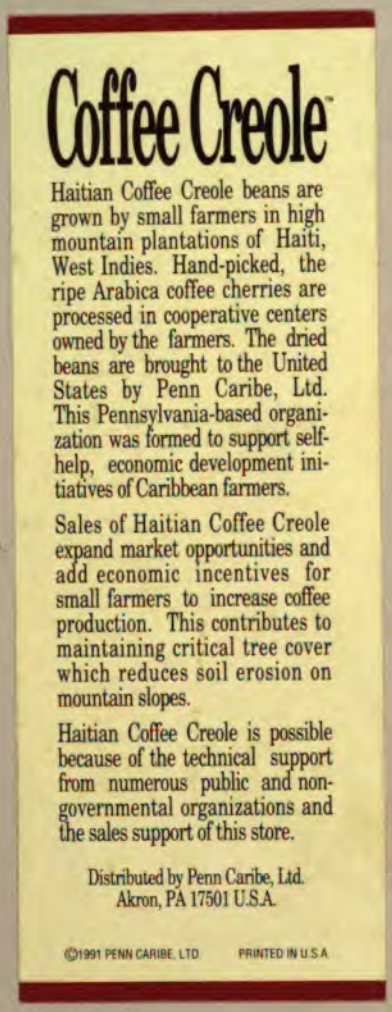
PWOJÈ PLANTE KAFE

Coffee Based Cropping Systems Project



Coffee Creole

Haitian Coffee Creole beans are grown by small farmers in high mountain plantations of Haiti, West Indies. Hand-picked, the ripe Arabica coffee cherries are processed in cooperative centers owned by the farmers. The dried beans are brought to the United States by Penn Caribe, Ltd. This Pennsylvania-based organization was formed to support self-help, economic development initiatives of Caribbean farmers.

Sales of Haitian Coffee Creole expand market opportunities and add economic incentives for small farmers to increase coffee production. This contributes to maintaining critical tree cover which reduces soil erosion on mountain slopes.

Haitian Coffee Creole is possible because of the technical support from numerous public and non-governmental organizations and the sales support of this store.

Distributed by Penn Caribe, Ltd.
Akron, PA 17501 U.S.A.

©1991 PENN CARIBE, LTD PRINTED IN U.S.A.

VOLUME 2: TECHNICAL ANNEXES

Redesigned Proposal Submitted to USAID

October 30, 1992

INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE

OFFICE IN HAITI

TABLE OF CONTENTS

ANNEX A:

Participation

Annex A: Farmer Participation Component

Farmer participation in Pwoje Plante Kafe is indispensable for the success of the project, not only because it is their land, their coffee, their costs, and, in the end, their risks. The true measure of success for a project such as PPK can be seen in the continuation of project-initiated activities and techniques within the community after the project itself has ended. Only genuine and fully integrated farmer participation in project activities can ensure such an outcome.

Prior to the initial phase of the PPK, IICA had already benefitted from previous information and research collected within the context of the swine repopulation program. Because of this previous experience, a fully developed and tested participation methodology could be implemented right from the beginning.

From the outset, farmer participation was envisioned as integral to not only technology transfer, but also in certain aspects of research, in credit and in marketing. Farmer involvement will also be included in both mid-term and final evaluations.

Recognizing the often neglected links of communication necessary between project management and beneficiaries, the PPK was designed to incorporate a mechanism to ensure open

and lively communication from bottom to top, and top to bottom.

The project design was conceived in terms of four levels of participation:

(a) consultation, whereby project personnel ostensibly control and determine project activities, but they do so in consultation with targetted beneficiaries;

(b) representation, where farmers assume certain responsiblities through intermediaries, viz., their representatives or organizations;

(c) incorporation, where farmers' representatives are integrated into decision-making bodies and are accorded greater responsiblity; and, finally,

(d) direction, or responsiblity, in which the farmers have full control and management of the project and are well on their way to self-determination and autonomy.

All four of these levels of farmer participation are used during each stage of project planning and execution.

I. During the project planning phase, the consultative level of participation is used in establishing project objectives. Information previously obtained through "formateurs" in the context of the swine repopulation project streamlines this task. An exploratory survey, as well as informal meetings with local farmers, further establishes farmers' own

perspectives on their problems, priorities and possible courses of action.

The planning stage further includes a representative level of participation through the inclusion of representatives from already existing local organizations and their input in regard to beneficiary selection strategies.

Planning also includes the incorporation of farmers as a means of presenting the conditions necessary for certain project activities, and soliciting the farmers' opinions as to ideal locations for research plots, demonstration plots, kinds of crops, and so on.

II. During the actual execution of the project, consultative and representative levels of participation are integrated through the establishment of the Conseil Consultatif pour la culture du cafe (CADCO).

The CADCO conjoins the interests of individual project farmers with the actual management of the project. It consists of four members (two men, two women) chosen as representatives from among the farmer groupements in each pilot zone; and another five members, each representing concerned institutions, viz. IICA, MARNDR, USAID, the international export houses, and Associations Agricoles.

CADCO has essentially two mandates: one, to make the management of the listed institutions aware of the concerns and problems faced by the coffee producers themselves, and, two, to make the coffee producers aware of the concerns, problems and constraints faced by these higher level organizations.

Incorporation of farmer participation during actual implementation takes place through several venues. Structurally, CADCO, working together with PPK technicians, plays a responsible part in decisions concerning: the necessity for redesigning project components, scheduling of certain project activities, establishing criteria for the selection of prospective beneficiaries, as well as beneficiaries' contributions to the project and the uses to which these funds will be put.

At the same time, during implementation, farmers' organizations will work together with project staff to establish contracts and understandings as to the conditions and requirements necessary for the establishment of experimental and demonstration plots, and selection of crops.

Individual farmer incorporation during the implementation of the PPK is accomplished through the formation of farmer "groupements."

This groupement approach, arguably the necessary "motor" of the project, has as its primary objective the continuation of project activities, in the hands of the participants, beyond the life of the project itself. In other words, the object is no less than the sustainability and continued viability of project goals solely under the aegis of the farmers themselves.

The strategy employed is explicitly designed to encourage farmers to organize themselves in order to receive the technological packages, access credit resources and in general arrive at their own ideas and solutions to improving production and marketing.

In the two pilot zones, these groupements emerged naturally from the already existing traditional "eskwad" or "Kwadi" or "korve." Traditional eskwad are loosely organized work groups of more or less stable membership. They do agricultural labor both in each others' gardens or for pay in others' gardens. Intra-eskwad labor is reciprocal, while the cash garnered working for others' gardens is shared equally among the participating members. Thus eskwad are natural social groupings most amenable to establishing participation within the PPK.

The groupements receive training not only in the new technological packages relating to coffee production

amelioration, but also receive encouragement and assistance, when requested, to consider questions of "development" in general, and begin to arrive at ideas for solving some of the impasses they perceive. Thus some groupements become focused on problems of credit, others on marketing and still other concern themselves with nursery management. In each case the stimulus to engage in one sort of activity or another is the groupement's own, with project staff only providing assistance and advice when asked.

In essence, this methodological approach, while also proffering information, seeks to stimulate dialogue and problem-solving among local groups themselves. Through the use of proverbs, drawings, story-telling and general discussion, farmers begin to establish a new perspective on what they are capable of, what is possible, and what they can reasonably strive for, in all domains of their lives. It is on this basis that the end-goals of improved coffee production, economic autonomy and well-being beyond the life of the PPK will be achieved.

Further participation is encouraged by the dissemination of information and the organization of certain activities conducive to the goals of the project.

The rural animation component organizes sports competitions in each zone, e.g. football games and playoffs, running and

sack races, horse and donkey races and domino championships. Dramatic groups put on little plays, and singing and song-writing contests are organized around particular themes relevant to coffee production. Agricultural fairs and crop contests are organized around exhibitions and demonstrations of project activities or techniques. Finally, local showings of videos on selected topics are arranged. Local video filming is also done and the results are shown both in the immediate locale and other pilot areas.

Four radio stations broadcasting over the entire country were chosen to disseminate specific agricultural programs. The topics of these programs are selected and prepared to synchronize with the agricultural calendar, and program parts are played by project staff and local people. Radio Soleil, Nationale, Lumiere and 4VEH broadcast these programs on average three times a week.

Additional information is distributed through the "Ti Liv," a series of bulletins published by the PPK concerning agricultural topics of interest to farmers in the pilot zones as well as elsewhere.

The directive level of participation reaches its fullest expression in the implementation of those PPK components concerned with credit and marketing. From the initial stages of the project execution, PPK technicians work closely with

marketing and credit groupements, but all groupement activities in these domains remain strictly their own responsibility. Even while these activities are initiated under the auspices of the PPK, they are expected to have their own independent existence, thus with the inherent chances of risk and failure as well as success and profit even within the initial "protective" umbrella of the PPK.

III. These various levels of beneficiary participation are also integrated into all aspects of PPK evaluation. The already established venues of communication and dialogue between project participants and project staff will serve as a continuous and informal reference point during the life of the project.

In addition, each year will see a formal evaluation. Utilizing representative groups of respondents, information and opinions will be directly solicited for purposes of the evaluation.

Project farmers will also be asked to participate in decisions regarding evaluation planning, scheduling, selection of representative field sites and interpretation of test results.

Groupements directly concerned with credit and marketing

activities will direct and manage their own evaluations with the assistance of project staff.

Finally, all evaluation results will be shared with all project participants.

In sum, the objective the PPK is pursuing, through its thorough integration of all aspects of farmer participation, is to ensure the compatibility of its own activities with the interests of the farmers at all times during the life of the project. At the same time, the PPK hopes to encourage and achieve the empowerment of project farmers through their participation in all aspects of project execution so as to continue on their own the development of improvements in coffee production and their own standards of living.

The basic strategy employed is premised on the training and conscientization of farmers and their local organizations in preparation for them to assume fully both productive and commercial aspects of coffee production. The assumption of responsibility, in terms of signing contracts and financial contributions and actual purchase of agricultural inputs, within the context of the PPK, is fundamental to this end.

Specific Mechanisms

Integrating Farmer Participation Within PPK Activities

1. INFORMATION aux agriculteurs. Depuis la naissance du projet, les techniciens de l'IICA fourniront la plus ample information, tant aux agriculteurs qu'à leurs organisations. Le système de diffusion sera établi suivant un schema égal à celui des ondes radio. Ainsi, pogressivement et régulièrement, dotés d'un support composé par des brochures, dépliants et émissions radiophoniques, les zones pilote d'abord et le reste du pays ensuite, recevront l'information.

2. FORMATION. Pour chaque tâche à laquelle ils devront participer, les interessés recevront du projet tous les renseignements, la formation, l'entrainement et l'assistance dont ils auront besoin.

3. CONSULTATION. Le personnel technique appliquera periodiquement les instruments spécialement concus pour recevoir et utiliser l'information fournie par les agriculteurs en vue de l'amélioration de l'exécution du projet. Au fur et a mesure que la quantité d'activités et d'agriculteurs augmenteront, s'elargira la portée des consultations.

4. REPRESENTATION DES AGRICULTEURS. Un Comité Consultatif (CADCO) sera créé et sera directement relié à la Direction. Il sera composé par des représentants des groupements des agriculteurs ainsi que par des representants des organisations et institutions significatives des localités ou le projet se déroulera. Les fonctions du Comité sont spécifiées en annexe.

5. COLLABORATION AUX RECHERCHES. Afin d'établir la validité de certaines techniques de production, des recherches agricoles seront menées dans des terrains préalablement choisis. Une partie de l'expérimentation et des dépenses sera à la charge des agriculteurs membres des organisations. Dans le même esprit, une partie des décisions devront être prises de commun accord.
D'autres essais agricoles auront lieu dans des proprietés privées. Dans ce cas, ce sont les propriétaires qui partageront les décisions, les dépenses et les tâches.

6. COLLABORATION A LA PRODUCTION DES PLANTULES. Il est prévu la production de plantules et autres éléments pour la culture du café avec la coopération des agriculteurs dont on utilisera les terrains, ainsi que ceux des organisations.

7. DECISION CONJOINTE. Les personnes et organisations impliquées dans la production de semences participeront à l'organisation et distribution des semences aux agriculteurs.

Cela se fera avec le CADCO et les autorités respectives du projet, tout particulierement pour l'établissement des critères de sélection des bénéficiaires.

8.DISTRIBUTION DES FERTILISANTS. On prévoit la distribution de fertilisants afin que les plantules distribuées aient plus de possibilité de se développer. L'engrais ne sera pas offert Avec le revenu que les groupements paysans auront obtenu, ils pourront se doter un fonds de roulement pour continuer à fournir des fertilisants aux agriculteurs après la fin du projet. Les règlements pour ces opérations ainsi que pour les quantités désignées seront decidées conjointement entre les techniciens et les dirigeants des organisations.

9. DIRECTION CONJOINTE DU CREDIT. L'opération des services de crédit pour les agriculteurs sera exécutée par certaines organisations d'agriculteurs, choisies et embauchées par le Projet. Ce système contractuel est une forme de placer les partenaires sur le même plan afin que les décisions soient prises conjointement.

10. COMMERCIALISATION. Ils seront pris en charge par les institutions des localités impliquées dans le projet. Elles recevront le soutien du projet à travers des contrats communs.

11. DIRECTION DU CREDIT. Avant la fin du projet, les organisations responsables du crédit auront commencé à se doter de fonds propres provenant de la récupération de prêts financés par le Projet. La direction et l'utilisation de ces fonds ne dépenderont du Projet.

12. DIRECTION DE LA COMMERCIALISATION. Une fois le projet termine, les contrats avec les institutions de commercialisation prendront fin aussi. Ces institutions continueront à opérer selon leurs propres interêts.

CADCO

I. QU'EN EST IL?

Le CADCO, comité Consultatif et de Coordination, est un organe consultatif qui fait partie de l'organisation du Projet PPK et se trouve situe a cote du Directeur de projet. Il est compose de représentants des diverses entités interessées à la caféiculture et d'autres unités faisant partie du Projet PPK. Il opère comme un élément formel de participation.

II. A QUOI SERT LE CADCO

1. Assurer que les Institutions qui conseillent le Projet PPK recoivent en temps opportun les informations nécessaire pour suggérer les actions correspondant à chacune au sein du PPK.

2. Assurer quer le directeur du Projet recoive directement et de manière opportune les informations, opinions et suggestions que les Institutions de participations désirent faire parvenir au PPK.

3. Garantir la coordination desirée des calendriers d'opération avec ceux des institutions participantes concernées.

4. Garantir aux bénéficiaires et au personel technique de

terrain du projet la possibilité de transmettre directement leurs opinions et suggestions au directeur du Projet.

5. Faciliter la communication entre les institutions participantes et les bénéficiaires du Projet.

6. Faciliter la meilleure communication possible parmi les agents travaillant dans la caféiculture.

III. COMMENT EST ORGANISE LE CADCO?

Le CADCO est un corps complexe, constitué d'organes participatifs fonctionnant à 4 niveaux:

1er niveau: Un Comité Central existant auprès du directeur de Projet.

2e niveau : Comité Zonal

3e niveau : Assemblée zonale (locale)

4e niveau : Les groupes de producteurs

1.a Le Comité Central Adjont au Directeur de Projet

Il porte le nom de CADCO. Il est composé des représentants suivants:

a) Les agriculteurs bénéficiaires du Projet PPK des zones pilotes de Beaumont et de Jacmel (4 représentants).

b) Autres agriculteurs et Institutions de Beaumont et de Jacmel liés à la caféiculture. (2 Représentants: 1 homme, 1 femme)

c) Le personnel technique de terrain du Projet à Jacmel et à Beaumont (2 Représentants: 1 homme, 1 femme)

d) La direction du PPK (1 Représentant)

e) Le MARNDR (1 Représentant)

f) Autres institutions en Haiti qui appuient la caféiculture (1 Représentant) par institution sur la base de 6 institutions au total.

1.c Le Comité Zonal

Il y aura un (1) à Beaumont et un (1) à Jacmel. Chacun est representé:

a) Des agriculteurs bénéficiaires du PPK dans la zone (soit 2 représentants pour chacun des groupes pris en charge par un formateur. Ils constituent au total 50% de l'assemblée zonale).

b) Des autres agriculteurs et institutions de la zone interessée à la caféiculture. (Ils constituent 25% de

l'assemblée zonale).

e) Du personnel technique de terrain du PPK, se trouvant dans la zone. (Ils constituent 25% de l'assemblée zonale).

1.d Les groupes d'agriculteurs

Ils sont constitués de 12 a 20 agriculteurs voisins, se réunissant périodiquement pour bénéficier des services fournis par le PPK, particulièrement en terme de formation. La constitution de ces groupes sera assurée par les formateurs sur la base de 4 groupes par formateurs.

IV. COMMENT SE FAIT LA SELECTION DES MEMBRES?

1. D'abord pour les groupes d'agriculteurs

Les formateurs visiteront les plantations et inviteront personnellement chaque agriculteur à participer aux réunions. Aux cours de ces reunions, se formeront des groupes d'agriculteurs qui décident de participer. A ce stade, le formateur prendra note de ceux qui désirent constituer chacun des groupes.

2. Pour l'assemblee zonale

Sur proposition du formateur, les agricuteurs membres de 4 groupes éliront 2 délégues à l'assemblee zonale, un homme et une femme, qui seront leurs representants durant une année.

Les représentants des autres agrieulteurs et insititutions de la zone sront designes par leurs institutions respectives sur demande du responsable Regional du Projet PPK (Agr). Ces représentants seront délegués de leur institutions pour autant que celles-ci n'auront autrement décidé de leur mandat.

Les représentants du personnel de PPK et leurs suppléants aux assemblées zonales seront élus par vote direct et simple de tout le personel de PPK de la zone, par suite du processus établi par l'Agronome de la région. Ces représentants sont élus pour l'annee à moins de ne plus être consignés à la zone, auquel cas, ils perdraient automatiquement cette représentation.

3. Pour les comités de zone

L'assemblée de zone élira 4 membres titulaires et 4 membres suppléants pour être membres du comite zonal. Qu'ils soient titulaires ou suppléants, deux (2) seront représentants des agriculteurs dde PPK. Leur mandat sera de 1 an. Les institutions locales désigneront des représentants au comité zonal sur demande écrite de l'agronome de région (AR). Ces

répresentants auront la durée de mandat déterminée par leurs institutions.

4. Pour le CADCO

4.1 Chaque assemblee elira 4 representant a integrer au CADCO, de ceux-ci, 2 seront les representants des agriculteurs beneficiaires du PPK, 1 des autres agriculteurs de la zone et 1 du personnel de PPK. Ces represenants sont les memes a faire partie du comite zonal.

4.2 Les Institutions designent leurs representants sur la base de demande ecrite du Directeur du Projet PPK. Leur mandat existera pour autant que le decideraient les Insitutions dont ils emanent.

V. COMMENT TRAVAILLE LE CADCO

5.1 Le CADCO

5.1.1 Le comite CADCO pres de la Direction du Projet se reunira une fois par mois.

5.1.2 A chaque reunion, la Direction presente un rapport comprenant:

a) des donnees sur ce qui est realise par le PPK durant le mois.

b) des donnees comparatives entre le programme prevu pour le mois et le programm realise.

c) le programme des activites des mois suivants.

d) Une liste des requetes de participation a prevoir pour le suivant.

5.1.3 A chaque reunion, le CADCO prendra les decisions necessaires pour faire face aux besoins exprmes par le Directeur du PPK.

5.1.4 Les representants des autres institutions, des beneficiaires des autres agriculteurs et du personnel PPK presenteront aux cours de ces reunions, les informations, opinions et suggestions considerees opportunes pour le meilleur developpement du Projet. Le CADCO prendra alors les decisions y relatives.

5.1.5 Les decisions du CADCO seront transcrites et envoyees aux representants.

5.1.6 Ces decisions, sans tenir lieu de loi au de reglement,

seront valides dans la mesure ou les propres membres du CADCO s'obligent a les mettre en application et que les institutions representees reconnaissent la capacite de leurs representants a accepter des engagements en leur nom.

5.2 LE COMITE ZONAL

5.2.1 Chaque comite zonal se reunira un;e fois le mois. A chaque reunion, le bureau de zone du PPK presentera un rapport qui devra inclure:

a) Des donnees sur les activites realisees dans la zone pilote au cours du mois.

b) Des donnees comparatives entre le programme elabore pour le mois et ce qui a ete execute

c) La programmation pour le mois suivant.

d) Des demandes de participation pourle mois suivant.

e) Des informations sur l'execution du PPK dans le reste du pays pendant le mois.

5.2.2 Les representants des autres institutions, des beneficiaires, des autres agriculteurs et du personnel PPK,

presenteront au cours de la reunion du comite zonal les informations, opinions et suggestions consideres opportunes pour le meilleur developpement du PPK dans la zone. A ce titre, le comite zonal prendra les decisions correspondantes.

5.2.3 Les representants de la zone du comite CADCO place pres du Directeur du Projet, participeront aux reunions du comite zonal quand ceci semblera necessaire, en accord avec l'Agronome Regional (AR).

5.3 L'ASSEMBLEE ZONALE

5.3.1 Chaque assemblee zonale se reunira une fois l'an. Au cours de ces reunions seront traites les points suivants:

a) Evaluation de la situation du PPK l'annee anterieure dans la zone et le reste du pays.

b) Plan du PPK pour la zone pour l'annee suivante;

c) Election des membres du comite zonal et des representants a envoyer au CADCO

5.4 LES GROUPES D'AGRICULTEURS

Chaque groupe se reunira une fois le mois. Au cours de ces reunions, s'executera la formation pour la participation au projet et le soutien aux themes de vulgarisation, de meme que se realisera la coordination en vue de la participation des agriculteurs dans les activites du PPK tels que les journees en plein champ, les visites aux centres d'experimentations, la demande de credit, la reception des plantules, d'engrais ou de pesticides, l'election des representants etc.

DOCUMENT DE REFERENCE

Et Acte de Base du Comité Consultatif et de Coordination du Café (CADCO)

Conscients de la responsabilité qui repose à la fois sur l'épaule de ceux qui assurent la promotion technique et économique de cette culture de base représentée par le Café et aussi de ceux qui traditionnellement produisent cette denrée de base.

Reconnaissant de plus le bien fondé de l'initiative prise par l'Institut Interaméricain de Coopération pour l'Agriculture (IICA) de saisir l'opportunité d'éxécution du projet de Revitalisation de la Caféiculture (rendue possible par un financement de l'USAID) pour essayer de promouvoir une convergence des efforts en faveur d'une promotion rationelle du Café à partir de 2 zones pilotes d'action.

