Costs:

Equipment depreciation: Straight line depreciation, for a balance purchased at 1,000 gds. for a period of 10 years.