Réalisant enfin les effets bénéfiques d'une Coordination des informations techniques et commerciales et de leur diffusion rationelle au niveau de la production et de l'industrie Caféière, les Représentants des Institutions et Organismes présents à la réunion organisée le 4 Juillet 1990, aux effets de donner naissance à un comité Consultatif et de Coordination du Café (CADCO) s'acccordent à donner leur adhésion au mandant suivant proposé pour cette entité et à aider à atteindre les objectifs suivants:

1. Assurer que les Institutions qui conseillent le Projet PPK recoivent en temmmps opportun les informations nécessaires pour suggérer les actions correspondant à chacune au sein du PPK.

2. Assurer que le Directeur du Projet reçoivent directement et de manière opportune les informations, opinions et suggestions que les Institutions de participation désirent faire parvenir au PPK.

3. Garantir la Coordination désirée des calendriers d'opération avec ceux des Institutions participantes concernées.

4. Garantir aux bénéficiaires et au personnel technique de terrain du Projet la possibilité de transmettre directement leurs opinions et suggestions au Directeur du Projet.

5. Faciliter la communication entre les Institutions participantes et les bénéficiaires du Projet.

6. Faciliter la meilleure communication possible parmi les agences travaillant dans la caféiculture.

POUR ACCORD:

Pour les producteurs des 2 zones pilotes (Jacmel et Beaumont)

.....

.....

.....

.....

.....

.....

.....

.....

Pour l'Institut Interaméricain de Coopération pour l'Agriculture (IICA).....

Pour le Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural (MARNDR).....

Pour l'Association des Exportateurs de Café (ASDEC)

.....

Pour l'Association des Producteurs Agricoles (APA)

.....

Pour la Banque de la République d'Haiti (BRH)

.....

Pour l'Organisation des Nations Unies pour l'Alimentation et l'Agriculture (FAO).....

Pour le fonds d'aide et de coopération (FAC)

.....

Pour la Caisse Centrale et de Coopération Economique (CCCE)

Port-au-Prince, le 19

ANNEX B:

Validation

ANNEX B: TECHNOLOGY VALIDATION COMPONENT

INTRODUCTION

The PPK-proposed cropping system involves technological components which require finer adjustments under farmers' actual agro-ecological and socio-economic conditions in Jacmel and Beaumont in order to facilitate their decision-making process as to whether they will eventually adopt, or partially adopt, the technological package.

OBJECTIVES

As during the initiation phase of PPK, the objective of Technology Validation is to formulate a set of technically and economically viable recommendations regarding coffee-based cropping systems, which project beneficiaries will apply on their farms.

As three (3) high-yielding and rust-resistant or tolerant coffee varieties (Catimors, Caturra and Catuai) were validated and adopted by farmers during the PPK initiation phase, only continued monitoring of the performance of these new cultivars needs to be accomplished during the consolidation phase. Validation of nursery and seedling production management techniques was essentially completed during the initiation phase, and will also require only monitoring during the consolidation phase.

The new technological components which will be validated during the consolidation phase, are:

1. Upgrading Soil Fertility/Enhancing Sustainability.

   1.1 Transfer of fertility among the different "gardens" worked by the peasants.

   1.2 Restoration of fertility on fallow land through use of green manure plants such as Sesbania.

   1.3 Alternative annual/perennial crop mixes which absorb nutrients from different soil horizons.

   1.4 Evaluating benefit/costs from different combinations of organic and chemical fertilizers.

   Five combinations will be validated:

Combination	ORGANIC %	CHEMICAL %
1	100	0
2	75	25
3	50	50
4	25	75
5	0	100

2. Crop Protection.

2.1 Proper lay-out of crops for enhanced cross-protection against diseases/pests.

2.2 Insect control with neem insecticide in annual crops.

Dosage levels to be validated:

Dosage	grs neem powder/liter water
1	50
2	75
3	100

3. Optimal mix of coconut/citrus within cropping system to minimize interspecific competition.

Three combinations coconut/citrus will be validated:

Combination	COCONUT No./ha.	CITRUS No./ha.
1	25	75
2	50	50
3	75	25

STRATEGY

The strategy employed for the Validation component of PPK will entail three steps:

1. Explanation/Farmer Selection/Protocol Development.

This step involves meeting with farmers to explain to them the objectives of farm-level validations; identifying those farmers interested in participating, and, with their input, develop site-specific experimental protocols.

2. Implementation and Monitoring Protocol.

This step involves the actual establishment of the trial, and the periodic field monitoring required to assure that it is maintained and managed as per the protocol. Observations and data collection are conducted during this period.

3. Data Analysis/Formulation of Recommendations.

During this step, raw data, combined with the on-site observations are analyzed (both technical and economic), and the initial findings are discussed with the participating farmer and other interested parties. After this analysis, which includes direct farmer input, final recommendations can be made and presented for wider dissemination.

ACTIVITIES

The following specific activities are involved for each strategic step previously described:

1. Farmer Contact/Initiation of Validation Trials.

   1.1 Meetings with farmers; explanation of the validation exercise; solicit expressions of interest to participate.

   1.2 Preselect farmers based on established criteria.

   1.3 Make final selections of farmers after site visits.

   1.4 Develop site specific protocol and agreement document with farmer; sign agreement.

2. Implementation of Validation Trial.

   2.1 Develop site specific work plan.

   2.2 Organize, deliver inputs; supervise planting.

   2.3 Monitor, according to protocol, work plan.

   2.4 Collect data when, and as, specified in protocol.

3. Analysis and Formulation of Recommendations.

   3.1 Conduct technical and economic analysis of data.

   3.2 Present and discuss initial findings with farmer.

   3.3 Prepare recommendations as a combination of the analysis AND farmer commentary.

   3.4 Disseminate recommendations.

END-OF-PROJECT RESULTS

By the PACD, it is anticipated that PPK will have concluded adequate Validation trials to be able to make specific recommendations concerning the topics specified under the Objectives.

ANNEX C:

Cropping Systems Technology Transfer

ANNEX C: CROPPING SYSTEMS TECHNOLOGY TRANSFER

INTRODUCTION

Sustainability is a one of the key issues addressed in this redesigned PPK project. Coffee-based farming systems, as proposed in the project is a technically, economically and ecologically sound approach towards sustained food, coffee and perennial crop production, and subsequent income generation by the project's direct and indirect beneficiaries.

Multiple cropping is a traditional type of agriculture in Jacmel and Beaumont, as pointed out in the Baseline Study made during the initiation phase of the PPK project (IICA. Baseline Study. Volume 3, 1992). While learning from farmers' experience, this redesigned project will improve the technical and economic performance of cofffe-based cropping systems.

Furthermore, IICA Jamaica and CATIE have gone a long way towards establishing sustainable farming systems and have developed experience from which IICA Haiti will learn when implementing the redesigned PPK project.

OBJECTIVES

The general objective of the Cropping Systems Technology Transfer component of PPK is to modify as required from farmer feed-back, and transfer an improved multi-crop system with the necessary management technologies, in order to assure the economic and ecological sustainability of coffee production. The technology transfer will be directed towards both the farm level and community level, with the following specific objectives and benefits envisioned:

1. Farmer Level.

At the farmer level, the proposed coffee-based cropping system will permit farmers to increase and stabilize their income, through optimal and sustainable use of their land, labor and natural resources. Specifically:

a. To optimize land use via improved multi-cropping practices, thus reducing pressure on this scarce resource;

b. Natural soil fertility will be optimally exploited through the combination in time and space of different crops with different root systems and nutrients demand;

c. Furthermore, the integration in the cropping system, of field beans (one year) and pigeon pea (two years) for one

part, and the promotion of organic manure on the other, will contribute to further upgrading soil fertility, while at the same time, increasing food production and income;

d. Also, the use of natural, neem-based insecticides will contribute to cost-effective control of insect pests, while the incorporation of neem pulp residues will improve soil fertility with corresponding increases in yield and production;

e. As labor is shared among crops in the system, its additive value increases, with a corresponding reduction in production costs and increase in returns;

f. Soil will be conserved by contour plantings, and soil retention by the roots of the perennials involved in the system;

g. Water is conserved by the system, because of increased infiltration and decreased run-off due to more optimal soil cover;

h. Cost peaks are attenuated through benefits generated at different periods of the year, thus enabling farmers to better handle not only the cropping systems budget, but also, their whole family budget.

2. Community Level.

The PPK Cropping Systems Technology Transfer, by also focussing on environmental training at the community level, will contribute to the reduction of negative externalities which result from unsound hillside monocropping. These externalities affect the entire populations which reside within the watersheds associated with the targeted Jacmel amd Beaumont coffee production zones.

More specifically, the overall life supporting capacity of the Jacmel and Beaumont natural resources will be augmented by improving the hydrologic and nitrogen cycles, regulating soil temperatures and micro-climates, buffering the dessicating effect of winds and restoring soil conditions conducive for beneficial micro-organisms. One obvious benefit, which has been reported from other micro-watersheds where soil conservation and cover crop practices have been installed, is the rapid regeneration of springs. Such results not only have an obvious benefit for the local population, but will also contribute to coffee processing because water for washing will be more readily available.

3. National Level.

On a more limited basis, PPK Cropping Systems Technology Transfer will have a positive impact on national food security due to increased productivity. More directly, via the project's impact on sustainable coffee production,

significant contributions to national revenues from agricultural exports should accrue.

STRATEGY

1. Technology Transfer begins with a clear definition of exactly what new, or modified, concept is to be conveyed to the target audience. IICA is proposing a multi-crop system, which is generally known by the local farmers except that some modifications are suggested. Pigeon pea as opposed to field beans, for example, although widely intercropped in Haiti, appears from the baseline studies not to be emphasized in the target localities. Since agronomically the crop is suitable, and it provides such benefits as an additional food source, an off-season crop and nitrogen fixation, IICA has included it in the technical package for a coffee-based cropping system. Similarly, an increased emphasis on perennial food crops such as citrus and coconut as shade trees has been incorporated into the package.

Beyond such simple changes in the crop components, improved management practies such as more efficacious spacing, contour planting and conservation measures, weed and pest control, and the use of fertilizers comprise other components of the package. There is, in essence, only a single "tech pack", although some modifications will be made for agronomic reasons in the different zones and sub-zones, and the

farmers themselves, in the true spirit of farming systems, will undoubtedly make additional modifications. This "technology package" is described in detail in the section following this Annex.

2. Technology Transfer also entails a systems analysis to determine what other factors might limit acceptance. Both the PPK Baseline Study, and the experience achieved during the first 18 months of project implementation have enabled this analysis to be made.

As pertains directly to PPK, this analysis has revealed specific required actions, which will be addressed via direct linkages with other components of the project. Examples of these actions include the following:

a. Participation/Community Organization.

This component, emphasized strongly during the first 18 months of PPK implementation, greatly enhances the efficiency of training activities, and therefore technology transfer. Efforts directed towards convincing participating farmers that this is THEIR project, will contribute to the feed-back mechanism which is so crucial to effective technology transfer.

The self- and group- reflection process, which is continuously reinforced during training promotes an

enhanced attitude of self-determination. This attitude tends to result in more active dialogues and questionning of new ideas so that the process of technology transfer becomes a real entity, rather than a temporary acceptance of some vague idea because it might entail some minor benefit from "the project".

Finally, increased community organization is vital to the initiation of community banks, which will be the PPK credit delivery mechanism.

b. Credit

Implementation of the technology package requires access to credit with reasonable rates and payback periods. Credit will be used for the acquisition of plant materials and the necessary inputs. The mechanism selected by IICA is the community bank model (See Annex D) and a prototype has already been established in Beaumont.

c. Technology Validation

An on-going aspect of technology transfer is the validation of the technology under actual farmer-managed conditions. Examples of activities which will be conducted in support of Cropping Systems Technology Transfer include (1) determination of the most advantageous mix of chemical and organic fertilizers;

(2) the efficacy of neem-derived insecticides; and (3) the performance of coconut at the higher elevations within the targeted zones. Details of these trials and methodologies are presented in Annex B.

d. Training

Technology transfer is essentially an exercise in training. Section 4.2 of this proposal presents detailed subject lists for training activities.

e. Processing and Marketing

Methods to augment post-harvest returns will clearly support the transfer and acceptance of technology by increasing the overall economic viability of the cropping system. Both improved processing at the farmer level, and activities to address national and international marketing are included in this revised proposal. Details are presented in Annex E.

3. Technology Transfer also requires a planned methodology for effective execution. Details of this methodology are presented in Section 5 of this Annex, following the description of the proposed cropping system.

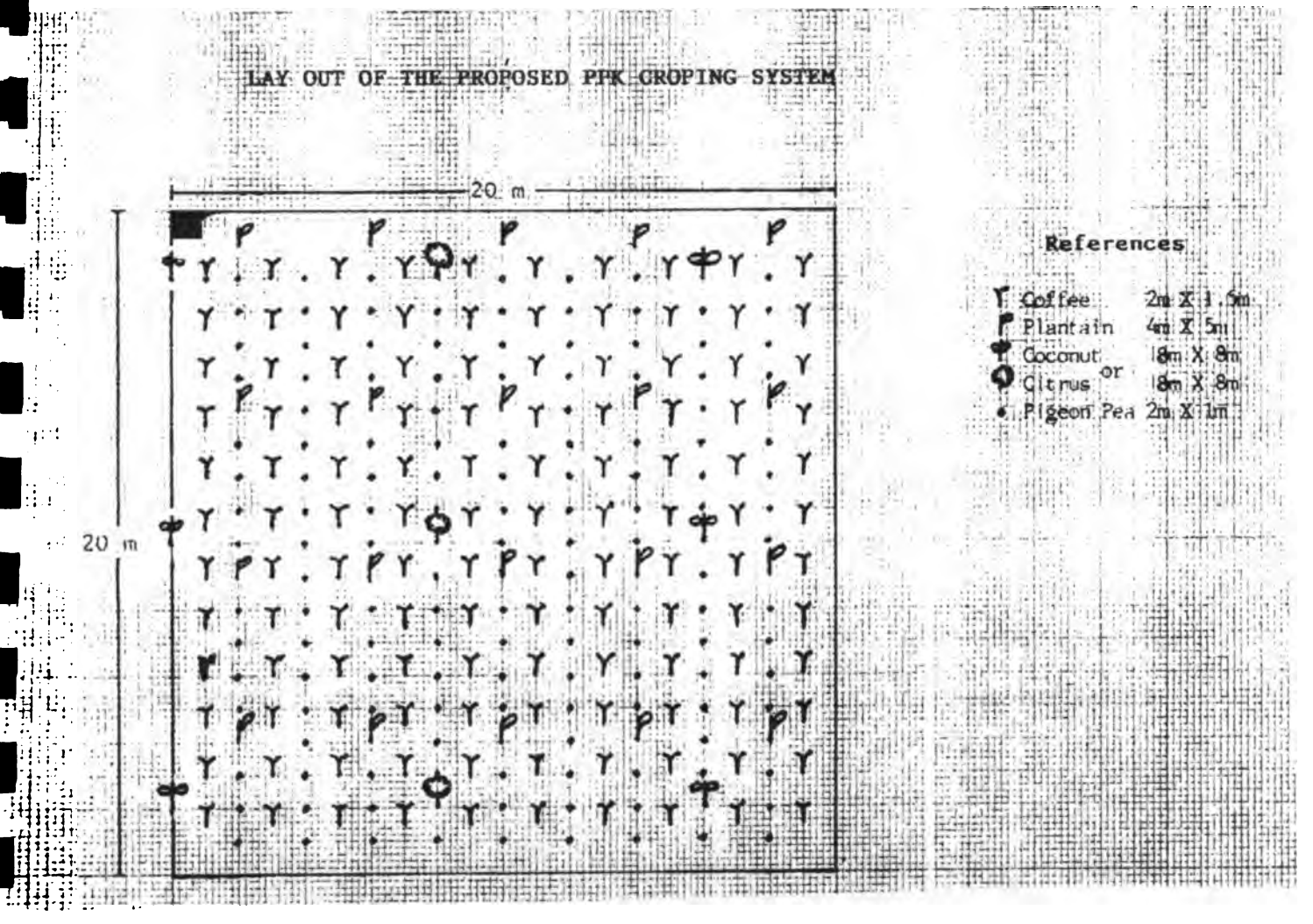
DESCRIPTION OF THE PPK-PROPOSED COFFEE-BASED CROPPING SYSTEM

1. The "coffee complex" proposed by IICA includes seven crops. These crops, and their utility within the cropping system, are summarized in Table C-1. A schematic representation of this cropping system is presented in Figure C-1. The reader should note that this cropping system will be installed with appropriate soil conservation techniques (e.g., contour planting, trash barriers on the contour, mulching with detritus when/where appropriate, etc.)

Table C.1: Recommended Crops and Their Utilization within the PPK-Proposed Cropping System

Crop	Uses						
	Shade	Food	Income	Nitrogen supplier	Organic matter	Feed	Charcoal
1. Beans		x	x	x	x		
2. Pigeon pea	x	x	x	x	x	x	
3. Corn		x	x		x	x	
4. Plantain	x	x	x			x	
5. Citrus	x	x	x				x
6. Coconut	x	x	x				
7. Coffee			x		x		

Figure C.1: Schematic Representation of Proposed Cropping System



One of the major advantages of inter-cropping over mono-cropping is the actual increase in effectively available land because multiple crops are grown in a non-competitive manner. In inter-cropping terminology, the term "land equivalent ratio" (LER) is used. Table C.2 presents the relative densities for each perennial crop. At these relative densities, the LER is estimated at 140%.

Table C.2: Relative Crop Densities

Crop	Relative density %
Coffee	83.8
Plantain	12.5
Citrus/Coconut	3.7
Total	100.0

2. Rationale for Selection, and Selected Descriptive Parameters for each Crop in the PPK-Proposed Cropping System.

a. Coffee

The rationale for the selection of coffee is that PPK is a coffee improvement project. This section, therefore, presents specific details pertaining to coffee technology and its transfer.

Production and Distribution of Seedlings

During the remaining 33 months, the Project will produce and distribute a total of 1.8 million coffee seedlings of high-yielding, rust tolerant and/or resistant varieties (see Table C-3: Seedling Production and Yearly Cost in US Dollars). The varieties which will be used are Caturra, Catuai and Catimor. The origin of the coffee seeds will be mainly from Haiti, especially from zones with experience in the production of seeds, such as Thiotte. Seeds will also be imported from the Dominican Republic and from Central America as required.

Table C.3: Seedling Production and Yearly Cost in US$

	YEAR 1	YEAR 2	YEAR 3	TOTAL
	500,000	700,000	675,250	1,875,000
Cost/year	85,000	119,000	114,792.5	318,792.5
1. **Supplies**	21,272	29,714	28,698	79,684
Seed*	4,250	5,950	5,739.6	
Bags	6,800	9,520	9,183.4	
Fertilizer*	4,250	5,950	5,739.6	
Pesticide*	3,825	5,355	5,165.6	
Compost	2,147	2,939	2,869.8	
2. **Contract to farmers groups** (Rental land, labor).	46,750	65,450	63,135	175,335
3. **Equipment**	17,000	23,800	22,939	63,739
Equipment	11,900	16,660	16,057	
Shade	5,100	7,140	6,881	
TOTAL/US/YEAR	85,000	119,000	114,792.5	318,792.5

*US$ costs
All remaining costs in gourdes

Coffee seedling production will be done in small decentralized nurseries (5,000 to 7,000 seedlings) which will be managed directly by farmer groups who will receive a small subsidy (see Table C-4: Subsidy Phase-

Out Plan - PPK1).

The plan proposed for PPK1, just prior to the suspension, was to reduce the subsidy every year until the farmer groups were self-sufficient in seedling production. Under the current situation, and a shorter LOP, this subsidy phase-out plan will have to be reconsidered. Table C-5 presents data on nursery costs for the production of 100,000 seedlings. The Project will continue to provide training in nursery production as part of Technology Transfer. Polyetheline bags of 20x25 cms. will be distributed to the nurseries, and two soldiers (seedlings extracted from germination beds) will be planted per each bag. Seedlings will remain in the nursery for 8-10 months prior to distribution for out-planting. Nursery production will also be supervised to assure a high-quality of seedlings.

Table C-4 SUBSIDY PHASE-OUT PLAN (PPK1)

YEAR	I	II	III	IV
a. Farmer Contribution				
Land Labour	0	2	4	6
b. PPK Contribution				
Land and Labour Subsidy	6	4	2	0
Inputs and Equipments (Advances - Seeds)	6	6	6	6
c. Total Seedling Cost	12	12	12	12
d. Farmer Pays/Plant (Payments for inputs/ Equip.)	6	6	6	6
e. Total farmer cont.	6	8	10	12
f. Total PPK cont.	6	4	2	0
g. Subsidy PPK	50%	33%	17%	0

The table above describes the subsidy phase-out program discussed with and accepted by farmers before the coup. It is doubtful whether this phase-out program will be acceptable or viable under the current circumstances. This must be investigated.

Table C-5 NURSERY COST TO PRODUCE 100,000 SEEDLINGS IN US $

		COST
1. SUPPLIES		4,250
- Seed	850	
- Bags	1,360	
- Fertilizer	850	
- Pesticide	765	
- Compost	425	
2. CONTRACT FOR FARMER GROUPS (Includes labor, rent)		9,350
3. EQUIPMENT		3,400
- Equipment	2,380	
- Shade	1,020	
TOTAL		US $17,000

The nursery production cost is divided as follows:

- 25% for supplies, including seed, fertilizer, bags, pesticides;
- 55% for farmer groups, contractors;
- 20% for equipment and shade.

The distribution of the seedlings will be done in agreement with the farmer groups in such a way that the group will acquire some benefit. A control sheet will be established to follow up the planting process. Prior to receiving seedlings, planters will have prepared their land as per project recommendations and established the necessary shade trees. Coffee planting will be performed in accordance with the agricultural calendar (planting in the months of August - November in Beaumont; in the Jacmel locality planting will be on a bi-annual basis: March, April and May, and August-November). The intra-specific planting distance will be the

same that has already been adopted by the producers under PPK guidelines: 2 x 1.5 m., equivalent to 3,333 plants per hectare.

Part of the technology package being transferred by PPK includes the recommendations for minimum quantities of fertilizer to be applied. The Credit delivery system and project suppport for the timely distribution of these inputs will be part of the technology transfer package.

b. Perennial Food Crop/Shade Trees.

Perennial crops recommended for the coffee-based cropping system are plantain (as temporary shade), citrus and coconut for permanent shade. In addition to providing the necessary shade, these three plants also provide food and will increase income derived from the cropping system. Because the roots of these plants occupy different soil strata, there will be minimal inter-specific competition and the nutrient cycle will be enhanced. It will be recommended that these plants be planted six months prior to planting the coffee seedlings so that adequate shade will already be established.

These crops will be planted 6 months before the planting of coffee, to provide adequate shade to the new coffee plantation.

Additional details, pertaining to each of these three plants is provided below.

(1) Plaintain: The varieties selected will be the preferred locally grown varieties. Plant spacing will be 4 x 5 m. (equivalent to 500 plants per hectare). It is anticipated that the majority of the required seedlings can be obtained from farmers within the project localities. Sources for additional seedlings could be from ORE (produced in vitro and disease free) or from similar tissue culture laboratories in the Dominican Republic. Seedlings will be provided to participating farmers as a credit input, with repayments returned to their respective community revolving loan fund (CRLF).

(2) Citrus: In the Beaumont region, lime trees will be the used for the variety of citrus. There is a substantial demand for lime from a Les Cayes based industry. The addition increased levels of vitamin-C in local farmer diets will also be beneficial. In Jacmel, PPK will provide grafted oranges. There is a premium market for Jacmel oranges in Port-au-Prince. Seedlings will be established at 8 x 8 m. intervals (equivalent to 156 plants per hectare). These

trees will provide permanent shade for the coffee. (Note that the plantain only provides temporary shade.)

The planting material can be obtained from organizations experienced in fruit tree production such as ORE (Camp Perrin), the Rotary Club in Jacmel and other private sector organizations in Port-au-Prince.

(3) Coconut: Coconut will be given as a credit input to the small coffee farmers that wish to integrate this plant within the production system. Coconut is a well known multi-purpose crop in Haiti, providing not only nutritious fruit, but shade and roof materials and wood widely used in construction as well.

The varieties that will be used are Malayan Dwarf and the MayPan (an hybrid species developed in Jamaica and more tolerant of high winds and marginal soil conditions). Both of these improved varieties are resistant to "lethal yellowing disease". Extant tall variety coconuts in Haiti have, or are in process of, being decimated by lethal yellowing. The result has been a substantial decrease in production, and the country is currently importing great quantities of this product.

According to the Director of Research for the Coconut Industry Board in Kingston, Jamaica, coconuts can be grown

to an altitude of 600 meters, but there will be a substantial reduction in the number of nuts produced per year. His estimate was at 30 (a good average yield in Jamaica is considered to be 75). This estimated was verified by PPK staff observations at Tozia (ca. 600 meters, Beaumont zone). Furthermore, IICA conducted a benefit/cost analysis using 20 nuts per year and results clearly indicated that this yield would be very profitable for the Haitian farmer.

FAO, in its book "El cocotero arbol de vida" (Coconut, the tree of life), reports that in Malasia, coconut associated with small farm coffee results in yields of up to 1,000 kgs./ha., at elevations not exceeding 600 meters. When coconut is planted at higher levels, there is a delay in the flowering as a consequence of low temperature.

PPK proposes to introduce coconuts into the coffee-based cropping system on a operational basis at altitudes up to 600 meters. Validation trials at higher elevations may be conducted as well if farmers express interest.

Planting material will be imported from the Dominican Republic and/or Jamaica. The project will also investigate the possibility of establishing a hybridization nursery with a responsible organization in order to produce the Maypan hybrid. Given the progressing demise of the tall variety coconuts, such a production nursery for this improved

variety coconut would be a major contribution to Haiti.

Table C-6 presents an estimate of the quantity, unit cost and total cost for the perennial crop seedlings which will be required for the remaining LOP.

Table C.6: Perennial Tree Crop Seedlings (Quantity and Cost for LOP)

Crops	Quantity Required	Unit Price (Gdes)	Total Cost (Gdes)	Total Cost (US$)*
Banana	282,000.-	1.50	423,000.-	42,000.-
Citrus	84,330.-	6.00	505,980.-	50,590.-
Coconut	3,000.-	15.00	45,000.-	4,500.-
				94,090.-

This table gives the required quantity of perennial crop seedlings and the amount of the total cost in US dollars.

c. Anuual/Biennial Food Crops

Two annual crops (corn and beans) and one biennial (pigeon pea) are recommended within the coffee-based cropping systems for the first establishment years of the new plantation. It is virtually assured that farmers will use the available, freshly prepared land between the shade tree seedlings for

these crops anyway. PPK intends to provide better quality seed and selected cultural practises in increase yields, thereby generating additional food and/or income.

1) Field Beans.

Beans are very extensive throughout the project zones, having significant importance as a basic food in the Haitian diet. Nevertheless, farmers lack support to improve bean production which can be accomplished by providing improved planting materials, fertilizer (via credit) and training. These services will be provided by PPK.

Varieties: The same varieties currently being used by the farmers will be addressed and farmers will be taught to select bean seeds properly.

Planting distance: Planting distance will be .50 cm. x .50 cm. in order to more effectively utilize space within the multi-cropping system.

Planting season: In both project zones, planting will be twice a year according to the agricultural calendar.

Finding good quality seeds: The project will establish contact with other institutions, such as ORE, so that farmers may obtain good quality seeds, financed with PPK credit if needed. The PPK should increase beans production 40% from 500 to 700 Kg/Ha.

2) Corn

Corn ranks only second to rice as the major grain consumed by the Haitian population. Additionally, it is the principal ingredient in animal (chicken and pig) feed.

The farmers in the project zones normally plant corn along with beans. Corn production suffers from the same lack of services which affects bean yields: lack of improved planting material, fertilizer, and training. The project will offer these services to participating farmers.

Varieties: Selection of good quality local chicken corn seed will be the priority.

Planting distance: As corn is planted with beans, a planting distance of 2m x 1m shall be recommended which should improve upon the current use of land.

Planting season: Planting shall be twice a year according to the agricultural calendar. PPK shall increase corn production 45% from 900 to 1300 Kg/Ha.

3) Pigeon Pea

Pigeon Pea is a leguminous crop which offers a number of benefits to the small farmer cropping system. Pigeon pea provides food for home consumption, and additional cash crop

and shade for the coffee. PPK will support pigeon pea production via training, improved seeds, and fertilizer (via credit).

Varieties: The common local variety will be used.

Planting distance: Pigeon pea will be planted at a distance of 2m. x 1m. allowing for other crops to enter the system while using land space efficiently. PPK will improve pigeon pea production by 40% from 500 to 700 Kg/Ha.

Planting season: For both zones, the planting season is March and April. Pigeon pea will remain in the system for two years in both zones.

Table C.7 presents the estimated quantities and costs for the annual and biennial food crop seeds which will be required for the remaining LOP.

Table C-7 ANNUAL/BIENNIAL FOOD CROP SEEDS QUANTITY AND COST FOR LOP

Crops	Quantity of seed (kg)	Unit price (gdes)	Total cost (gdes)
Corn	7,100.00	2.56	18,176.00
Bean	14,000.00	7.00	98,800.00
Pigeon Peas	4,500.00	4.00	18,000.00
			134,976.00

Selected Benefit/Cost Analyses

Numerous iterations of benefit/cost analyses were conducted during the development of this recommended package for coffee-based cropping systems. Enterprise budgets were prepared for each individual crop based on data acquired directly from PPK sources where applicable, other experience in Haiti, and visits to both the Dominican Republic and Jamaica.

An enterprise budget presents in detail both the labor costs of production (e.g., person days for land preparation, weeding, harvesting, etc.), and the costs of inputs (e.g., plant materials, fertilizer, and even sacks for the transport of produce). Benefits accruing are also indicated by year, specifying the estimated harvest quantity and an estimate for the farm gate price.

Examples of these enterprise budgets are presented for a) coffee with inputs; b) coffee without inputs; c) plantain; d) limes - Beaumont; and e & f) coconuts, mid elevation and high elevation, respectively, in Figure C-2/a-f.

It can be seen from these figures that even at 20 nuts per year for coconut production at the higher elevations, the contribution at the farm gate is significant.

Figure C-2a

[illegible] BUDGET FOR COFFEE WITH INPUTS (2x1.5m = 3333 pl/ha)

H/j = 13g/j

09/24/92

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10	
A. Prod/Income							350kg X 4.4gde/kg 1540gdes		500kg X 4.4gde/kg 2200gdes		700kg X 4.4gde/kg 3080gdes		900kg X 4.4gdes/kg 3960gdes		1000kg X 4.4gde/kg 4400gdes		1000kg X 4.4gde/kg 4400gdes		1000kg X 4.4gde/kg 4400gdes	
B. Variable Costs Labor 13g/j	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes	Yield/ Quantity	Total Cost Courdes
Land Prep	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Holes Prep	24 H/j	310	2	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Planting	15 "	195	2	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Shade Control	—	—	—	—	—	—	—	—	2	26	2	26	2	26	2	26	2	26	2	26
Weed Control	15 "	195	20	260	15	195	5	65	5	65	5	65	5	65	5	65	5	65	5	65
Pruning	—	—	—	—	—	—	—	—	5	65	5	65	5	65	5	65	5	65	5	65
Fertilizer Appl Chemical	4 "	52	4	52	4	52	4	52	4	52	4	52	4	52	4	52	4	52	4	52
Organic	4 "	52	4	52	4	52	8	104	8	104	8	104	8	104	8	104	8	104	8	104
Pesticides Appl	2 "	26	2	26	2	26	2	26	2	26	2	26	2	26	2	26	2	26	2	26
Harvesting	—	—	—	—	—	—	20	260	30	390	35	455	40	520	45	585	45	585	45	585
Handling	—	—	—	—	—	—	2	26	2	26	2	26	2	26	3	39	3	39	3	39
Transport	10 "	130	2	26	—	—	3	39	4	52	4	52	4	52	4	52	4	52	4	52
C. INPUT COST																				
Seedling (0.75gde)	3333	2499	666	499	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Seeds	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fertilizer Chemical (3.30gde/kg)	250 kg	825	250	825	250	825	250	825	250	825	250	825	250	825	250	825	250	825	250	825
Organic (0.30gde/kg)	1515	757	1515	757	2272	1136	3330	1515	3330	1515	3330	1515	3330	1515	3330	1515	3330	1515	3330	1515
Pesticides	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50
Bag (5gdes)	—	—	—	—	—	—	6	30	12	60	16	00	25	125	30	150	30	150	30	150
D. Fixed Cost Land		100		100		100		100		100		100		100		100		100		100
E. Total Cost		5191		2699		2436		3092		3356		3441		3551		3654		3654		3654
F. NET FROFIT		-5191		-2699		-2436		-1352		-1156		-361		409		746		746		746

* 20% Loss
** 1.5 lbs/Plant
*** 2 lbs/plant

ENTERPRISE BUDGET FOR COFFEE WITHOUT INPUTS (2x1.5m = 3333 pl/ha) **No Fertilizer Chemical** **No Pesticides** **09/24/92**

H/j = 13g/j **No Fertilizer Organic**

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10	
Prod/Income							250kg X 4.4gde/kg 1100gdes		250kg X 4.4gde/kg 1100gdes		250kg X 4.4gde/kg 1100gdes		250kg X 4.4gde/kg 1100gdes		250kg X 4.4gde/kg 1100gdes		250kg X 4.4gde/kg 1100gdes		250kg X 4.4gde/kg 1100gdes	
Variable Costs Labor 13g/j	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes
Land Prep	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Holes Prep	24 H/j	310	2	26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Planting	15 "	195	2	26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Shade Control	---	---	---	---	---	---	---	---	2	26	2	26	2	26	2	26	2	26	2	26
Weed Control	15 "	195	20	260	15	195	5	65	5	65	5	65	5	65	5	65	5	65	5	65
Pruning	---	---	---	---	---	---	---	---	5	65	5	65	5	65	5	65	5	65	5	65
Fertilizer Appl Chemical	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Organic	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides Appl	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Harvesting	---	---	---	---	---	---	15	195	15	195	15	195	15	195	15	195	15	195	15	195
Handling		-	--		---	-	1	13	1	13	1	13	1	13	1	13	1	13	1	13
Transport	10 "	130	2	26	---	---	1	13	1	13	1	13	1	13	1	13	1	13	1	13
INPUT COST																				
Seedling (0.75gde)	3333	2499	666	499	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Seeds	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Chemical (1.5gde/kg)					---	-		-			--		---			--				
Organic (0.50gde/kg)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bag (5gdes)	---	---	---	---	---	---	5	25	5	25	5	25	5	25	5	25	5	25	5	25
Fixed Cost Land		100		100		100		100		100		100		100		100		100		100
Total Cost		3429		937		295		411		502		502		502		502		502		502
NET PROFIT		-3429		-937		-295		689		598		598		598		598		598		598

Figure C-2c

ENTERPRISE BUDGET FOR PLANTAIN WITH INPUTS (5.0x4.0m = 500 pl/ha)

09/24/92

H/j = 13g/j

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10	
A. Prod/Income			P=60 = 300x20gdes = 6000gdes		P=50%=250x20=5000 S=10%=50x1 = 50 5050		P=50%=250x20=5000 S=10%=50x1 = 50 5050		P=25%=125x20=2500 S=25%=125x1 = 125 2625		P=25%=125x20=2500 S=25%=125x1 = 125 2625		P=10%=50x20=1000 S=15%=75x1 = 75 1075		P=10%=50x20=1000 S=10%=50x1 = 50 1050		P=10%=50x20=1000 S=10%=50x1 = 50 1050		P=0 S=0 0	
B. Variable Costs Labor 13g/j	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes
Site Prep	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Holes Prep	7	91	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Planting	5	65	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Shade Control	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Weed Control	---	---	5	65	5	65	5	65	5	65	5	65	5	65	5	65	5	65	3	39
Pruning		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Appl Chemical	2	26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Organic		---		---	---	---	---	---	---	---	---	---		---	---	---	---	---	---	---
Pesticides Appl	1	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Harvesting		---	3	39	3	39	3	39	1	13	1	13	1	13	1	13	1	13		---
Handling	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Transport	2	26	3	39	2	26	2	26	1	13	1	13	1	13	1	13	1	13		---
C. INPUT COST																				
Seedling (1gde/seed)	500	500	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Seeds	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Chemical (133kg/ha)	113	373	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Organic	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides	0.4	48	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bag (5gdes)	---	---	---	---	---	---	6	30	12	60	16	80	25	125	30	150	30	150	30	150
D. Fixed Cost Land		100		100		100		100		100		100		100		100		100		100
E. Total Cost		1242		243		230		230		191		191		191		191		191		139
F. NET PROFIT		-1242		5757		4920		4920		2434		2434		884		859		859		

* 1/2 lbs/plant

Figure C-2d

ENTREPRISE BUDGET FOR LIME WITH INPUTS (BEAUMONT) (50 pl/ha)

H/j = 13g/j

09/24/92

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10	
A. Prod/Income									5doc x 50=250doc x 2gdes = 500gdes		10doc x 50=500doc x 2gdes = 1000gdes		15doc x 50=750doc x 2gdes = 1500gdes		15doc x 50=750doc x 2gdes = 1500gdes		15doc x 50=750doc x 2gdes = 1500gdes		15doc x 50=750doc x 2gdes = 1500gdes	
B. Variable Costs Labor 13g/j	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes
Land Prep	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Holes Prep	1	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Planting	1	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Shade Control	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Weed Control	---	---	3	39		39	3	39	3	39	3	39	3	39	3	39	3	39	3	39
Pruning	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Appl Chemical	1	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Organic	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides Appl	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Harvesting	---	---	---	---	---	---	---	---	2	26	4	52	6	78	6	78	6	78	6	78
Handling	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
[illegible]	1	13	---	---	---	---	---	---	2	26	4	52	4	52	4	52	4	52	4	52
INPUT COST																				
Seedling (1gde/seed)	50	250	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Seeds	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Chemical (133kg/ha)	11.4	36	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Organic	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bag (5gdes)	---	---	---	---	---	---	---	---	10	50	20	100	25	125	25	125	25	125	25	125
D. Fixed Cost Land		100		100		100		100		100		100		100		100		100		100
E. Total Cost		438		139		139		139		228		343		394		394		394		394
F. NET PROFIT		-438		-139		-139		-139		272		757		1106		1106		1106		1106

Figure C-2e

ENTERPRISE BUDGET FOR COCONUT MID ALTITUDE WITH INPUTS (100 pl/ha)

09/24/92

M/j = 13g/j 400 - 700 M.S.H.M

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10	
A. Prod/Income	0		0		0		0		P=15nu=1500x2=3000		P=40nu=4000x2=8000		P=40nu=4000x2=8000		P=40nu=4000x2=8000		P=40nu=4000x2=8000		P=40nu=4000x2=8000	
B. Variable Costs Labor 13g/j	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes
Land Prep	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Holes Prep	2	26	0.5	6.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Planting	2	26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Shade Control	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Weed Control	---	---	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13
Pruning	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Appl Chemical	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13
Organic	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides Appl	1	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Harvesting	---	---	---	---	---	---	---	---	3	39	7	91	7	91	7	91	7	91	7	91
Handling	---	---	---	---	---	---	---	---	4	52	10	130	10	130	10	130	10	130	10	130
Transport	2	26	---	---	---	---	---	---	6	78	16	208	16	208	16	208	16	208	16	208
C INPUT COST																				
Seedling (1gde/seed)	100	1500	10	150	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Seeds	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Chemical (133kg/ha)	22.7	72.6	22.7	72.6	75	240	100	320	125	400	150	480	150	480	150	480	150	480	150	480
Organic	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25
Bag (5gdes)	---	---	---	---	---	---	---	---	30	150	80	400	80	400	80	400	80	400	80	400
D. Fixed Cost Land		100		100		100		100		100		100		100		100		100		100
E. Total Cost		1801		380		391		471		870		1460		1460		1460		1460		1460
F. NET PROFIT		-1801		-380		-391		-471		2130		6540		6540		6540		6540		6540

Fertilizer

* 0.75 kg/P
** 1 kg/P
*** 1.25 kg/P
**** 1.5 kg/P

Figure C-2f

ENTERPRISE BUDGET FOR COCONUT HIGH ALTITUDE WITH INPUTS (100 pl/ha)

09/24/92

M/j = 13g/j › 700 M.S.H.M

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10	
A. Prod/Income	0		0		0		0		P=10nu=1000x2=2000		P=20nu=2000x2=4000		P=20nu=2000x2=4000		P=20nu=2000x2=4000		P=20nu=2000x2=4000		P=20nu=2000x2=4000	
B. Variable Costs Labor 13g/j	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes	Yield/ Quantity	Total Cost Gourdes
Land Prep	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Holes Prep	2	26	0.5	6.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Planting	2	26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Shade Control	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Weed Control	---	---	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13
Pruning	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Appl Chemical	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13	1	13
Organic	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides Appl	1	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Harvesting	---	---	---	---	---	---	---	---	3	39	5	65	5	65	3	39	5	65	5	65
Handling	---	---	---	---	---	---	---	---	3	39	5	65	5	65	3	39	5	65	5	65
Transport	2	26	---	---	---	---	---	---	5	65	8	104	8	104	5	65	8	104	8	104
C. INPUT COST																				
Seedling (1gde/seed)	100	1500	10	150	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Seeds	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fertilizer Chemical (133kg/ha)	22.7	72.6	22.7	72.6	75	240	100	320	125	400	150	480	150	480	125	400	150	480	150	480
Organic	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pesticides	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	25
Bag (5gdes)	---	---	---	---	---	---	---	---	20	100	40	200	40	200	20	100	40	200	40	200
D. Fixed Cost Land		100		100		100		100		100		100		100		100		100		100
E. Total Cost		1801		380		391		471		794		1065		1065		1065		1065		1065
F. NET PROFIT		-1801		-380		-391		-471		1206		2935		2935		2935		2935		2935

Using the enterprise budgets as input to the benefit/cost analysis, the economic viability of the proposed cropping systems was determined in collaboration with Dr. Donald Osburn, using the IDB CBDrive program obtained from IICA Jamaica.

For each crop mix (see Table C-8, below) the total benefits and costs from each component crop were entered, and the internal rate of return (IRR) parameter was calculated. Two separate iterations were run. One determined the IRRs at the farm gate, the second determined the IRR for the entire project, which includes the costs of technical assistance and support.

Figure C-3/a-d presents the entire printout from selected benefit/cost analyses. Figures C-3/a-c present the entire project IRR for the cropping mixes a) coffee without inputs, annual crops, plantain and citrus; b) coffee with inputs, annual crops, plantain, citrus and coconut; and c) coffee without inputs, annual crops, plantain, citrus and coconut, respectively. Figure C-3d presents an example farm level IRR for the crop mix coffee with inputs, annual crops, plantain, citrus and coconut. Additional benefit/cost analyses and enterprise budgets are available for consultation at the IICA office. Table C-8 presents only the IRRs for the printouts provided in Figure C-3/a-d.

Figure C-3a
PROJECT IRR FOR CROPPING MIX:
COFFEE WITHOUT INPUTS; ANNUAL CROPS, PLANTAIN AND LIME

1 B C D E F G H I J K L M N O P Q R S
2 NOMBRE/NAME = CADDIVE COST/BENEFIT ANALYSIS 10/06/92 D1 COFFEE NO INPUTS - PLANTAIN, LIME, ANNUALS BEAUMONT
3
4 Titulos Espanol.. - (ALT)(H) Ayuda para usar el modelo. - (ALT)(T)
5 English Titles... - (ALT)(I) Help to use model..... - (ALT)(T)
6
7 [CASH FLOW CONVENTION :END OF YEAR]

	YEAR.....	--0--	--1--	--2--	--3--	--4--	--5--	--6--	--7--	--8--	--9--	--10--	--11--	--12--	--13--	--14--	--15--
10	BENEFITS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	INVESTMENT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	OPERATING COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	TOTAL BENEFITS	0	4626	6987	5137	6237	4312	4812	3762	4237	4737	4471	4471	4471	4471	4471	4471
15	TOTAL INVESTMENT COSTS	0	16319	16319	472	472	472	472	472	472	472	472	472	472	472	472	472
16	TOTAL OPERATING COSTS	0	6387	1154	354	470	621	736	813	890	967	915	915	915	915	915	915
17	TOTAL NET COSTS	0	22706	17473	826	942	1093	1208	1285	1362	1439	1387	1387	1387	1387	1387	1387
19	NET CASH FLOW	0	-18080	-10486	4311	5295	3219	3604	2477	2875	3298	3084	3084	3084	3084	3084	3084
21	AND/YEAR.....	--0--	--1--	--2--	--3--	--4--	--5--	--6--	--7--	--8--	--9--	--10--	--11--	--12--	--13--	--14--	--15--
23	COFFEE	0	0	0	0	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
24	BENEFITS. PLANTAIN	0	0	6000	5050	5050	2625	2625	1075	1050	1050	0	0	0	0	0	0
25	LIME	0	0	0	0	0	500	1000	1500	2000	2500	2500	2500	2500	2500	2500	2500
26	PIDGEON PEA	0	900	900	0	0	0	0	0	0	0	0	0	0	0	0	0
27	BEANS	0	2625	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	CORN	0	1014	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	CONSERVATION	0	87	87	87	87	87	87	87	87	87	871	871	871	871	871	871
39	TOTALES/TOTAL	0	4626	6987	5137	6237	4312	4812	3762	4237	4737	4471	4471	4471	4471	4471	4471
41	AND/YEAR.....	--0--	--1--	--2--	--3--	--4--	--5--	--6--	--7--	--8--	--9--	--10--	--11--	--12--	--13--	--14--	--15--
43	FOREGONE	0	472	472	472	472	472	472	472	472	472	472	472	472	472	472	472
44	INVEST.CO PROJECT	0	15847	15847	0	0	0	0	0	0	0	0	0	0	0	0	0
49	TOTALES/TOTAL	0	16319	16319	472	472	472	472	472	472	472	472	472	472	472	472	472
61	AND/YEAR.....	--0--	--1--	--2--	--3--	--4--	--5--	--6--	--7--	--8--	--9--	--10--	--11--	--12--	--13--	--14--	--15--
63	COFFEE	0	3329	837	195	311	402	402	402	402	402	402	402	402	402	402	402
64	PROD.COST PLANTAIN	0	1142	143	130	130	91	91	91	91	91	39	39	39	39	39	39
65	LIME	0	438	29	29	29	128	243	320	397	474	474	474	474	474	474	474
66	PIDGEON PEA	0	365	145	0	0	0	0	0	0	0	0	0	0	0	0	0
67	BEANS	0	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	CORN	0	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	TOTALES/TOTAL	0	6387	1154	354	470	621	736	813	890	967	915	915	915	915	915	915

Figure C-3b
PROJECT IRR FOR CROPPING MIX:
COFFEE WITH INPUTS, ANNUAL CROPS, PLANTAIN, CITRUS AND COCONUT

NOMBRE/NAME = CIDRIVE — COST/BENEFIT ANALYSIS — 10/06/92 — D1 COFFEE W/ INPUTS - PLANTAIN, BANANAS, LIME, COCONUT — BEAUMONT

Titulos Espanol.. - (ALT)(W) Ayuda para usar el modelo. - (ALT)(Y)
English Titles... - (ALT)(D) Help to use model..... - (ALT)(Z)

[CASH FLOW CONVENTION :END OF YEAR]

YEAR.....	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BENEFITS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INVESTMENT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATING COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL BENEFITS	0	4626	6987	5137	6677	8412	14792	14622	15537	16037	15771	15771	15771	15771	15771	15771
TOTAL INVESTMENT COSTS	0	16319	16319	472	472	472	472	472	472	472	472	472	472	472	472	472
TOTAL OPERATING COSTS	0	9850	3196	2786	3522	4245	5235	5222	5402	5479	5427	5427	5427	5427	5427	5427
TOTAL NET COSTS	0	26169	19515	3258	3994	4717	5707	5694	5874	5951	5899	5899	5899	5899	5899	5899
NET CASH FLOW	0	-21543	-12528	1879	2683	3695	9085	8928	9663	10086	9872	9872	9872	9872	9872	9872

AND/YEAR.....		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BENEFITS.	COFFEE	0	0	0	0	1540	2200	3080	3960	4400	4400	4400	4400	4400	4400	4400	4400
	PLANTAIN	0	0	6000	5050	5050	2625	2625	1075	1050	1050	0	0	0	0	0	0
	LIME	0	0	0	0	0	500	1000	1500	2000	2500	2500	2500	2500	2500	2500	2500
	COCONUT	0	0	0	0	0	3000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
	PIDGEON PEA	0	900	900	0	0	0	0	0	0	0	0	0	0	0	0	0
	BEANS	0	2625	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CORN	0	1014	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	....B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CONSERVATION	0	87	87	87	87	87	87	87	87	87	871	871	871	871	871	871
TOTALES/TOTAL		0	4626	6987	5137	6677	8412	14792	14622	15537	16037	15771	15771	15771	15771	15771	15771

AND/YEAR.....		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INVEST.CO	FOREGONE	0	472	472	472	472	472	472	472	472	472	472	472	472	472	472	472
	PROJECT	0	15847	15847	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALES/TOTAL		0	16319	16319	472	472	472	472	472	472	472	472	472	472	472	472	472

AND/YEAR.....		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PROD.COST	COFFEE	0	5091	2599	2336	2992	3256	3341	3451	3554	3554	3554	3554	3554	3554	3554	3554
	PLANTAIN	0	1142	143	130	130	91	91	91	91	91	39	39	39	39	39	39
	LIME	0	438	29	29	29	128	243	320	397	474	474	474	474	474	474	474
	COCONUT	0	1701	280	291	371	770	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360
	PIDGEON PEA	0	365	145	0	0	0	0	0	0	0	0	0	0	0	0	0
	BEANS	0	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CORN	0	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALES/TOTAL		0	9850	3196	2786	3522	4245	5235	5222	5402	5479	5427	5427	5427	5427	5427	5427

Figure C-3c

PROJECT IRR FOR CROPPING MIX:

COFFEE WITHOUT INPUTS, ANNUAL CROPS, PLANTAIN, CITRUS AND COCONUT

1 B C D E F G H I J K L M N O P Q R S

2 NOMBRE/NAME = CIDRIVE COST/BENEFIT ANALYS.S 10/06/92 D1 COFFEE NO INPUTS - PLANTAIN, ANNUALS, LIME, COCONUT BEAUMONT

3

4 Titulos Espanol.. - (ALT) (H) Ayuda para usar el modelo. - (ALT) (Y)

5 English Titles... - (ALT) (X) Help to use model..... - (ALT) (Z)

6

7 (CASH FLOW CONVENTION :END OF YEAR)

8	YEAR.....	—0—	—1—	—2—	—3—	—4—	—5—	—6—	—7—	—8—	—9—	—10—	—11—	—12—	—13—	—14—	—15—
9																	
10	BENEFITS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	INVESTMENT COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	OPERATING COSTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13																	
14	TOTAL BENEFITS	0	4626	6987	5137	6237	7312	12812	11762	12237	12737	12471	12471	12471	12471	12471	12471
15	TOTAL INVESTMENT COSTS	0	16319	16319	472	472	472	472	472	472	472	472	472	472	472	472	472
16	TOTAL OPERATING COSTS	0	8088	1434	645	841	1391	2296	2173	2250	2327	2275	2275	2275	2275	2275	2275
17	TOTAL NET COSTS	0	24407	17753	1117	1313	1863	2768	2645	2722	2799	2747	2747	2747	2747	2747	2747
18																	
19	NET CASH FLOW	0	-19781	-10766	4020	4924	5449	10044	9117	9515	9938	9724	9724	9724	9724	9724	9724
20																	
21	AND/YEAR.....	—0—	—1—	—2—	—3—	—4—	—5—	—6—	—7—	—8—	—9—	—10—	—11—	—12—	—13—	—14—	—15—
22																	
23	COFFEE	0	0	0	0	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
24	BENEFITS. PLANTAIN	0	0	6000	5050	5050	2625	2625	1075	1050	1050	0	0	0	0	0	0
25	LIME	0	0	0	0	0	500	1000	1500	2000	2500	2500	2500	2500	2500	2500	2500
26	COCONUT	0	0	0	0	0	3000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
27	PIDGEON PEA	0	900	900	0	0	0	0	0	0	0	0	0	0	0	0	0
28	BEANS	0	2625	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	CORN	0	1014	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	CONSERVATION	0	87	87	87	87	87	87	87	87	87	871	871	871	871	871	871
38																	
39	TOTALEB/TOTAL	0	4626	6987	5137	6237	7312	12812	11762	12237	12737	12471	12471	12471	12471	12471	12471
40																	
41	AND/YEAR.....	—0—	—1—	—2—	—3—	—4—	—5—	—6—	—7—	—8—	—9—	—10—	—11—	—12—	—13—	—14—	—15—
42																	
43	FOREGONE	0	472	472	472	472	472	472	472	472	472	472	472	472	472	472	472
44	INVEST. CO PROJECT	0	15847	15847	0	0	0	0	0	0	0	0	0	0	0	0	0
48																	
49	TOTALEB/TOTAL	0	16319	16319	472	472	472	472	472	472	472	472	472	472	472	472	472
50																	
61	AND/YEAR.....	—0—	—1—	—2—	—3—	—4—	—5—	—6—	—7—	—8—	—9—	—10—	—11—	—12—	—13—	—14—	—15—
62																	
63	COFFEE	0	3329	837	195	311	402	402	402	402	402	402	402	402	402	402	402
64	PROD.COST PLANTAIN	0	1142	143	130	130	91	91	91	91	91	39	39	39	39	39	39
65	LIME	0	438	29	29	29	128	243	320	397	474	474	474	474	474	474	474
66	COCONUT	0	1701	280	291	371	770	1560	1360	1360	1360	1360	1360	1360	1360	1360	1360
67	PIDGEON PEA	0	365	145	0	0	0	0	0	0	0	0	0	0	0	0	0
68	BEANS	0	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	CORN	0	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78																	

Figure C-3d
FARM LEVEL IRR FOR CROPPING MIX:
COFFEE WITH INPUTS, ANNUAL CROPS, PLANTAIN, CITRUS AND COCONUT

NOMBRE/NAME = CARCHIVE — COST/BENEFIT ANALYSIS — 10/06/92 — COFFEE W. INPUTS - PLANTAIN, ANUALS, LIME, COCONUT — BEAUMONT

Titulos Espanol.. - (ALT)(H) Ayuda para usar el modelo. - (ALT)(1)
English Titles... - (ALT)(D) Help to use model..... - (ALT)(2)

[CASH FLOW CONVENTION (END OF YEAR)]

YEAR.....		—0—	—1—	—2—	—3—	—4—	—5—	—6—	—7—	—8—	—9—	—10—	—11—	—12—	—13—	—14—	—15—
BENEFITS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INVESTMENT COSTS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATING COSTS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL BENEFITS		0	4539	6900	5050	6590	8325	14705	14535	15450	15950	14900	14900	14900	14900	14900	14900
TOTAL INVESTMENT COSTS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATING COSTS		0	9850	3196	2786	3522	4245	5235	5222	5402	5479	5427	5427	5427	5427	5427	5427
TOTAL NET COSTS		0	9850	3196	2786	3522	4245	5235	5222	5402	5479	5427	5427	5427	5427	5427	5427
NET CASH FLOW		0	-5311	3704	2264	3068	4080	9470	9313	10048	10471	9473	9473	9473	9473	9473	9473
AND/YEAR.....		—0—	—1—	—2—	—3—	—4—	—5—	—6—	—7—	—8—	—9—	—10—	—11—	—12—	—13—	—14—	—15—
BENEFITS	COFFEE	0	0	0	0	1540	2200	3080	3960	4400	4400	4400	4400	4400	4400	4400	4400
	PLANTAIN	0	0	6000	5050	5050	2625	2625	1075	1050	1050	0	0	0	0	0	0
	LIME	0	0	0	0	0	500	1000	1500	2000	2500	2500	2500	2500	2500	2500	2500
	COCONUT	0	0	0	0	0	3000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
	PIGEON PEA	0	900	900	0	0	0	0	0	0	0	0	0	0	0	0	0
	BEANS	0	2625	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CORN	0	1014	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALES/TOTAL		0	4539	6900	5050	6590	8325	14705	14535	15450	15950	14900	14900	14900	14900	14900	14900
AND/YEAR.....		—0—	—1—	—2—	—3—	—4—	—5—	—6—	—7—	—8—	—9—	—10—	—11—	—12—	—13—	—14—	—15—
PRED.COST	COFFEE	0	5091	2599	2336	2992	3256	3341	3451	3554	3554	3554	3554	3554	3554	3554	3554
	PLANTAIN	0	1142	143	130	130	91	91	91	91	91	39	39	39	39	39	39
	LIME	0	438	29	29	29	128	243	320	397	474	474	474	474	474	474	474
	COCONUT	0	1701	280	291	371	770	1560	1360	1360	1360	1360	1360	1360	1360	1360	1360
	PIGEON PEA	0	365	145	0	0	0	0	0	0	0	0	0	0	0	0	0
	BEANS	0	710	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CORN	0	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALES/TOTAL		0	9850	3196	2786	3522	4245	5235	5222	5402	5479	5427	5427	5427	5427	5427	5427

Table C-8: Internal Rates of Returns of Farming System Alternatives at Project and Farm Gate levels

	Coffee (no inputs) Plantain Corn/Beans Citrus A	Coffee (inputs) Plantain Corn/Beans Citrus/ Coconut B	Coffee (no inputs) Plantain Corn/Beans Citrus/ Coconut C
Project IRR	6.5	15.2	19.4
Farm Gate IRR	227	65	127

TECHNOLOGY TRANSFER METHODOLOGY

Although technology development and transfer are proven instruments for increasing agricultural productivity, it appears as if this approach has not been overly successful within the Haitian coffee subsector during the past 25 years. At present, it is estimated that only 5% of the Haitian coffee farmers actually use improved coffee production technology thus achieving yields as high as 1000 kg/ha (mainly in the Thiotte area). The national average varies around 250 kg/ha.

There are two possible explanations for this apparent failure. First, most previous development efforts in the coffee subsector have concentrated on cooperative institution

building and/or marketing, rather than production. Although new coffee varieties and recommendations for fertilizer and other improved management techniques have been introduced, they have not been the major emphasis of an extension effort, or not fully supported via a comprehensive technology transfer program. Second, as previously noted, part of the technology transfer process entails identifying, and addressing, other factors which function as constraints to the adoption of the technology.

The more comprehensive farming systems approach currently being proposed by IICA, and the expansion of PPK into the domain of coffee processing and marketing, combined with all the original components of PPK (Participation/ Community Organization; Research/ Technology Validation; and Credit), will allow the project to address virtually the entire spectrum of the coffee subsector in Haiti for the two targeted zones. (NB - continuation of project activities in both original target zones, or even more, is important to provide a countercheck on the models and technologies being develped and transfered; what works in one area, may well require modifcations to be accepted in another.) Perhaps the only significant factor not directly addressed by the redesigned PPK is the issue of land tenure. While this issue is known to be extremely important with regard to the adoption of agricultural technologies (especially these dealing with long-term perennial crop systems) it is an

extremely complex issue which is beyond the scope of project level intervention. Land tenure was addressed in the Baseline Study, and the information from this study can be used to evaluate the adoption of project technologies as influenced by the type of land holding.

1. Technology Transfer Flowchart.

The experience accumulated by IICA in the development of its Technology Generation and Transfer Program (Program II) throughout its member countries, and PROMECAFE (Coffee Improvement program for Central America and the Dominican Republic) has resulted in the following process flowchart for Technology Transfer:

```
+-----------------------+        +---------------------+
| Technology Generation |<------>|   Marketing Credit  |
+-----------------------+        |   Mechanisms Input  |
           |                     |      Availability   |
           |                     +---------------------+
+--------------------+                  ^     ^     ^
|Technology Transfer |<-----------------+     |     |
+--------------------+                        |     |
           |                                  |     |
           |                                  |     |
      +---------+                             |     |
      | Farmers |<----------------------------+     |
      +---------+                                   |
           |                                        |
           |                                        |
    +-------------+                                 |
    |Participation|<--------------------------------+
    +-------------+
```

Note that each component within the process in linked via bi-directional arrows. This underscores that the process is iterative and has a constant feedback mechanism. The individual steps which are addressed by each component, i.e., the activities required and the methodologies employed, are presented below, commencing with the needs of the farmer clients.

a. Farmers.

a.1. Problem Identification.

It is vital to the process that the real needs and problems as perceived by the farmers are identified, as well as the constraints with which they must deal.

b. Methodologies.

At this stage (consolidation) of PPK, the identification of problems has been accomplished by:

b.1. Analysis of the Baseline Study.

b.2. Regular meetings and direct access to communications with, and technical assistance from, the formateurs. Because of monthly reporting requirements, the problems identified via these mechanisms have been transmitted to the highest levels of PPK project management.

2. Technology Identification & Generation.

a. Based on analysis of the identified problems and constraints, PPK technical staff and consultants have identified the coffee-based cropping systems technology package described in Section 4 of this Annex. The methodologies employed for the development of this package included interdisciplinary team discussions; input by specialized consultants; review of pertinent literature; visits to similar projects in the Dominican Republic, Jamaica, Guatemala, Costa Rica, and Honduras; and benefit/cost analyses.

b. Certain aspects of the technology package require further refinement based on actual field studies. These are presented in the Technology Validation annex, along with the methodologies which will be used for this Technology Generation activity. Note that farmer involvement in the validation trials, and the subsequent site visits organized to present the results to other farmers, constitutes a direct method of technology transfer.

3. Participation, Credit Mechanisms, Input Availability.

a. Communications between project staff and farmer clients is absolutely vital for successful Technology Transfer. The PPK Organization Chart (Chapter 5) presents the PPK staffing

pattern and the number of project staff at each hierarchical level. At the level of direct farmer contact, the ratio of Technology Transfer Formateurs to farmers is 1:40. In terms of extension systems, this is considered a high level of personal contact. Lower ratios (i.e, more intensive) begin to approach an inefficient use of project personnel. Communications are further enhanced because farmers are organized into groups. Dialogue within these groups serves to reiterate messages and consensus decisions derived during Formateur led meetings. Details of methodologies used to animate and motivate farmers in the participation aspect of Technology Transfer are presented in above section and Annex A.

b. Access to Credit has long been known to limit adoption of higher input technologies, and this was underscored by both the Baseline Study and the benefit/cost analyses conducted during the Technology Identification exercise. Credit delivery systems have proven to be problematical in Haiti, and this was also true for the mechanism originally programmed for PPK during the initiation phase. The mechanism proposed in this redesigned PPK (i.e., the development of farmer-managed community banks using the FINCA and/or CRLF models) has already been successfully tested in Beaumont, and will be expanded during this PPK Consolidation Phase. Methodological details are presented in Section 4.1.5 and Annex D.

e. The availability of, and access to, the inputs required for the recommended technology package are a necessary step to address in the transfer of the technology. During the Initiation Phase of PPK, nursery production and management technologies were successfully transferred to farmer groups. This aspect of the technology transfer program will be continued in the Consolidation Phase, and expanded to address the other plant materials. Other inputs, e.g., fertilizers, will be facilitated through community organization already in-place, and supported via the Credit program.

4. Technology Transfer

The actual process of Technology Transfer, in addition to the necessary linkages between Technology Identification, Participation, and the Farmer clients, is essentially that of training and agricultural extension. The following methods will be employed to accomplish Technology Transfer:

a. Preparation of Training Seminars and Support Materials.

For each topic to be covered, the training program must be prepared in a logical sequence to convey the message and answer the specific questions of why, when, and how. It is especially important to devise training seminar outlines in a

manner that they solicit interactive participation by the farmers, rather than a direct lecture mode. Similarly, visual support materials must be designed in advance and be made available to the formateurs. It is understood that, via the hierarchy of PPK project staff, that formateurs are also trained to train the farmers.

b. Oral Training Sessions

Given the literacy rate of rural farmers, oral techniques constitute the predominant training methodology. These include the scheduled training sessions, as well as informal "ti kose" (chats), and direct technical assistance provided by periodic formateur visits to farmer fields. Visual aides are used as appropriate. Radio extension constitutes another oral training method more fully described below. Table C-9 summarizes the general topics which will be covered during oral training seminars.

Table C-9 Technology Transfer Training: Topics and Years

TOPIC	1993	1994	1995
1. Coffee: Management of New Plantation	x	x	x
2. Coffee Shading and Pruning	x	x	x
3. Coffee Pest and Desease Control	x	x	x
4. Coffee Harvesting and Processing	x	x	x
5. Artisanal Compost and Neem Insecticide Production	x	x	x
6. Corn Production	x	x	
7. Bean and Pigeon Pea Production	x	x	
8. Plantain Production	x	x	
9. Coconut and Citrus Production	x	x	
10. Seed Selection and Nursery Production	x	x	
11. Soil Conservation and Environmental Protection	x	x	x
TOTAL TOPIC/YEAR	11	11	6

This table shows the number of selected topics that will be taught to the field personal and farmers in two pilot zones during the life of the project.

c. Written Training Support Materials ("Ti Livs")

Although overall literacy is low, there are certainly many farmers (or their children) who can read and write. It is well known that written materials are well conserved by the recipients, and are shared amongst themselves, further expanding the transfer of technology. PPK has already prepared two extension booklets, and others will be prepared as appropriate for the Technology Transfer process.

d. Demonstrations

Demonstrations as a technology transfer tool can be accomplished in two manners. The first is the establishment of demonstration plots, which are co-managed by both the farmer and the project. The second is actual demonstration of a technique in a setting which allows participating farmers to acquire hands-on practice.

e. Site Visits/Field Trips

Pre-arranged and organized visits by farmers from one locality to another have proven to be an extraordinary Technology Transfer tool in Haiti. While there may always be some doubt as to messages conveyed by project-paid technical staff, facilitating farmers from one area to interact directly with farmers from another (in essence the host

farmer conducts the training) and to ask questions and receive answers from their direct peers, has proven to be extremely effective.

f. Validation Trials

As described in Annex B, Validation Trials are a special category of demonstration plots, which, although implemented by participating farmers, have additional project staff supervision in order to assure that the protocols are followed and all data are collected accurately. For those participating farmers, and others involved or paying close attention throughout the process, the trial and its analyzed results constitute technology transfer. The Validation trial also has value as an additional demonstration plot to which visits by farmer groups can be organized by the Formateur.

g. Radio Extension

Although radio extension is a form of oral training, it will serve two specialized roles in PPK. The first will be to reinforce all technical messages conveyed by the project. The second will be to inform the local populace concerning any information which might aid them with the management (e.g.,reminders to apply fertilizer, where it is available and at what price) and the marketing (local and regional price information) of their agricultural products. The radio

extension will expand the Technology Transfer of PPK to a national audience (see Table C-10).

Table C-10 Radio Broadcasting/PPK Program

RADIO STATIONS	BROADCASTING DAYS	LISTENING TIME	FREQUENCY	AREA COVERED
Radio Soleil	Mon-Wed-Fri.	8:00-8:15AM	1170AM	Entire Country
Radio Nationale	Tues-Thur-Sat	5:00-5:15AM	1400AM	Entire Country
Radio 4VEH	Wed-Fri-Sun	6:00-6:15PM	92FM	North-South Center
Radio Express	Mon-Wed-Thur.	2:30-2:45PM	1200AM	Southeast
Radio Lumiere	Sat-Sun.	6:00-6:15AM	700AM	Entire Country

Detailed information on the operations of the radio extension program is presented in Table C.11: Media Activities.

Table C-11 MEDIA ACTIVITIES

The Media Activities have been developed according to the following 8 step strategy:

1. Analysis of the socio-cutural environment
   - Audience research has been done to establish characteristics of the basic cultures.
   - Religions in broadcast areas, their distribution and attitude
   - Levels of education among listeners
   - Social and economic characteristics of listeners
   - Estimated number of radios and distribution by geographic areas
   - Areas covered by broadcast stations
   - Audience listening habits derived from surveys
   - Sex of targetted listeners

2. Definition of clientele
   - Identification of targeted communities
   - Interviews of possible participants to have clear
     - Audience's preocupations
     - Audience's preferences
     - Audience's desire to participate

3. Occupation of time frame

- What are the most popular programs
- What are the sizes of the audiences at different times
- Adequate broadcast time chosen

4. Acquisition, processing, and storage of relevant coffee information to be broadcast

Basic PROMECAFE information was adapted for radio programs.

5. Definition of cooperation domains and modalities

Contact was established with local institutions to determine the extent of cooperation available such as: being in charge of contacting radio stations for program broadcast, assistance in selection of themes and/or modifications of certain programs.

6. Production of adapted broadcast materials

Types of programs to be produced were determined jointly with farmers and local institutions

- Planning, writing, and developing programs that are to be broadcast
- Devising, planning, and arranging for guest appearances in programs such as: farmer leaders, coffee experts.
- Devising, planning, writing, and developing spot announcements to:
    a. Sell new ideas

3. Occupation of time frame

- What are the most popular programs
- What are the sizes of the audiences at different times
- Adequate broadcast time chosen

4. Acquisition, processing, and storage of relevant coffee information to be broadcast

Basic PROMECAFE information was adapted for radio programs.

5. Definition of cooperation domains and modalities

Contact was established with local institutions to determine the extent of cooperation available such as: being in charge of contacting radio stations for program broadcast, assistance in selection of themes and/or modifications of certain programs.

6. Production of adapted broadcast materials

Types of programs to be produced were determined jointly with farmers and local institutions

- Planning, writing, and developing programs that are to be broadcast
- Devising, planning, and arranging for guest appearances in programs such as: farmer leaders, coffee experts.
- Devising, planning, writing, and developing spot announcements to:
    a. Sell new ideas

b. Inform listeners

c. Promote new techniques

d. Convince farmers of truth of viewpoint or policy of PPK

e. Reach farmers

f. Urge action (What's to be done about rust, soil erosion where coffee stands are being eliminated).

7. Evaluation and adjustment of programs

Joint evaluation with farmers every 6 months of effectiveness of programs (language, quality, value, relevancy and others)

8. Evaluation of cooperant performance

- Sensitivity to farmer'problems
- Degree of program execution.

---

6. Regular Farmer Group Meetings - Feedback.

In addition to the regular meetings organized by the Formateur, farmer groups are encouraged to schedule their own meetings. This profides a free forum to discuss technology transfer issues from which conclusions can be presented to the Formateur during the next regular meeting.

This activity constitutes an important feedback mechanism in the Technology Transfer process flowchart.

ANNEX D:

Credit

ANNEX D: CREDIT

INTRODUCTION

A credit review was conducted during project initiation (Jan.91) by an international team of experts. The Credit Study Team, in reviewing the original design for project credit, found no argument with the "original" assumptions for this component; namely, that credit is important for Project PPK success in two areas:

... availability of credit to local organizations in order for them to acquire and maintain adequate inventories of PPK inputs.

... availability of credit to producers to enable them to acquire the recommended inputs designed to increase production.

In its analysis of the original credit component, the Study Team did document several critical constraints relative to project assumptions. These constraints severely limit the ability of project technicians to implement credit activities as they were originally designed:

... small farmers are risk adverse and are not inclined to obligate themselves under significant debt loads for the cultivation of coffee until they have more assurance that the return will be sufficiently adequate to support such risks.

... there is a dearth of local organizational structure in the pilot zones, particularly in Beaumont, for implementing and managing any form of credit delivery services.

... The earlier coffee improvement programs (PPC, PPCC, etc.) have left a very negative impression in the minds of both farmers and former technicians of agricultural lending institutions (BCA, IDAI, etc.) regarding the feasibility of sustaining any form of agricultural production lending in the present economic/political environment of Haiti.

OBJECTIVES

Given the numerous constraints found in the project environment which mitigate against the potential for easily and quickly mounting a significant credit delivery system in

support of PPK objectives, and given the fact that it is not the role of IICA to place itself in the position of agricultural production lender, it becomes evident that the credit component should pursue the following objectives:

(1) To establish with fertilizer wholesalers and local private and cooperatively-owned shops, a network that ensures producer access to adequate inventories of PPK inputs at fair market value. PPK will facilitate this process with a combination of credits administered by local organizations to retailers or guarantees to repurchase unsold inventories in cases of retailers using their own capital to purchase input inventories.

(2) To assist PPK producers, where critically important, in obtaining <u>short term loans</u> of fertilizer and other coffee production inputs. Initially, in Year 1, IICA shall assist in administering such loans which will then be passed to local financial institutions as they are identified or created. Eventually the producer lending program shall be expanded on a pilot basis to address the broader needs of farmers's integrated agricultural production systems.

(3) To assist in strengthening or creating local financial institutions capable of managing <u>medium term loans</u> to producer associations where farmers cooperatively own and manage their own coffee processing centers; to

assist the local financial institutions to develop other services related to savings and lending.

(4) To collaborate with FINCA (Foundation for International Community Assistance) in introducing its community-based and managed, micro-enterprise oriented credit delivery system to the Beaumont and Jacmel zones. The FINCA community bank methodology will the test and alternative credit model in Haiti which has been successfully implemented with rural women in numerous Latin America countries as an effective rural credit delivery system.

Alternatively, to stablish Community Revolving Loan Funds, using the model successfully implemented by IICA in the Village de la Montagne since 1990, based of IICA's work with 18 communitiesin Jamaica.

STRATEGY

The objectives of the credit component will be addressed following a strategic plan what will involve a partnership with a broad array of participants.

(1) negotiations will be conducted with Haitian fertilizer importers and a contract signed on a basis of sealed

bids to ensure timely deliveries of required PPK inputs to retail centers in the project zones.

(2) a network of input retailers will be established by PPK and such collaborating organizations as CECOPASSE to ensure timely inventorying of inputs at sites convenient to PPK producers.

(3) joint planning should be initiated with representatives from NGO's and local organizations already working in Jacmel regarding their interests and capabilities to manage short and medium term lending activities to input retailers, producers and coffee processing associations.

(4) planning activities should be initiated with representatives from the Beaumont area, FINCA and any other interested NGO's in order to develop institutional credit delivery systems appropriate to that area, in order to apply the FINCA and/or CRLF model..

ACTIVITIES

Numerous project activities will be conducted to ensure accomplishment of the objectives of the credit component. They include the following:

(1) Ongoing discussions with representatives of the CECOPASSE/SODECOVI program in Jacmel to work out and implement cooperative programs related to savings mobilization and loans that address PPK project requirements in that zones.

(2) Monitoring of cooperative stores supported by the CECOPASSE program, by PPK field staff, to ensure that adequate and correct inventories of PPK inputs are being maintained.

(3) Development of additional privately owned retail shops with persons demonstrating entrepreneurial skills, to handle the inventorying and sales of PPK inputs in areas not serviced by cooperative stores.

(4) Implementation of a longer term process with the Caritas Committee and other interested leaders in the Beaumont area to develop a local organization capable of managing programs of savings mobilization and delivery of credits.

(5) Provide liaison and coordination with the FINCA staff as it develops and implements a series of "Community Banks" in the two Project zones of Beaumont and Jacmel. This will include the identification of micro-enterprise activities related to the interests of the PPK Project,

such as retail shops for inputs, preparation and sale of coffee, citrus and other seedlings, etc.

(6) Ongoing discussions with representatives of Caisses Populaires in the Project zones, particularly in Jacmel, to determine in what ways these local financial institutions can assist PPK producers in addressing their needs for convenient and safe savings mobilization structures and for timely loans related to their integrated farming systems.

(7) Assistance to local financial organizations to prepare project funding proposals for submission to donor organizations that will assist in the further capitalization of their institutions.

END-OF-PROJECT STATUS

During the next four years of project PPK, the emphasis for the credit component will be on the development of viable, self-sustaining local financial organizations capable of administering programs of savings mobilization and loans related to agriculture, micro-enterprise activities and other critical farm family needs (school loans, emergency needs related to illness or death in the family, etc.).

Some measurable evidence of goal achievement should be visible in the following ways:

(1) Ongoing lending activities between CECOPASSE and cooperatively owned stores in each of the four localities of the Jacmel zone.

(2) Caisses Populaires in the Jacmel zone making loans to privately owned retail merchants who are in the business of selling PPK inputs.

(3) Small Caisses Populaires being formed in the more rural localities of Jacmel and Beaumont, or branches of town-based C.P.'s being established to provide services to local farmers.

(4) The existence of a Center for Financial Affaires in Beaumont, owned and managed by the Community and jointly supervised by representatives of local Caritas Committee and IICA, capable itself or through other local organizations, to administer on a limited scale, programs of savings mobilization and loans to PPK participants.

(5) The existence of four FINCA and /or CRLF "Community Banks" in Beaumont and Jacmel, and six in surrounding localities making micro-enterprise oriented loans to their members.

(6) Regular meetings held for members and scheduled democratic election of leadership taking place in each location where local financial institutions are operating.

(7) A regular program of membership education taking place in each local financial organization, particularly focussing on issues of group solidarity and individual responsibility for payment of debt obligations.

(8) Loan delinquency by PPK producers not exceeding 15% loan defaults not exceeding 5% on an annual basis.

FINCA (Foundation for International Community Assistance)

FINCA's credit methodology is based on the creation of rural community banks for women. Community banks are self-managed support groups of up to 30 members each. They meet weekly to discuss small enterprise opportunities in agricultural production, product elaboration and marketing activities. These meetings are also used to reinforce values concerning individual and group responsibilities and accountability on loan repayment, among others. Members make individual payments (a previously agreed upon formula which includes capital, interest and savings), to the democratically-elected administration committee. FINCA-trained local promotors will

provide periodic supervision to the banks as well basic skills training to the members in accounting, budgeting, marketing, and improved agricultural practices, among others.

FINCA's community banking methodology fits well within overall goals and objectives of PPK to increase farmers' income in and around the target areas in southern Haiti. The community banking concept also supports IICA's development approach to encourage farmer participation, leading to the emergence or strengthening of viable local institutions.

CRLF (Community Revolving Loan Fund) methodology

The definition of a Community Revolving Loan Fund is a community managed and owned fund which provides loans for individuals or groups in the community. As funds are repaid, new loans can be made, enabling the fund to revolve.

The concept of the community revolving loand fund (CRLF) is one of providing credit, outside of the commercial banking system, to individuals or groups who would have difficulty securing a loan from a private bank.

The CRLF is established by a community, operated by the community for community members. Initial funds to create the CRLF may come from project grants, loans, individual donations, or savings.

Another aspect of revolving funds can be developed for individual institutions within the community. For example, a church may decide to collect funds from church members or from outside sources and make this money available to establish a CRLF. A 4-H Club, a Women's group, or a Farmer's group may creatively seek funding to start a revolving loan fund.

In addition to providing capital at key moments to serious individuals and production groups, the CRLF draws community members closer together. Production training and business management may also become important community services attached to the CRLF.

ANNEX E:

Marketing

ANNEX E: COFFEE PROCESSING AND MARKETING

INTRODUCTION

During an assessment of the credit situation conducted by a team of international experts commissioned by IICA in January 1991, a critical constraint to economically viable coffee production was identified. This constraint was the absence of coffee pricing incentives for coffee producers. The study team concluded that this constraint might impede the achievement of the PPK goal.

This constraint presents itself in two ways. First, when compared to alternative crops, the low prices obtained for coffee could be perceived not only as a disincentive for the maintenance of coffee production, but also as a justification (from the farmer's perspective) for not investing in coffee production improvement. For example, the Team found in Beaumont that dried coffee beans sold for Gdes 12.50/marmite (Gdes 2.50/pound), while field beans sold in the range of Gdes 18.00 -19.00/marmite. The Team concluded that lower prices for coffee (vs.) other crops functions as a disincentive to farmers in accepting debt obligations for coffee improvement, particularly when the (understood) potential benefits of those improvements are at least three years "down the road". Faced with a decision, it is logical that the farmer will opt to invest in a crop

such as field beans, which can be expected to return the investment, with profit, in only a few short months.

Second, part of the problem appears to be associated with a weak internal marketing system. Small farmers lament the lack of differentiation in farm gate prices between well dried, well processed coffee on the one hand, and wet, mouldy lots, partially filled with unripened and broken beans, small stones and other "filler" material on the other hand. And without doubt, the buyers have every right to reduce farm-gate prices when they know in advance they will lose 25 -30% of the purchase due to losses from moisture (poorly dried beans), sorting and cleaning (removal of broken beans, filler, etc.)

These problems are not new. For years consultants and local observers have clearly identified these and other problems in the coffee processing and marketing systems of Haiti. What became particularly apparent to the Credit Review Team, was that for PPK to achieve its objectives, these issues must be addressed.

Resolution of these issues, however, requires that the project devise a way to break a proverbial vicious circle.

At present, it is not possible to identify a delivery system in either project zone that can consistently provide a well-

processed, high grade of green coffee beans attractive enough to international roasters to command a premium price. If exporters cannot obtain a premium price, then they can not pay producers more, and there is no incentive driving an improved coffee production/processing system at the local level. Accordingly, even increased production from PPK introduced varieties and technologies will be purchased at the same low prices (because it will arrive at the export centers in the same "sorry" condition), and farmers will continue to find alternative crops such as field beans more attractive. The problem facing PPK is well reflected in the Haitian proverb which says, "wash one's hands and dry them on the ground." Until it is demonstrated to producers that significant value can be added to Haitian coffee, allowing it to be more competitive with other agricultural activities, it appears the prospects for their overwhelmingly agreeing to higher technological production practises cannot be achieved. It appears that for small Haitian producers, "price" represents the "horse" that must precede the "cart".

Another part of the problem lies in the breakdown of international pricing agreements, although this is obviously well beyond the scope of any project or any small nation to address. However, this is not currently the major limiting factor. Haitian coffee itself has a good international reputation. The large beans produced from high elevations are considered premium quality, when properly processed.

Accordingly, it is the processing, and the ability to deliver a promised quantity (e.g., one container) on a promised date, which limits Haiti's participation in the most profitable levels of the international coffee market. Once this reliability can be demonstrated, Haitian coffee can be traded as a futures commodity, rather than at "spot" prices. These are the prices which will allow the exporter to pay the higher price to the producer, which in turn will elevate the status of coffee in the cropping system of the farmer.

2. Objectives of the Coffee Processing/Marketing Component.

The objectives of this new component shall be four-fold:

(1) To design and introduce to farmers and local organizations , through education and training programs, coffee processing methodologies that will result in producers practising selective harvesting of ripe cherries, efficient processing (particularly to produce "washed coffee"), sanitary drying and proper storage of their coffee crop.

(2) To assist farmer groups to form local associations that will construct, own and manage coffee processing centers. The centers will be equipped (with project support) in a manner to prepare efficiently a high

quality of washed coffee.

(3) To develop and implement national marketing activities designed to enable producer associations to deliver consistently and in a dependable manner to Haitian export centers a grade of green coffee beans which meets international roasters' specifications. The improved product will be sufficiently upgraded so as to command a $0.05 -$0.10/pound "premium" to producers over N.Y. "spot" prices.

(4) To develop further linkages and contractual agreements between Haitian export centers and international roasters and specialty coffee sources. (This work was initiated under USAID Contract #521-0000.1, with the objective of re-invigorating competitive interest in Haitian coffee.)

3. Strategy

The strategic plan for this component of PPK places a high priority on farmer participation in a <u>process</u> of development. The following plan will be used to achieve this process:

(1) Specialized training for Participation Formateurs and the newly created Processing/Marketing Formateurs by senior IICA staff. This training will prepare

Formateurs for organizing throughout the two zones, groups of small producers interested in improved coffee processing as a means to add value to their coffee.

(2) Formateurs, with assistance of the PPK Deputy Project Coordinator and the Credit/Marketing Supervisor will take leadership for the further organization of the small producer groups into local associations which will cooperatively own and manage coffee processing centers capable of producing a higher grade of washed coffee beans.

(3) Though IICA linkages with small producer models throughout Latin America, a unique Haitian model will be developed for the installation of improved coffee processing technologies and procedures at the local organization level.

(4) With the price risk reductions accruing to Haitian exporters (due to improved processed coffee being shipped from the coffee processing centers), the project will function as a mediator between the more progressive coffee export houses and the farmer associations so that the producers can gain price "bonuses" for their better quality coffee.

Rather than attempt to develop alternative export systems, it appears that the best solution is to facilitate and develop the actual inter-dependancy which exists between the exporter and the producer. The Port-au-Prince export houses have unique capabilities and expertise, but at the same time they need a better product to increase their market share and obtain higher prices. The farmer producers can produce and process a better product, and can be expected to do so, if they receive an equitable share of the benefits.

It must be underscored that the project does not intend to replace the traditional speculator system, which is both integral and vital to the rural socio-economic system. Rather, PPK will concentrate on convincing producers to select and process ripe cherries initially, with the remainder of the harvest going through existing channels.

(5) Identifying and integrating representatives of North American and European roasters into the commercialization process. The objective of this strategic activity, which will be accomplished through semi-annual field visits and other follow-up activities, is for the representatives to develop a high level commitment to actively promote Haitian coffee in their own markets.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] conducting [illegible] financial [illegible] producers [illegible] scenarios.

The Sumatra CARE Package

CARE

"Changes."

"Changes."

SAMPLE B: FRONT

MILLSTONE®

6 Single Pot Packs
of Ground Gourmet Coffee

COFFEE POT SINGLES™

MILLSTONE®
GROUND COFFEE
BED & BREAKFAST BLEND®
Net Weight 1.5 Oz.
(42.5g)

MILLSTONE
GROUND COFFEE
COLOMBIAN SUPREMO
Net Weight 1.75 Oz.
(49.5g)

MILLSTONE
GROUND COFFEE
HAZELNUT CREAM
Net Weight 1.75 Oz.
(49.5g)

MILLSTONE
GROUND COFFEE
IRISH CREAM
Net Weight 1.75 Oz.
(49.5g)

MILLSTONE®
GROUND COFFEE
VANILLA NUT CREAM
Net Weight 1.75 Oz.
(49.5g)

MILLSTONE
GROUND COFFEE
SWISS CHOCOLATE ALMOND
Net Weight 1.75 Oz.
(49.5g)

E-8.b

SAMPLE B: BACK

They say good things come in small packages.

In our business, we usually mean the coffee bean when we use that phrase. After all, the coffee bean is nature's most clever package. When you buy gourmet whole bean coffee, you get the best, right?

Up until now.

Introducing Millstone® Coffee Pot Singles™. We've taken our best product (the gourmet coffee bean) and found a way to make it convenient for you . . . without sacrificing taste or quality.

The patented vacuum-sealed package we've used for our Coffee Pot Singles means we can fresh-roast our best beans, grind them for your coffee pot . . . without losing any of the qualities that have made Millstone the top-selling gourmet whole bean coffee in America.

Try our convenient Millstone Coffee Pot Singles. We think you'll agree, it's a great way to get to know Millstone whole bean coffees.

Gourmet Coffee. The Best. To Go. From people who know how to package quality.

Distributed by
Millstone Coffee, Inc., Everett, WA 98208
Toll-Free Customer Hotline 1-800-SAY-JAVA
Pacific Time M-F 8am-5pm

0 75101 76701 5

(b) facilitating binding contractual arrangements between exporters and producer processing centers for sale of increasing volumes of quality coffee; this should include some exporter's investment into PPK activities.

(c) facilitating business arrangements between Haitian exporters and a more diversified cadre of international specialty coffee brokers willing to pay "bonus" prices for superior grades of PPK coffee.

4. **Activities**

Numerous project activities will be conducted to ensure accomplishment of the objectives of this component. They include the following:

(1) Regular "animation" visits by Formateurs to every significant coffee-producing area in the project zones.

(2) Formation of producer groups interested in cooperating in improved coffee processing activities. (Many of these groups will be made up of the same persons now working cooperatively in tree nursery production.)

(3) "Cercle d'Etude" sessions conducted by Formateurs, with significant involvement by the PPK Deputy Coordinator,

Participation Specialist and Credit/Marketing Supervisor.

(4) Monthly meetings of representatives and members of all groups within a geographical proximity for the purpose of reporting on activities being carried out by each groups.

(4) Installation of a model improved processing facility in Tozia and possibly a second site if appropriate. (Note that negotiations were already at an advanced stage for the Tozia facility just prior to project suspension.) Even if only the Tozia facility is installed, representatives of farmer associations from other project localities can be brought to visit this facility to encourage their own organization.

Partial facilities, (i.e., drying platforms, cisterns, depulpers) will be installed with community participation in other sites if the associations have advanced to an appropriate stage of development.

(5) Monthly meetings of representatives and members of all groups within a geographical proximity for the purpose of reporting on activities being carried out by each group.

(6) Regular, participatory planning sessions with market sources representing Port-au-Prince export houses and international roasters, designed to result in improving delivery systems that provide maximum returns to producers. This activity will entail travel by PPK staff to investigate the international markets of interest to the project, and reciprocal visits by representatives of international coffee enterprises.

(7) Working relationships in place that result in regular consultations with international experts available through IICA, for the purpose of technologically updating project personnel on new developments in coffee processing and marketing.

(8) On-going training services available on a national basis to other NGO's and local organizations interested in linking up to the improved coffee processing and marketing program, as time permits.

(9) Continued development and promotion of the copyrighted PPK developed gourmet coffee, "Haitian Coffee Creole", (see sample A), within the US market once the embargo is lifted and opening of new markets in Europe and Japan.


Coffee
Creole
GROUND
COFFEE
NET WT. 12 OZ. (340g)


HAITIAN
Coffee
Creole
WHOLE BEAN
COFFEE

SAMPLE A

5. End-of-Project Status

Rather than measuring the end-of-project status on the basis of material objects in place, the primary end of this process in the two pilot zones will be the establishment of a system of stable, self-reliant local organizations having member participants possessing a better quality coffee, and assured sense of understanding and of responsibility for the importance of proper coffee processing and honoring of marketing contractual responsibilities. Some measurable evidence of this outcome should be visible in the following ways:

(1) Regular meetings of producer groups on a self-sustaining basis.

(2) Democratic election of leadership in the various groups.

(3) Installation of appropriate coffee processing, drying and storage technology where each producer association is located.

(4) Local "transfer stations" established where associations' inventories of properly processed and dried coffee are gathered, inspected, and stored, prior to moving to export centers.

(5) An identifiable "name brand" of green coffee, with guaranteed specific characteristics for specialty coffee and blending purposes being established from the project zones, and other coffee producing regions having similar conditions. This coffee will be going to international roasting sources on a consistent basis, qualitatively and contractually, commanding a $0.05 - $0.10/pound premium over N.Y. "spot prices".

(6) As a result of the educational process and demonstrated higher return for producers, the majority of these producers participating in the improved coffee processing/marketing activities will be progressively adopting higher technological levels of the production improvement program.

ANNEX F:

Planned, Actual and Proposed Outputs of PPK

ANNEX F: PLANNED, ACTUAL AND PROPOSED OUTPUTS OF PPK

The chart on the following two pages depicts the PPK planned, actual and proposed outputs. The planned and actual outputs refer to PPK1 outputs planned for the original LOP; the proposed outputs refer to PPK2 outputs proposed both for the LOP and for the "next six months": January to June 1993.

PLANNED, ACTUAL AND PROPOSED OUTPUTS OF PPK

MAJOR OUTPUTS	ORIGINAL PPK PLANNED LOP	ORIGINAL PPK ACCOMPLISHED 30/09/91 CUM TO DATE	ORIGINAL PPK ACCOMPLISHED 30/09/91 % OF LOP	PROPOSED PPK2 LOP	PROPOSED PPK2 JAN-JUNE 93 NEXT 6 MONTHS
1. Propagation of high yield & rust tolerant varieties	4.5 Mil.	1.2 Mil.	26	1.875,000	500,000
2. Coffee Technology introduced to small farmers in two pilot zones:					
- Direct	9,000	2,500	27	3,500	2,244
- Indirect	6,985	1,746	24	14,000	2,800
3. Development of technical packages for coffee based farming system	4	2	50	4	1
4. Local organization capacity strengthened to support improved coffee cultivation	30	6	20	5	2
- Farmers groups organized (20 x each.)	--	203	--	175	112
5. Training					
a) Overseas (short-term for technicians) p/day	305	27	8	96	16
b) In country (field personnel) p/day	11,076	3,322	30	601	80
- Sessions	1,026	108	10	28	5

PLANNED, ACTUAL AND PROPOSED OUTPUTS OF PPK

MAJOR OUTPUTS	ORIGINAL PPK PLANNED LOP	ORIGINAL PPK ACCOMPLISHED 30/09/91 CUM TO DATE	ORIGINAL PPK ACCOMPLISHED 30/09/91 % OF LOP	PROPOSED PPK2 LOP	PROPOSED PPK2 JAN-JUNE 93 NEXT 6 MONTHS
1. Propagation of high yield & rust tolerant varieties	4.5 Mil.	1.2 Mil.	26	1.875,000	500,000
2. Coffee Technology introduced to small farmers in two pilot zones:					
- Direct	9,000	2,500	27	3,500	2,244
- Indirect	6,985	1,746	24	14,000	2,800
3. Development of technical packages for coffee based farming system	4	2	50	4	1
4. Local organization capacity strengthened to support improved coffee cultivation	30	6	20	5	2
- Farmers groups organized (20 x each.)	--	203	--	175	112
5. Training					
a) Overseas (short-term for technicians) p/day	305	27	8	96	16
b) In country (field personnel) p/day	11,076	3,322	30	601	80
- Sessions	1,026	108	10	28	5

PLANNED, ACTUAL AND PROPOSED OUTPUTS OF PPK

MAJOR OUTPUTS	ORIGINAL PPK PLANNED LOP	ORIGINAL PPK ACCOMPLISHED 30/09/91 CUM TO DATE	ORIGINAL PPK ACCOMPLISHED 30/09/91 % OF LOP	PROPOSED PPK2 LOP	PROPOSED PPK2 JAN-JUNE 93 NEXT 6 MONTHS
1. Propagation of high yield & rust tolerant varieties	4.5 Mil.	1.2 Mil.	26	1.875,000	500,000
2. Coffee Technology introduced to small farmers in two pilot zones:					
- Direct	9,000	2,500	27	3,500	2,244
- Indirect	6,985	1,746	24	14,000	2,800
3. Development of technical packages for coffee based farming system	4	2	50	4	1
4. Local organization capacity strengthened to support improved coffee cultivation	30	6	20	5	2
- Farmers groups organized (20 x each.)	--	203	--	175	112
5. Training					
a) Overseas (short-term for technicians) p/day	305	27	8	96	16
b) In country (field personnel) p/day	11,076	3,322	30	601	80
- Sessions	1,026	108	10	28	5

MAJOR OUTPUTS	ORIGINAL PPK PLANNED LOP	ORIGINAL PPK ACCOMPLISHED 30/09/91 CUM TO DATE	ORIGINAL PPK ACCOMPLISHED 30/09/91 % OF LOP	PROPOSED PPK2 LOP	PROPOSED PPK2 JAN-JUNE 93 NEKT 6 MONTHS
- Training for Formateurs p/day	8,856	660	7.5	60,709	6,175
- Sessions	54	12	22	28	5
- Training for Farmers p/day	11,076	2,500	22	84,140	11,200
- Field days for Farmers p/day	200	6	3	28 560	5 100
d) Radio Broadcasting					
- Radio programs	1,944	432	22	1,152	182

ANNEX G:

Monitoring

ANNEX G: MONITORING AND EVALUATION

INTRODUCTION

A well-conceived project must have objectives, a strategy, activities and an end of project status, or project results. Milestones, benchmarks, or SPI's (USAID) indicate the accomplishment of certain tasks on the way to achieving project results.

In order to assure that milesones are being met, within the time frame allocated, a monitoring system must be in place. Monitoring is collecting, recording, analyzing and reporting information regarding all aspects of project performance.

PPK will use the Harvard Project Manager II computerized system to support its monitoring activities. All project components will be monitored, both technical and management, these being: Data collection, Farmer Participation, Technology Validation, Cropping Systems Technology Transfer, Credit, Marketing, Institutional Linkages, Internal Administration and Monitoring and Evaluation.

OBJECTIVES

The objectives of the monitoring and evaluation system are:

1. To provide information, via a baseline study, of the agro-socio-economic situation of the two pilot zones. Data generated from this study describes the state-of-the-art with

ANNEX G: MONITORING AND EVALUATION

INTRODUCTION

A well-conceived project must have objectives, a strategy, activities and an end of project status, or project results. Milestones, benchmarks, or SPI's (USAID) indicate the accomplishment of certain tasks on the way to achieving project results.

In order to assure that milesones are being met, within the time frame allocated, a monitoring system must be in place. Monitoring is collecting, recording, analyzing and reporting information regarding all aspects of project performance.

PPK will use the Harvard Project Manager II computerized system to support its monitoring activities. All project components will be monitored, both technical and management, these being: Data collection, Farmer Participation, Technology Validation, Cropping Systems Technology Transfer, Credit, Marketing, Institutional Linkages, Internal Administration and Monitoring and Evaluation.

OBJECTIVES

The objectives of the monitoring and evaluation system are:

1. To provide information, via a baseline study, of the agro-socio-economic situation of the two pilot zones. Data generated from this study describes the state-of-the-art with

regard to farming systems, farmer participation in pre-cooperatives, access to credit, social and economic conditions and production and cultural practices.

2. To feed ongoing information into PPK decision-making levels in order to readjust the technical and mangement activities as needed.

3. To conduct mid-term and final evaluations in order to determine whther the project is meeting its goals, thereby yielding the anticipated results.

4. To establish a successful project-level monitoring system which can then be used in other IICA-Haiti projects, building a new monitoring system for IICA from the grassroots up, rather than from the grassroots down, as currently exists.

STRATEGY

The strategy involves:

1. Establishment of the planning-monitoring-controlling cycle using the Harvard Total Project Manager II. This cycle integrates requirements of the existing IICA and USAID systems.

2. Data collection for the baseline study. This farm-level information serves as a data base for comparing project impact, as well as forming a framework for guiding planned interventions into the farming system.

3. Data collection and analyses for the mid-term and final evaluations.

ACTIVITIES

1. With the Harvard Total Project Manager II:

    1.1 Create work calendars
    1.2 Create work breakdown structures
    1.3 Create PERT charts
    1.4 Create GANTT charts
    1.5 Analyze resources
    1.6 Analyze costs
    1.7 Provide monitoring information
    1.8 Complete reports
    1.9 Readjust project activities

2. Complete the baseline:

    2.1 Design questionnaire
    2.2 Apply questionnaires (see end of this annex for a copy of a completed questionnaire)
    2.3 Analyze completed questionnaires
    2.4 Complete baseline study (see volume 3 for the baseline study)

3. Complete the evaluations:

    3.1 Design questionnaire
    3.2 Apply questionnaires
    3.3 Analyze completed questionnaires
    3.4 Complete evaluations

4. Examples of the types of analyses to be performed

    4.1 Re-conduct the baseline study questionaire within the target communities and compare the results with the original baseline study as a means of determining project impacts.

    4.2 Monitor (on a selected basis) survival and growth rates of perennial crops under different conditions of management (e.g., with and without weeding; with and without fertilizer) to better evaluate the longer term impact of the PPK proposed cropping system technology package and technology transfer

methodology. Although actual harvests and income from crop sales will not be achieved for all crop types within the LOP, this monitoring system will be in-place for future reference.

4.3 Devise specific techniques for monitoring project impact on indirect beneficiaries. Given the total numbers involved (i.e., 3,500 direct project beneficiaries; 14,000 indirects) it is conceivable that the overall project impact may be much more substantial than estimated in this proposal. These techniques will include Formateurs maintaining name-lists for those non-project participants attending training sessions, and requesting farmer-group nurseries to maintain similar lists with regards to sales of seedlings. On a stratefied. random sample basis, project staff can then follow-up with visits to the farms of some of these indirect beneficiaries and tabulate exactly which technologies have been successfully adopted. The randomized sample will allow extrapolation of this monitoring survey to the entire population of the targeted zones. A similar sampling strategy can be devised (on a less intensive basis) to determine the impact of the national radio extension program.

END-OF-PROJECT STATUS

Measurable evidence that the monitoring and evaluation system has operated successfully will be:

1. A baseline study
2. Project readjustments made based on information flow
3. Mid-term evaluation
4. Final evaluation

IICA

PWOJÈ PLANTE KAFE
PROJET DE REVITALISATION DU CAFE

DIAGNOSTIC DE LA SITUATION DANS LES ZONES PILOTES

QUESTIONNAIRE

Port-au-Prince, Haiti
Juin 1990

BUREAU DE L'IICA EN HAITI

G-5

QUESTIONNAIRE A REALISER AU NIVEAU DES FERMES

KESSYONE KI FET POU FEM KAFE YO

Non. Symelus . Siyati. . . . . .

1. Determinants techniques.
1. Infomasyon Teknik yo

1.1 Caracteristiques de la ferme.
1.1 Fason fèm nan ye

a. Grandeur de la ferme. 3 Car
a. Grosè fèm nan

3 Carreaux

b. Aire plantee en cafe. 1
b. Zòn plante ak kafe

1 carreau

c. Aire destinee a la production des graines de base
c. Zòn ki fèt pou pwodiksyon grin'n de baz yo

1/4

d. Aire destinee a la production des tubercules et racines.
d. Zòn ki fèt pou pwodiksyon plant anba tè ak rasin'n

1/2 carreau

e. Aire destinee a la production de banane.
e. Zòn ki fèt pou pwodiksyon bannan'n 1/2 carreau

f. Disponibilite d'arbres fruitiers. Citer les?
f. Ki kantite pye fwi ki genyen. Site yo

10 pts

g. Aire destinee a d'autres cultures.
g. Zòn ki fèt pou lòt kilti

---

h. Aire destinee au paturage.
h. Zòn ki fèt pou zèb (patiraw)

---

i. Animaux disponibles dans les fermes. Quantite
i. Zannimo ki rete nan fèm yo (kantite) 14 animaux

- Bourriques [-] non
- Bourik [ ]

- Chevaux [ ] non
- Chwal [ ]

- Mules [ ] non
- Milèt [ ]

- Boeufs + [ ] oui 3
- Bèf + [ ]

- Vaches + [ ] oui 2
- Toro Bèf [ ] oui 1

- Cabris + [+] oui 3
- Kabrit [ ]

- Moutons + [+] oui 6
- Mouton [ ]

- Porcs [-] non
- Kochon [ ]

- Canards [ ] non
- Kana [ ]

- Poules + [ ] oui 12 coqs
- Poul [ ]

- Dindons [-] non
- Kodin'n [ ]

1.2 Aspects generaux de la culture du cafe par fermes
1.2 Fason jeneral nan kilti kafe pou chak fèm

a. Densite de la population
a. Kantite popilasyon

---

b. Age approximative des cafeieres
b. Laj apepre pye kafe yo genyen

---

c. Mode de semis des cafeiers dans les cafeieres
c. Fason yo simen kafe nan fèm yo

---

d. Etat physiologique des cafeiers
d. Kouman kafe yo ye

---

e. Type de maladies des cafeiers
e. Ki maladi ki nan kafe yo

Moins de 25% de la ferme. [] 10 %
Pipiti pase 25% nan fèm la []

De 25 a 50 % de la ferme. [] 10 %
25% a 50% nan fèm la []

Total de la ferme. _____
Total fèm la _____

f. Variete predominante
f. Varyete kafe ki pi plis la

---

g. Types d'arbre utilises pour l'ombrage
g. Ki pye bwa ki sèvi pou lombray

---

h. Systemes de cultures (autres cultures produites)
h. Sistèm kilti (lòt kilti kap fèt)

---

i. Mode de conservation de sol.
i. Fason ke yo pwoteje tè yo

---------- Mur sec ----------

---

j. Combien de recolte de cafe obtiennent-ils par annee et quand?
j. Ki kantite rekòt kafe ke yo fè nan yon lanne e ki lè yo fè-l'

1 Sèl récolte café en 3 Quinzaines
1ère Quinzaine octobre 2e Janvier
3ème en mai jusqu'au juillet

---

k. Calendrier de travaux agricoles
k. Kalandriye travay agrikòl yo

[illegible]	[illegible]
Ebauchage	Août
Sarclage	Août
Récolte	Janvier

l. Date de floraison du cafe
l. Dat ke kafe yo fleri

---------- Février ----------

---

m. Date de maturite du cafe
m. Dat ke kafe yo mi

---------- Mois de Mars ----------

n. Quand faut-il emonder
n. Ki lè pou yo debranche pye kafe yo

---------- [illegible] ----------

o. Comment secher la recolte
o. Ki lè pou rekòt la seche

---------- A Terre nue ----------

b. Origine des semis

---

c. Quantite de nouvelles plantes semees l'annee precedente

---

d. Surface de nouveaux cafeiers semes l'annee precedente

---

e. Practiques culturales qu'il realise. Indiquer les mois

- Nettoyage des mauvais herbes [ ]
- Engrais [ ]
- Fongicide [ ]
- Paille [ ]

f. Practique de conservation de sols.

Oui X Non ____

---

p. Comment et ou emmagasiner le cafe
p. Ki jan ak ki bò pouyo sere kafe yo

---

q. Quand doit on vendre le cafe
q. Ki lè pouyo vann kafe-a

Mars

1.3 Techniques de production utilisees par le producteur
1.3 Teknik ke plantè yo itilize

a. Origine des plantules.
a. Ki kote plantil yo sòti

- Cafe rat [X]
- Kafe rat [X]

- Pepinieres en pots [X]
- Pepinyè nan po [ ]

- Pepinieres sur plate bande [ ]
- Pepinyè sou plat bann [ ]

b. Origine des semis
b. Ki kote semans yo soti

---

c. Quantite de nouvelles plantes semees l'annee precedente
c. Kantite plant ke yo fèk simen nan lanne ya

---

d. Surface de nouveaux cafeiers semes l'annee precedente
d. Kantite tè ke yo mete kafe la dan-li lanne pase

---

e. Practiques culturales qu'il realise. Indiquer les mois
e. Ki sa ke yo rive fè. Bay mwa yo

- Nettoyage des mauvais herbes [ ]
- Retire move zèb yo [ ]

- Engrais [ ]
- Angrè [ ]

- Fongicide [ ]
- Fonjicid [ ]

- Paille [ ]
- Pay [ ]

f. Practique de conservation de sols.
f. Ki jan ke yo konève tè yo

Oui X Non_____

Wi X Non_____

---

g. Fertilisation des vivres et des cafeieres etablis.
g. Eske nou fètilize viv yo ak kafe yo

Oui X Non_____
Wi_____ Non_____

---Avec pulle cafe---

Quand et quelle quantite appliquee?
Ki lè epi tou aki kantite

1.4 Commercialisation du cafe.
1.4 Komès kafe ya

a. Specifier la quantite vendue et la quantite utilisee
a. Ki kantite kafe ke nou vann et ki kantite ke nou itilize

---

b. Indiquer a qui a-t-on vendu le cafe l'an dernier.
b. Ak kilès ke nou te vann kafe ya lanne pase

1.5 ~~Benefice~~ Traitement du cafe.
1.5 ~~Benefis~~ ke nou fè sou kafe ya

a. Type de ~~benefice~~ traitement realise.
a. Ki jan de ~~benefice~~ traitement nou fè sou kafe ya

pas de traitement

- Sec [ ]
- Seche [ ]

- Humide [ ]
- Mouye [ ]

b. Qui realise le ~~benefice~~ traitement.
b. Ki lès ki fè ~~benefis~~ traitement la yo

personne

- Producteur [ ]
- Pwodiktè [ ]

- Commercants [ ]
- Kòmèsan [ ]

c. Modes de sechage du cafe.
c. Ki jan yo seche kafe

- Sechage en ciment [ ]
- Sou siman [ ]

- Sechage en terre + [+] Atè ya.
- A tè ya [ ]

d. Qui s'occupe de faire secher le cafe?
d. Ki lès ki seche kafe yo

- La femme + [+] non
- Madamn-nan [ ]

- Les enfants + [+] non
- Ti moun yo [ ]

e. Lieu ou l'on conserve le cafe apres sechage.
e. Ki kote ke yo sere kafe ya lè li fini seche

- Depot + [+] non
- Nan depo [+]

- Silots [ ] non
- Nan silo [ ] non

1.6 Besoins en main d'oeuvre dans la culture du cafe
1.6 Moun ke yo bezwen pou travay nan fem yo

Activites Aktivite	Mois Mwa	Hommes/Jour Gason/Jou	US$/Hommes/Jour $ /Gason/Jou
<u>Pepinieres</u> Pepinyè			
Semis Semans			
Arrosage Awosay			
Transplantation Transplatasyon			
Traitement phytosanitaire Tretman maladi			
Sarclage, Binage Saklay, Binay			
Remplissage de sachets Plen sache			
Construction de tonnelles Fè tonèl			
<u>Cultures cafeieres</u> Kilti kafe			
Preparation de terrain			
Preparasyon te-a			
Plantation Plantasyon			
Sarclage Saklay	Août	1/Homme	13 gourdes
Emondage Emonday			
Eclaircissage Ekleray			
Control couvert Kontrol lonbray			

Activites Aktivite	Mois Mwa	Hommes/Jour Gason/Jou	US$/Hommes/Jour $ /Gason/Jou
Fertilisation Fetilizasyon	[illegible]	[illegible]	[illegible]
Traitement phytosanitaire	[illegible]	----------	----------
Tretman maladi	[illegible]		
Recolte Rekot	[illegible]	[illegible]	[illegible]
Sechage Sechay	------	----------	----------
Preparation du cafe	------	----------	----------
Preparasyon Kafe			
Mise en sac Mete kafe ya nan sak	------	----------	----------
Transport Transpò	------	----------	----------

Indiquer si quelques une de ses activites sont realisees en groupe formel ou informel.

Indike si kèk nan aktivite sa yo fèt an gwoup

---------- [illegible]

1.7 Utilisation de la pulpe, dechets ou nature organique par les producteurs?

1.7 Ki sa ke yo fè ak pay kafe ya. Yo jete yo ousnon eske yo itilize tankou angrè

---------- [illegible] ----------

a. Utilisent-ils ces sous-produits comme engrais organique.
a. Eske yo itilize li tankou dechè òganik

---

b. Comment s'y prennent-ils?
b. Ki jan yo fè li?

---

c. Quand le font-ils?
c. Ki lè ke yo fè li?

---

d. Pourquoi le font-ils?
d. Pouki sa ke yo fè li?

---

2. Determinants socio-economique.
2. Enfomasyon socio-ekonomik

2.1 Education 2.1 Edikasyon	Producteur Pwodiktè	Epouse Madamn	Fils Pitit
a. Alphabetise a. Alfabetize	[ ] [ ]	[ ] [ ]	[ ] [ ]
b. Niveau d'etude b. Nivo etid	[ ] [ ]	[ ] [ ]	[ ] [ ]

2.2 Informations sur la famille
2.2 Enfomasyon sou fanmi-ya

a. Combien de membres y a-t-il dans la famille, leur age?
a. Kombyen moun ki genyen nan fanmi-a, e ki lay yo?

- Combien d'hommes?
- Kombyen gason ki genyen?

1

- Combien de femmes?
- Kombyen famm'?

1

- Combien d'enfants?
- Kombyen ti moun ki genyen?

5

---

b. Combien de chambre contient la maison?
b. Kombyen pyès ke kay la genyen?

---

c. Type de toiture?
c. Ki jan kay la kouvri?

---

d. La famille dispose t-elle d'un appareil radio?
d. Eske yo genyen yon radyo?

oui

---

e. Produits qui entrent dans l'alimentation.
e. Pwodwi ke yo manje

Produits Pwodwi	Achetes Achete	Recoltes Rekòt
Riz Di ri +	oui [+] [ ]	NM [-] [ ]
Mais + Mayi	[+] oui [ ]	[ ] nm [ ]
Sorgho + Pitimi	[+] oui [ ]	[ ] nm [ ]
Pain + Pen	[+] [ ] oui	[-] [-] nm
Haricots + Pwa	[-] oui [ ]	[ ] [ ]
Banane − Bannann'	[-] [ ] nm	[ ] [ ] oui

Pwodwi	Achete	Rekòt
Igname Yanm	[ ] [ ]	[ ] [ ]
Huile Lwil	[ ] [ ]	[ ] [ ]
Sel Sel	[ ] [ ]	[ ] [ ]
Lait Lèt	[ ] [ ]	[ ] [ ]
- Liquide - Likid	[ ] [ ]	[ ] [ ]
- Poudre - An poud	[ ] [ ]	[ ] [ ]
- Concentre - Konsantre	[ ] [ ]	[ ] [ ]
Oeufs Ze	[ ] [ ]	[ ] [ ]
Viande Viann	[ ] [ ]	[ ] [ ]
Hareng Aran	[ ] [ ]	[ ] [ ]
Sardines Sadinn'	[ ] [ ]	[ ] [ ]
Spaguettis Espageti	[ ] [ ]	[ ] [ ]
Poisson Pwasson	[ ] [ ]	[ ] [ ]
Autres Lòt pwodwi		

---

f. Mode de preparation des aliments
f. Fason ke yo kwit manje

- Charbon [ ]
- Chabon [ ]

- Bois [ ]
- Bwa [ ]

- Four a gaz [ ]
- Fou a gaz [ ]

g. Approvisionnement en eau.
g. Ki jan yo fè genyen dlo

- Aqueduc [ ]
- Tiyo

- Citerne [ ]
- Sitèn [ ]

- Puits [ ]
- Pi [ ]

- Riviere [ ]
- Rivyè [ ]

h. Ecoles
h. Lekol

- Nombre de jour de classe par semaine?
- Ki kantite jou ke yo genyen lekol pa semenn?

- Qui paie les professeurs?
- Kiles ki peye pwòfèsè yo?

- Niveau d'etude?
- Nivo etid?

- Dispose t-on d'un champ pour pratiques agricoles?
- Eske yo genyen yon teren pou yo travay late?

2.3 Aspect economique
2.3 Mouvman lajan

a. Tenure de la terre.
a. Eske yo posede tè?

Hypotheque	[]
Ipotèk	[]
Heritage	[X]
Eritay	[X]
Achat	[X]
Acha	[X]
Affermage	[]
Afèmay	[]
Metayage	[]
De mwatye	[]

b. Valeur de la terre par hectare.
b. Ki kantite te ya pa ecta?

---

c. Pourcentage de revenus obtenus sur la production cafeire.
c. Benefis ke yo fè sou pwodiksyon kafe

---

d. Pourcentage de revenus obtenus sur d'autres cultures
d. Benefis ke yo fè sou lòt kilti

---

e. Pourcentage de revenus obtenus sur l'elevage.
e. Benefis ke yo fè sou gadinay

2.4 Fonctionnement de la ferme.
2.4 Oganizasyon fèm la-a

a. Qui administre la ferme?
a. Kiles ki dirije fèm-nan?

---

b. Indiquer si le proprietaire de la ferme travaille en tant qu'ouvrier?
b. Di si mèt fèm-nan ap travay tankou ouvriye

---

c. Indiquer si la femme du proprietaire travaille en tant qu'ouvriere?
c. Di si madanm' mèt fèm la ape travay tankou ouvriye?

- Combien de jour par annee?
- Konbyen jou pa lanne?

- Specifier les activites qu'elle realise?
- Di ki sa ke li fè?

---

d. Indiquer si les enfants travaillent dans la ferme?
d. Di si ti moun yo ap travay nan fèm la tou?

- Combien d'enfants a-t-il?
- Konbyen ti moun ke li genyen?

- Combien d'enfants travaillent dans la ferme?
- Konbyen ti moun kap travay nan fèm la?

- Combien de jour par annee?
- Konbyen jou nan yon lanne?

- Specifier les activites qu'ils realisent?
- Di ki sa ke yo fè?

ANNEX H:

Women in PPK

Annex H: Women in PPK

Recognition of the role women occupy in agriculture is contingent upon understanding the integrity of an agricultural cycle which unites all phases of production, processing and marketing of a particular crop. Inherent in this understanding is the recognition that the operational unit is not an individual farmer, male or female, but rather the household.

The household as a unit of analysis can be defined as: "one or more persons voluntarily living together and sharing at least one meal in general, father, mother, children and other relatives, as well as other persons sharing their household arrangements" (UNESCO - 1983).

Once the household is defined as the unit of analysis, women are no longer "invisible" in the agricultural, or developmental, process and the integrated nature of all aspects of agricultural activities becomes evident.

Following from such an understanding of the role of women and the agricultural enterprise, IICA explicitly incorporates certain conceptual premises in all its undertakings:

- development interventions need to be interdisciplinary, and multisectoral in order to address the multiplicity of

roles and tasks that women typically undertake;

- institutional action should be predicated on the equal participation of both men and women;
- only through organization and equal access to the decision-making process can women achieve autonomy and equal benefits;
- recognition and understanding of the nature of gender roles in the rural milieu is essential to enhancing the efficacy and impact of modern agricultural interventions.

For the Haitian case, a sexual division of labor in the agricultural domain is conventionally assumed. Thus men are primarily responsible for the purely productive aspects of a particular crop cycle, are usually heads of households and landholders and form the ranks of crop speculators in the marketing sector. While women are responsible for bulking and selling crops, are not major decision-makers in their households nor usually landholders, and occupy the relatively low echelons of the marketing sector.

While there is a dearth of studies on these specific questions for the Haitian context, the observable reality in any Haitian rural community belies these assumptions. Thus in coffee production, men tend to be primarily responsible for planting, pruning and weeding, while women tend to be most visible in the harvest, processing and sale of the crop.

By utilizing the operational premises articulated by IICA, the PPK has not only apprehended the integral role of women in the production of coffee, but has also incorporated women into project activities as significant actors. The recognition and integration of women within the project is predicated on the understanding of the unity of the entire coffee cycle, from garden to market, and the place of coffee production within the overall production strategies of Haitian farmers.

Women are represented in the PPK in all aspects of its activities. Women are visible as landholders, as groupement members, as pepinière workers, in addition to their more expected presence in processing, marketing and credit.
Despite the smaller actual number of women enlisted as project beneficiaries, they are present in equal proportions to men during the course of project activities.

The PPK was only able to field one baseline survey prior to project suspension. However, building on that initial inquiry, future surveys will be able to address specific issues in their relation to women. Indeed, the potential importance of this information cannot be underestimated, given current insufficient Haitian data for the entire agricultural sector as regards women.

The parameters of women's involvement and benefit from project activities will be mapped through the collection of information on the following items:

1. Project inputs and outputs:

- percentage of women among beneficiaries receiving direct project benefits, by age, by marital status, and by size of farm and tenure;
- percentage of women receiving agricultural inputs;
- percentage of women being trained by the project.

2. Adoption of technology:

- attitudes of women towards introduced technologies;
- types of technologies most readily adopted by women;
- crop production alterations pursued by women;
- changes in volume, rate and venue of crop sales;
- changes in yields per crop.

3. Impacts:

A. Income, expenditures and savings:

- income differentials between men and women;
- income levels of the target population by sex;
- expenditure and savings differentials between men and women.

B. Health and nutrition:

- food consumption differentials between men and women;
- access to health facilities for men and women;

- changes in the nutritional status of children ages 1 through 4;
- changes in the health status of the farmer by gender.

C. Access to land and productive resources:
- proportion of land held by women;
- legal and traditional practices with regard to the ownership, inheritance and use of land, houses, other property and other production assets by women;
- decision-making within households with respect to production and its disposal, including marketing.

D. Employment and labor time allocation:
- total employment in major agricultural tasks in project area, and division by socio-economic status and gender;
- economic activity of women, including unpaid work in family holdings;
- part-time and seasonal employment of women;
- secondary occupations of rural women.

E. Participation in beneficiary organizations and decision-making:
- number and nature of beneficiary institutions for men, women and joint;
- leadership, decision-making practices and effectiveness of the institutions with respect to men and women;
- percentage of women in these participatory institutions;

- participation of women in project-related meetings, including those with project officials.

In sum, not only does the PPK incorporate women, equitibly in both idea and action, it promises to benefit women in the same degree and manner as men. At the same time, the PPK will be in a position to garner in-depth knowledge and understanding of the actual contributions women make to the coffee sector, with clear practicable implications for Haitian agriculture in general.

ANNEX I:

List of Acronyms

Annex I: List of Acronyms

ACRONYM	NAME
ADRA	Adventist Development and Relief Agency
ANK	Afe Neg Konbit
AEDC	Alliance pour l'Enfance et le Developpement Communautaire
AS	Armee du Salut
ANSH	Association Nationale des Scouts d'Haiti
AEM	Association des Eglises Missionnaires
CP	Caisse Populaire
CADCO	Coffee Advisory Committee
CECOPASE	Centrale de Cooperatives du Sud-Est
CECI	Centre Canadien d'Etudes et de Cooperation Internationale
CHPF	Centre Haitien pour la Promotion Feminine
CRLF	Community Revolving Loan Fund
FINCA	Foundation for International Community Assistance
MCC	Comite Central Menonnite
CHADEV	Comite Haitien de Developpement
CBP	Comite de Bienfaisance Pignon
CPB	Comite Paroissial de Bainet
COHAN	Cooperation Haitiano-Neerlandaise
CARE	Cooperation for American Relief Everywhere
NOCAT	Cooperative Nocat
CODEVA	Coude a coude pour le Developpement Valleen
CRS	Catholic Relief Service

ACRONYM	NAME
EWDH	Eglise Wesleyenne d'Haiti
GOH	Government of Haiti
ICI	Intermerdiary Credit Institution
IICA	Interamerican Institute for Cooperation on Agriculture
IHPCADE	Inst. Haitien de Promotion du Cafe & des Denrees d'Exportation
IPP	IICA International Personnel
IMO	International Mission Outreach
MEDA	Mennonite Economic Development Associates
MBCH	Mission Baptiste Conservatrice d'Haiti
MP	Mission Possible
NGO's	Non-governmental organizations
OPRODEX	Office pour la promotion des Denrees Exportables
PADF	Pan American Development Foundation
PIP	Plan International de Parrainage
PPK	Coffee Revitalization Project (Pwoje Plante Kafe)
PROMECAFE	Programe Cooperatif Centre Americain pour la Modernization de la Cafeiculture
RT	Reboisement Total
SCH	Service Chretien d'Haiti
UNAPEL	Union Nationale pour la Promotion de l'Elevage
UNHAD	Union Haitienne de Developpement

ANNEX J:

IICA Institutional and Farming Systems Background

Annex J: IICA INSTITUTIONAL BACKGROUND

NATURE AND PURPOSES OF IICA

The Inter-American Institute for Cooperation on Agriculture (IICA) is the specialized agency for agriculture of the Inter-American system. With its present structure, it is the institutional continuation of the Inter-American Institute for Agricultural Sciences, which was created by the Council of Directors of the Pan-American Union in October of 1942.

The Convention governing the institute states that IICA's purpose is to "encourage, promote and support the efforts of the Member States to achieve their agricultural development and rural well-being". IICA is an International Organization, with full legal capacity. It is governed by its Member States, which are responsible for providing guidance, following up on activities and evaluating the Institute's actions. The Inter-American Board of Agriculture (IABA) is the Institute's highest governing body, and the General Directorate, its executive body.

The Inter-American Board of Agriculture (IABA) is composed of representatives of all the Member States. It meets every two years, and its responsibilities include approving policy guidelines and the two year programme budget. In order to perform these duties, the Board has the Executive Committee as an executive body, acting on its

behalf. The Executive Committee is composed of representatives of twelve Member States, elected on the principle of rotation and geographic distribution. Its functions include examining proposals for the biennial programme budget, submitted to the Board by the Director General, and making preliminary comments and recommendations to the Board, in its role as a preparatory body.

The General Directorate is comprised of technical and administrative units responsible for coordinating and implementing of the Institute's actions, in accordance with policies established by the Board.

HISTORY OF IICA'S ACTIVITIES AND PRIORITIES

IICA is an organization dedicated to meeting the needs of its Member States, which derive from their efforts for agricultural development and rural well-being. The Institute's actions and priorities have gradually shifted over the course of the years, fitting themselves to new problems and meeting new needs in the countries. The process of change is noticeable both in the issues targeted through Institute action and in its approach to technical cooperation.

Initially, the Institute concentrated on developing agricultural sciences. In accordance with the mandate of its 1944 Convention, IICA's action was to encourage and promote

the development of agricultural science in the countries through research, graduate training and the dissemination of agricultural theory and practice. To meet its objectives, the Institute focused on two lines of action: training and research. It carried out activities in five major areas: agronomy, animal health and production, entomology, plant science and soils. At that time, the Institute was organized to meet the need for a training and research center; operationally and structurally, it was divided into units specializing in research and graduate instruction.

During the 1950's IICA expanded its sphere of activities, adding a third line of action for rural development. Regional offices were opened in Montevideo, Uruguay in 1951; and in Lima, Peru and Havana, Cuba in 1952.

This marked the beginning of the Institute's shift of focus toward the countries. At that time, the regional offices were used as the base for regional cooperation projects with the countries. The key component of IICA's new operating approach was the performance of regional actions by a group of experts concentrating on areas in which the countries lacked native technical capacity. The countries' technical teams were still being developed at the time, and international experts were required to fill national needs and to help develop capacities in the countries through the graduate training programme in Turialba.

During the 1960's profound changes occurred in international relations. Many countries assumed new commitments and geared themselves for development in the framework of the Alliance for Progress. Studies forthcoming from ECLA influenced intellectual currents of the time, which raised awareness of the problems of underdevelopment and helped redefine the role that should be played by government institutions.

The countries undertook agrarian reform and began to develop public institutions, which rapidly grew. IICA had a new administration and had received a number of recommendations from the fifth and sixth meetings of the Technical Advisory Council (Lima, March 1960 and San Jose, March 1961). The Institute revised its programmes with the assistance of external experts and its own staff members, and in consultation with national authorities in the countries. New directions and priorities were adopted for the 1960's calling on IICA to project its action throughout the hemisphere and establish general projects to benefit all of the Member States.

IICA took on a new dimension, requiring substantially increased resources to extend its programme and this was "achieved" with a contribution from the Special Fund of the United Nations. IICA's three lines of action from the previous period grew to six: rural development; institutional strengthening; utilization of the tropics;

agriculture in arid and humid regions; the regional cooperative programme for graduate training and research in crop breeding and livestock production; and agricultural communication.

The "new dimensions" of IICA's action induced major structural change: the Institute was transformed from a research and training center into an Inter-American Agency designed to provide technical assistance to its member countries. The regional offices were consolidated, the Institute's General Directorate moved from Turrialba to San Jose, and the Latin American Agricultural Credit Center was set up in Mexico where it would operate from 1961 until 1966, under OAS Project 201. Finally, the process of expanding and decentralizing the Institute's geographic coverage began with the establishment of offices in the Member States. All of these actions produced a diversification of IICA's technical teams and gave the Institute a permanent presence in the countries.

The changes experienced during the 1960's were incorporated into the Institute's first General Plan, approved in 1970. This plan established a new programme structure based on seven lines of action designed to expedite the consolidation and improvement of institutional systems for agricultural and rural development in the Member States.

The lines of action were: information and documentation for rural development; agricultural research and technology transfer; agricultural production, productivity and marketing; regional rural development; structural change and campesino organization; and development and administration of agricultural policy.

Each one of these lines of action in turn contained one or more programmes. Thus, the Institute had a total of 28 technical programmes by the end of the 1970's. During this period, IICA experienced rapid growth in its budget and in the number of Member States. Once again, growth sparked a process of renewal and expansion of the Institute's technical team, a trend which slowed toward the end of the decade.

Significant changes which occurred during the 1970's included the assignment of high priority to cooperation in the countries and the consolidation of a network of offices in all the Member States. These changes shifted emphasis to regional directorates, which were now made responsible for coordination and supervision. IICA's actions focused on strengthening the capacity of other institutions playing an important role in the guidance of agricultural development and supporting organizations sectoral planning and for policy implementation. The Institute also contributed by developing operational models for agrarian reform and

supporting the countries in efforts to change patterns of land tenure and to organize farmers.

Area directors were transferred back to San Jose in 1980 as a means of overcoming difficulties inherent in their widespread geographic distribution, streamline operating procedures, and allow them to provide more efficient support for the offices.

IICA's process of gradual change eventually transformed the Institute into an organization for technical cooperation and institutional strengthening in the agricultural sector; the process culminated with the ratification of the new Convention by the Member States in 1980.

The Convention introduced essential changes. It clearly defined the relationship between the Institute and the countries, specifically established IICA's functions and organs, programmes and operations and consolidated the Institute's role as the specialized agency for agriculture of the OAS system.

IICA's functions as established by the new Convention are to:

1) Promote the strengthening of national education, research and rural development institutions, in order to give impetus to the advancement and the dissemination of science and technology applied to rural progress.

2) Formulate and execute plans, programmes, projects and activities, in accordance with the needs of the governments of the Member States, that will help them meet their objectives for agricultural development and rural welfare policies and programmes.

3) Establish and maintain relations of cooperation and coordination with the Organization of American States and with other agencies or programmes, and with governmental and non-governmental entities that pursue similar objectives.

4) Act as an organ for consultation, technical execution and administration of programmes and projects in the agricultural sector, through agreements with the Organization of American States, or with national, Inter-American or international agencies or entities.

The Inter-American Board of Agriculture, at its first regular meeting held in Buenos Aires, Argentina, in August of 1981, decided it was necessary to review the Institute's policies and operations to make them consistent with the new Convention. Consequently the Board requested the Director General to form a group of five external experts in agricultural and rural development to conduct a general review of IICA's operations and policies.

The group of five experts studied the problems affecting agricultural and rural sectors in the countries and

recommended that the Institute adopt basic programmes, with the approval of the Member States, that would anticipate problems in Latin America and the Caribbean during the following decade. The group of experts suggested that programmes be designed to complement policies for agricultural and rural well-being defined by the countries themselves.

The Board adopted the 1983-1987 Medium Term Plan, written after careful consideration of the study of problems affecting countries in the region, and following consultation with the governments of the Member States. This plan replaced the earlier seven lines of action with ten programmes to serve as a support structure for IICA's action.

These programmes were (i) formal agricultural education; (ii) support of national institutions for the generation and transfer of agricultural technology; (iii) conservation and management of renewable natural resources; (iv) animal health; (v) plant protection; (vi) stimulus for agricultural and forest production; (vii) agricultural marketing and agro-industry; (viii) integrated rural development (ix); planning and management for development and rural well-being; (x) information for agricultural development and rural well-being.

Changes were made in IICA's organization and operational structure to provide more effective and responsive technical cooperation to the countries. In 1983, the Institute adopted a matrix structure with technical channels and operational channels and divided the hemisphere into four areas: Central, Caribbean, Andean and Southern. It set up 27 national offices and established CEPI, CIDIA, and CATIE as specialized centers, the latter being an associated unit. Area directorates were once again located in the countries to conduct functions of supervision and coordination.

From 1986-1989, four more countries joined IICA bringing the total Member Countries to 31. (See inside back cover for IICA's Member Countries)

Rapid development in the countries, especially in technical areas and in human resources, made it necessary to review the Institute's approach to technical cooperation and its areas of action. It soon became evident that a technical cooperation model based primarily on the work of specialists with limited operating resources and acting in relative isolation from one another was no longer responding to the needs of the countries. The countries had developed their own capacities in many fields, and this obliged the Institute to find ways of maximizing its impact in solving the problems.

Today the Institute needs to make better of scarce resources, of continuous and rapid change in its environment and of the growing move toward regional and sub-regional integration. Not only should it concentrate resources and activities in a smaller number of areas, but it also needs more effective instruments and procedures for cooperation so as to increase its technical expertise and exercise effective leadership in Latin America and the Caribbean.

IICA EXPERIENCE IN FARMING SYSTEMS

IICA's experience in farming systems generation and technology transfer is eighteen years old and covers work in Costa Rica, Guatemala, El Salvador, Nicaragua, Jamaica and Panama, as depicted in the table which follows.

TABLE J-1 : IICA CROPPING SYSTEMS PROJECTS

Country	Year	Project
Costa Rica	1974	Small Producers and Agrosilvopastoral Systems
Panama	1980	Cropping Systems Technology Transfer (CATIE -ROCAP)
El Salvador	1980	Appropriate Technology for Small Farmers (CATIE -CENTA)
Nicaragua	1982-1992	Technology Validation and Transfer for Small Farmers

Guatemala	1982-1992	Sustainable Farming Systems (GTZ-CATIE)
Jamaica	1976-1979	Allsides
	1978-1981	Olive River
	1981-1983	BRUMDEC
	1984-1987	Cropping Systems I
	1988-1990	Cropping Systems II
	1988-1992	Hillside Agriculture Sub-Project (USAID)

As the PPK project will work closely with our office in Jamaica in order to adapt what has been learned since 1976 in that office, following is a summary of farming systems lessons learned by IICA in Jamaica.

IICA's approach in Jamaica towards the generation of improved technologies has evolved over the past sixteen years from taking research into the farming community by setting up research stations in the community (as in the Allsides Project 1976-79 and the Olive River Project 1978-81), to doing research on the farms and in the areas for which the results are intended to be used (as in the BRUMDEC Project 1981-1983 and the Cropping Systems Project 1984-1987). The Cropping Systems Project was the first project in Jamaica to use as its modus operandi the Farming Systems Approach to Research. IICA has provided technical support to the Ministry in their execution of that project.

The specific problem relates to the lack of economically viable production systems in Jamaica. This is particularly

noticeable in the traditional agricultural practices pursued on the thousands of hillside farms which account for 78% of the total number farms, 15% of the land area in farms, and produce over 85% of food grown for domestic consumption as well as a significant portion of crops grown for export.

IICA's experience in solving this specific problem in Jamaica relates to its involvement in four projects:

- Allsides Project in the parish of Trelawny (1976-1979).
- Olive River Project, also in Trelawny (1978-1981).
- Farming Systems Research in the parish of St. Catherine in the Guy's Hill and Watermount areas (1984-1987) Phase 1, 1988-1990 Phase 2).
- Hillside Agriculture Sub-Project (1988-1992)

ALLSIDES PILOT DEVELOPMENT PROJECT (1976-1979)

In general terms IICA's first assignment in Jamaica involved activities which were associated with the improvement of agriculture on hillside lands in which the conservation of land and water resources was of prime national interest. This assignment related to the Government of Jamaica formulating a specific project to overcome the problem concerning the inadequacy of appropriate cropping systems.

IICA was requested by the Government of Jamaica to assist in:

i) developing a body of knowledge on hillside farming and cropping systems which is conducive to changing the pattern of traditional farming practices on steep hillside lands, and generating acceptable levels of income; and

ii) disseminating the knowledge gained as widely as possible.

National efforts to resolve the problem were predicated on studies and major finding which indicated that:

Very high soil loss occured on unprotected soils:

- 136 tons per hectare, equivalent to 54 tons per acre, per annum
- an associated and continuing heavy soil loss, together with significant reduction in production and productivity.

Very low or tolerable soil loss on land which was protected by bench-terracing:

- 18 tons per hectare, equivalent to less than 8 tons per acre per annum; and
- an associated retarded rate of soil erosion associated with enhanced production and productivity.

Allsides, in the parish of Trelawny, was selected as an appropriate project area, and MINAG in cooperation with IICA prepared a project titled:

"Hillside Farming Study and Implementation Project in Jamaica- The Allsides Pilot Development Project".

The project was accepted for financing by IICA through its Simon Bolivar Fund, in December 1976, the first phase of which was to last for 3 years.

Specific Project Objective

The specific objective of the project was to:
"Develop production systems for bench-terraced farmlands, based on multiple cropping and efficient utilization of land and water resources", which will result in:

- increased level of production and productivity;
- increased net-farm income;
- enhanced nutritional profiles for hillside farm families;
- increased opportunities for rural employment;
- an institutional framework capable of implementing similar changes in other areas of the country; and
- reliable production data for commodities produced by small farmers.

Activities related to the specific problem

1) Assisting the Ministry of Agriculture in formulating the Allsides Pilot Development Project for financing and co-implementation by IICA.

2) Assessing fertility of soils of project area, determiing limiting factors and crops which may be economically produced.

3) Establishment a of 3-acre research and demonstration plot on bench-terraced land to:

- determine and demonstrate food crop production techniques;
- study and develop new techniques and production systems, including their economic analyses.

4) Collaboration with MINAG staff in designing and analyzing systems of production.

5) Collaboration with MINAG staff in the elaboration and execution of soil conservation projects on bench-terraced land.

6) Maintenance of demonstration plots, data collection and analysis.

7) Undertaking applied agronomic and economic research into cropping systems during a process of annual development and re-validation.

8) Training and transfer of technology, using results from research and demonstration activities, through seminars,

production and extension materials, workshops, field trips as part of overall technology development.

9) Providing in-service training for Jamaican nationals in areas such as soil fertility assessment.

10) Carrying out a case study of the domestic marketing situation with particular reference to "Higglering".

11) Assisting farmers in adopting new technology through on-farm demonstration plots, provision of production inputs, etc.

12) Studying the institutional framework necessary for delivering production to consumers, and making recommendations for improving organizational performance.

13) Undertaking studies in the marketing of principal hillside crops produced in areas surrounding the project site.

14) Determining critical problems and needs of farmers, and establishing the Allsides Pre-Cooperative.

15) Assisting MINAG in developing methodologies for formulating a National Hillside Farm Development Program (NHFDP)

- providing a descriptive and quantitative diagnosis of hillside agriculture;
- defining and applying criteria for selecting watershed areas needing priority rehabilitation;
- preparation of NHFDP - objectives, goals, strategy, and recommendations for implementation.

16) Preparing an agricultural research position paper as a basis for increasing national research capability.

17) Preparing and presenting a technical paper on hillside agriculture at the XVI Annual Convocaton of the Caribbean Food Crops Society held in the Dominican Republic in 1979.

18) Preparation of project "Pilot Hillside Agricultural Project", with IDB financing assistance, for extending the scope of the Allsides project in the Southern Trelawny area of Jamaica.

19) Diagnosis of farming systems for Allsides and surrounding areas, and undertaking agro-socio-economic surveys in collaboration with the Ministry of Agriculture.

20) Designing and implementing non-bench terrace conservation methods at Olive River for protecting lands on slopes similar to those at Allsides using successful cropping systems developed at Allsides.

21) Preparation and presentation of paper titled: "The Allsides Project Case Study" at the Inter-American Congress of Food and Agricultural Production, in Sao Paulo, Brazil, September 1981.

22) Preparing initial proposals for IFAD projects to assist with the improvement of hillside farming in Jamaica which culminated in the IFAD/IDB Small Farmer Program in Jamaica.

23) Designing and testing alternative models of farmers' organizations.

24) Re-inforcement of the operative unit at Allsides with respect to project programming, coordination, management and implementation.

THE OLIVE RIVER PROJECT (1978-1981)
(Developing and Testing Alternative Approaches to Bench-Terracing)

The Olive River Project, which was a sub-project of the Allsides Project, was designed to test alternative approaches to bench-terracing, in view of its very high capital cost for the construction of infrastructure. The activities involved:

i) Identifying land not too far distant from the Allsides research station, having similar slope categories, rainfall

profile and soil types to those off Allsides, and in an area in which crops included in the cropping systems developed at Allsides could be economically produced.

ii) Construction of infrastructure for quantifying soil loss and developing measures other than bench-terracing for restricting accelerated soil erosion. These measures were:

- individual hills with hillside ditches;
- contour mounds with hillside ditches;
- contour mounds with a grass buffer strip; and
- individual hills (used as the check)

iii) Establishing crops and analyzing the results in terms of volume of production and of soil loss.

iv) Assessing and undertaking measures for reducing heavy nematode damage associated with yam production in general.

v) Initiating cropping systems other than those used at Allsides including crops such as coffee and tetraploid banana.

FARMING SYSTEMS RESEARCH IN THE CROPPING SYSTEMS PROJECT (1984-1987 Phase 1, 1988-1990 Phase 2)

The lag in the development of adaptive research (appropriate technology) and the low rate of adoption by farmers of even that technology which is available occasioned a search for

corrective measures for overcoming these deficiencies, especially in the interest of small farmers.

In November 1984, WINAS, through its Research and Development Division, with assistance from IICA and funding by the IDRC of Canada, formulated the Cropping Systems Project to test the appropriateness of the Farming Systems Research Approach for improving the major cropping systems in the Guy's Hill and Watermount areas of the St. Catherine Land Authority. IICA was assigned the responsibility for technical support, monitoring services and administration of the funds while WINAS undertook responsibility for on-farm research.

PROJECT OBJECTIVE (FSR)

Overall Objective

"To initiate and implement a structured farming system research project in two different ecological zones of the St. Catherine Land Authority".

Specific Objective

(a) To identify improved production methods for the major cropping systems of the Guy's Hill and Watermount areas that are acceptable to farmers.

(b) To conduct in-service training of project staff and associated personnel in on-farm research techniques.

(c) To initiate and support adaptive research and a program for technology transfer to small farmers, with reference to the farming systems research being undertaken in the project area.

(d) To obtain a more detailed understanding of the farming systems in the two project areas.

The results obtained in the Cropping System Project indicate that the Farming Systems Research Approach was an appropriate methodology for adapting technology to the small-farmer environment since it resulted in a more rapid assimilation of beneficial technology by small-farmers than had been experienced through other approaches.

ACHIEVEMENTS

The major achievements of the program in which IICA has been involved in Jamaica since 1976 include:

1) Development of a body of technical information for use in undertaking the program of work pursued at Allsides.

2) Development and testing of 20 cropping systems for Allsides from which 8 were replicated, re-tested and validated.

3) Identification and development of alternative soil conservation measures to that of bench-terracing (at Olive River).

4) Quantification of soil loss under non-bench terraced measures of soil conservation.

5) Preparation and distribution of technical information covering various aspects of cropping systems on soil-conserved land.

6) Considerable data and information related to the hillside agricultural project procured through experimental work, case studies, surveys, workshops and seminars.

7) Creation of the Allsides Pre-Cooperative.

8) Preparation of the Pilot Hillside Agricultural Project.

9) Preparation of the National Hillside Farmer Development Program.

10) Determination of soil loss from cropping systems developed on land protected with non-bench terraced measures.

11) Provided a catalytic effect to other organizations undertaking projects in the area of developing cropping

systems on soil-conserved lands, as a means for solving the specific problem.

HILLSIDE AGRICULTURE SUB-PROJECT (1988-1992)

IICA and the Ministry of Agriculture in Jamaica jointly manage a Hillside Agriculture Sub-Project.

The sub-project and benchmarks achieved to date are outlined below:

Title: IICA/MINAG Farming Systems Project

Implementors:	Ministry of Agriculture & IICA
AP Grant:	US. $1.2 million
Duration:	5 years
Commencement date:	November 15, 1988
Termination date:	December 31, 1993
Beneficiaries:	HAP/ and 168 farmers; 170 achieved
Anti-erosion training:	Yes
Primary outputs:	1) Economically efficient tree crop-based farming systems. 2) Improved watershed management practices. 3) Farmer organizations which support production and marketing activities of individual farmers. 4) Recommendations on improved marketing systems. 5) Recommendations for research, extension, and agricultural policy to increase productivity and expand acreage of perennial crops. 6) Farming systems methodology institutionalized within MINAG R&D Division.
Cocoa:	7,088 seedlings distributed. 6,223 resuscitated.
Coffee:	5,499 seedlings distributed. 2,795 resuscitaded.
Fruit Trees:	10,795.
Coconut Trees:	3,861.

The Hillside Agricultre Project, funded by USAID, was evaluated by Tropical Research and Development , Inc. in June 1992. Their summaries, conclusions and recommendations follow:

EXECUTIVE SUMMARY

The Hillside Agriculture Project officially started in February 1987 with a life-of-project of seven years. USAID obligations are authorized up to US$ 10 million. Technical assistance and physical inputs for tree crops are provided to farmers in the Rio Cobre and Rio Minho watersheds through sub-projects funded and supported by a central Project Management Unit.

HAP has introduced technical packages which typically include farm planning, fertilizers, increades plant density, improved plant stock, pest and shade management and weed control, as well as low-cost soilconservation techniques. The aftermath of Hurricane Gilbert in September 1988 reoriented the project towards rehabilitation of trees and away from the planting of new seedlings. Cocoa and coffee figure as the two most important crops in the Hillside Agricultural Project (HAP), but fruit, timber and coconut enterprises play a lesser role.

The impact of HAP on both productivity and production is clearly positive. Pre-project productivity levels of participating farmers were on the order of 8 to 12 boxes per

acre for coffee and 6 to 12 boxes for cocoa, well below national, average yields of about 50 boxes per acre for both coffee and cocoa. Taking 50 boxes as a reasonable estimate of yields after HAP assistance, participating farmers should realize increases of 300 percent to 400 percent for these crops.

As of December 1991, some 4,444 farmers have received benefits from 13 sub-projects. Data on farm and non-farm income, input costs and demograhpic characteristics are sparse. Nevertheless, by using available information and "best guess" estimates, a 14-percent increase in income is a reasonable expectation ofr the average farm family.

Up to the end of 1991, cocoa planting for all sub-projects was 517 acres, cocoa resuscitation 1,949 acres, coffee planting 163 acres, and coffee resuscitation 232 acres. The net present value of incremental production forthcoming from these activities is estimated at Ja$24.2 million, evaluated in constant, 1990/91 Jamaican dollars. This is a crude estimate of the contribution of HAP to the Jamaican economy; it also is a very tentative estimate because of the previously mentioned lack of good data and because of ongoing changes in the macro economy.

The project areas were chosen because they are composed of hilly, easily erodible terrain and because degradation of

these lands due to agricultural practices is readily apparent. HAP has promoted both "engineering" and "agronomic" measures to reduce degradation of the environment in the targeted watersheds. Participating farmers clearly have adopted these practices, resulting in a positve environmental impact.

HAP has focused its data-collection efforts on agronomic variables. Information on farmers and farm characteristics is sketchy. Physical and biological measures used to reduce soil erosion, and the measures used to manage an reduce pesticide use are the most meaningful environmental indicators; data on these measures could be extracted form administrative files or collected in sample surveys. All these types of data could be organized and entered in a management-information system for easy access, analysis and reporting. Development of the MIS began as early as 1988, but has lagged badly. Consequently, the wealth of data alreday collected by the various sub-projects cannot be effectively analyzed without an inordinate expenditure of time on the part of the analyst.

Participating farmers' production undoubtedly will increase over the next several years as newly planted and resuscitated trees reach maximum yield levels. Also, some "spread" effects are occuring and are likely to increase in the next few years. In the long run, however, we do not beleive that

higher production levels will be sustained without the presence of HAP or similar assistance to hillside farmers. Cocoa and coffee production, in the absence of continuing assistance, probably will peak about five to ten years from now and begin a gradual decline.

To assure sustained production growth, two actions are recommended. First, extend the live of HAP to February 1997. This extension will enable the project to serve more farmers in the Rio Cobre and Rio Minho and possibly in other watersheds as well. Second, HAP should develop detailed plans and try to institute a permanent, self-sustaining system to provide technical assistance and possibly capital infusions to small tree-crop farmers. At this point, what organizaional forms or funding mechanisms will be feasible, let alone optimum, is impossible to determine. HAP, however, is in an unique position to study this issue, put forth a plan and help implement it. As an intermediate target, HAP should develop a detailed plan within the next year and circulate it for discussion to all interested parties.

To support this initiative, HAP must make a special effort to improve its socioeconomic data collection and analysis and put in place a systematic, comprehensive and up-to-date MIS as soon as possible.

CONCLUSIONS AND RECOMMENDATIONS

Lessons learned

1. Sub-projects should have clear objectives and progress indicators, but implementation should remain flexible.

2. Needs of the clients, who are small tree-crop farmers, are paramount in the design and execution of effective sub-projects.

3. Introduce new technologies only when client farmers are able to adopt and effectively use them.

4. Use proven, effective techniques to teach recommended production practices. Use of demonstration plots to show the effect of fertilizer on cocoa production is a good example.

5. Sub-projects must be relatively small and manageable to ensure large production increases on participating farmers' fields.

6. Accountability of sub-project implementors can and should be ensured by a combination of required, periodic reports and site visits by HAP managers.

7. While the average age of participating farmers is greater than 60, involving youth in sub-projects is still possible, and UNITAS provides a good example.

8. Farmers of all ages will participate in sub-projects if they are convinced of the profitability of technical packages.

Recommendations

1. Extend the PACD of HAP to February 1997, with no change in authorized funding.

2. USDAID should authorize HAP to assist hillside farmers in some new geographical areas, but the PCC should give greater attention to possible conflicts with other projects.

3. The PMU should consider development of new sub-projects in the Wag Water and Yallahs watersheds, but not shourt change the Rio Cobre and Rio Minho watersheds.

4. While cocoa and coffee will probably continue to be important, the PMU should consider devoting more resources to ecocnomic fruit trees and associated processing facilities.

5. The PCC and PMC should focus more on topics of interest to women, particularly marketing, processing and cottage.

6. HAP should lead a cooperative effort to institute a permanent, self-sustaining system to provide technical assistance and possibly capital infusions to small tree-crop farmers.

7. HAP should be more actively involved in policy debates relating to the providion of technical assistance and other inputs to small farmers, but not involved in commodity-pricing issues.

8. Because socioeconomic data collection and analysis have lagged, the PMU should make a special effort to brin them up to speed.

9. The PMU also should as soon as possible develop and implement a systematic, comprehensive and up-to-date management-information system.

Conclusions

HAP, working through its sub-projects, has improved the well being of many hillside farmers by enabling them to improve their cocoa and coffee plantations and thereby ensure higher

levels of income for many years to come. This accomplishment is the result of providing technical advice that is responsive to farmers' needs and supplying appropriate physical inputs.

A need will continue for technical advice tailored to the needs of hillside tree-crop farmers, and this advice will not be adequately forthcoming from existing extension services. Furthermore, capital in the form of seedlings, fertilizer and pesticides for the first year or two after planting should be provided to small tree-crop farmers. To perform these functions on a continuing basis, HAP would, in essence, evlove from a successful, but impermanent, donor-financed project into a permanent, self-sustaining system, dedicated to the support of hillside tree-crop farmers.

If HAP is extended, as recommended, it will have nearly five years to extend assistance to more farmers and refine its delivery systems. But at the same time, if it is to evolve into a permanent institution, HAP must do a much better job of analyzing, evaluating and disseminating information to the wider community of scholars, administrators and decision makers.

ANNEX K:

IICA Coffee Technology Background

Annex K: IICA Coffee Technology Background

PROMECAFE * Ten Years of Work

Background

PROMECAFE was created at the request of a number of Central American countries, which concerned by the appearance of coffee leaf rust in Brazil in 1970, organized a meeting with the support of IICA. At this meeting, the concept of a regional project, financed by the participating countries based proportionally on their coffee production, was presented by Dr. Pierre G. Sylvain, a Haitian Specialist working at CATIE, IICA's sister research organization.

Although Dr. Sylvain's proposal was not supported at the 1970 meeting, it was again considered in 1977 and became a signed agreement between Panama, Costa Rica, Honduras and El Salvador in 1978. They were later joined by Nicaragua, Guatemala, Mexico and the Dominican Republic. This agreement focussed not only on addressing the problem of plant protection (coffee leaf rust and coffee berry borer), but also on integrated improvement of coffee production.

---

* Regional Cooperative Program for the Protection and Modernization of Coffee Production

The five year agreement, which has been twice renewed, had as its general objective "to promote, through regional cooperation, agronomic research and coffee production technology in order to increase coffee productivity in the member countries".

Small donations and member country dues kept PROMECAFE activities operating from 1978 to 1981, when ROCAP made a $3.5 million grant which enabled technical activities to be broadened extensively.

PROMECAFE Strategy

The overall PROMECAFE strategy included the following medium-term objectives:

1. Strengthening the technical and scientific capability of member country coffee institutions in order that these may address their own problems more effectively.

2. Generation of scientific information to combat leaf rust and coffee berry borer efficiently , and to detect and control pesticide residues in coffee.

3. Evaluation of coffee genetic material for the purpose of selecting and reproducing rust resistant, high-yielding, high-quality varieties.

4. Methodological development of coffee technology generation, adaptation, validation and transfer.

5. Creation and/or strengthening of documentation centers and data banks for the purpose of developing a regional coffee information system.

6. Strengthening of the research infrastructure.

This general strategy became operational through an implementation agreement signed by IICA, the member countries, CATIE, OIRSA and USAID/ROCAP. At the extra-regional level, the following agencies also cooperated with the technical activities:

French Institute of Coffee and Cocoa Research (IRCC-CIRAD)
International Center of Coffee Rust, Oeiras, Portugal (CIFC)
Vicosa Federal University, Brazil (UFV)

PROMECAFE is structured very simply with representation from each member country, which is organized into an Advisory Committee. This committee relates to the Project Director who is responsible for project implementation. The Project Director is an IICA employee who works within IICA's institutional framework.

Activities and principle results

PROMECAFE project activities have been organized into seven basic activities, these being:

1. Coffee Leaf Rust control and research

Research led to the development of a methodology to study the epidemeology of the disease. The results showed that three, sometimes only two applications of fungicide are sufficient to control rust, while the preferred application of copper-based fungicides has been reduced from 3.0 kg/ha to 1.5 kg/ha, based on the research recommendations. These results have been disseminated through publications and meetings, and they have proven extremely helpful to other countries, particularly those in the Caribbean, which have identified rust only recently.

2. Coffee Berry Borer control and research

Field research has been conducted in order to understand the life cycle of the berry borer under different conditions. Studies have shown that Thiodan is the most effective product, applying from 0 .75 to 1.0 kg/ha three times a year.

Research has also shown the advantage of taking sanitary measures to ensure the protection of coffee stands, such

as collecting fallen berries after harvest.

Meetings and seminars have been held to disseminate the recommended techniques.

3. Research on Pesticide Residues and its control

Experiments were conducted to determine the accumulation of pesticide residues. The analysis uncovered the existence of lead residues. Some copper-based fungicides contain a high content of lead impurity, the acceptable level being 250 ppm of lead.

This research was carried out jointly with USDA experts, as was training in residue analysis.

4. Development and reproduction of rust-resistant varieties

PROMECAFE has concentrated on producing a high-quality and high yielding coffee variety which is resistant to rust and other coffee diseases. The best improved, rust-resistent material in the world has been evaluated at CATIE and then, through adaptive research in all participating countries, via farm-level experiments. All research results have been computerized for easy identification of improved varieties. Each country shall soon place at the disposal of its coffee

farmers a high-yielding variety which at the same time is rust-tolerant.

The technology has also been generated for easily and efficiently producing exceptional plants through micro-cutting reproduction.

5. Information systems and data bases

PROMECAFE has also concentrated its efforts on documented information about coffee and plant protection information. IICA's documentation center, CIDIA, has collaborated in this effort more than 7000 documented citation on coffee have been electronically deposited.

6. Development, adaptation and transfer of appropriate technology

PROMECAFE's priority has been the small and medium sized farmer and for this reason it worked to develop a methodology which could transfer technological advances to over 200,000 small farmers, using appropriate technological packages.

In a number of the member countries, different technological packages were transferred through grassroots organizations.

Special mention should be made of the success of working, in Guatemala, with the "Work and Friendship Groups".

7. Training

One of the key instruments for PROMECAFE's success has been training of key staff in the different member countries.

Short courses, seminars, travel study and workshops have all played an important part in developing a corps of over 5000 technical staff working with coffee.

ANNEX L:

Bibliography

ANNEX L: BIBLIOGRAPHY

- Agency for International Development, Country Development Strategy Statement, FY 1984, Haiti, January 1982.

- Agency for International Development, Agricultural Development in Haiti: An Assessment of Sector Problems, Policies, and Prospects Under Conditions of Severe Soil Erosion, Washington, May 1978.

- BERTELSEN Michael K., DUPONT Ernest, JEAN-BAPTISTE Arrod, SWANSON Richard, (USAID, Universite d'Arkansas, Winrock International et Ministere de l'Agriculture) Resultats de l'Enquete Pilote Agricole dans le Departement du Sud : Deuxieme Saison Agricole, 1985, Haiti, Aout 1986.

- Banco Interamericano de Desarrollo, Informe Economico : Haiti, Agosto 1983

- Banque Interamericaine de Developpement, Rapport Economique : Haiti, Janvier 1986.

- BENOMAR Boubker, Universite Mohamed V de Rabat, Connaissance, Ethique et Cultures, Colloque de la IXe Reunion Triennale de l'Assemblee Generale de l'AUPELF, Marrakech, 26, 27 et 28 novembre 1987.

- Capital Consult S.A., prepared for USAID, Analysis Sectorial: Cafe/Haiti.

- Capital Consult S.A., prepared for USAID, An Analysis of the Haitian Coffee Sector: Towards new policy Directions, Port-au-Prince, July 18th, 1983.

- CASIMIR, Jean, Estrategia para la Reactivacion y el Desarrollo Agricola en Haiti, Port-au-Prince, Diciembre 1988.

- Centre National de la Recherche Scientifique (CNRS), Le Commerce du Cafe en Haiti, Habitants, speculateurs et exportateurs. Memoire du Centre d'Etudes de Geographie Tropicale (Bordeaux) par Ch. Girault, France, 1977

- Credit Union National Association, Inc., Assessment Report on the Haiti Small Coffee Farmer Project and the Bureau de Credit Agricole, Washington, November 15, 1976.

- Development Alternatives, Inc. Prepared for USAID
  i. Evaluation of the Haiti Small Farmer Coffee Project, Washington, June 30, 1977.
  ii. Evaluation of the Haiti Small Farmer Coffee Marketing Project, Washington, February 1984.
  iii. Selected Issues in the Production and Marketing of Coffee in Haiti, Washington, May 1985.

- FAO, Le Traitement du Cafe, Bulletin de Renseignements no. 20 (par Rene Wilbaux) Rome, 1961.

- FIGUEROA ZEVALLOS Raul, La Caficultura en el Peru, 1984.

- FORSYTH David J.C. Appropriate National Technology Policies. A manual for their assessment, ILO Geneve 1989.

- HELFENBERGER Andre, BAILEY Martial N.,AZAEL Ariel, MATHURIN Fequiere, Assessment of the Situation on Coffee Production and Marketing in Haiti, February 18, 1987.

- Institut Interamericain des Sciences Agricoles de l'OEA, Plan Quinquennal pour le Developpement de la Culture des Haricots en Haiti, Port-au-Prince, Haiti. Aout 1973.

- Institut Interamericain de Cooperation pour l'Agriculture, Assessment of the situation on Coffee Production and Marketing in Haiti, Fevrier 1987.

- Institut Interamericain de Cooperation pour l'Agriculture,
  i. Rouille du Cafeier, Haiti 1989;
  ii. Rapport de Mission Phytosanitaire dans les Cafeiers des Regions de Mont-Organise et Carice, Septembre 1988;
  iii. Estrategia Sugerida para el control de la Roya;
  iv. Proyecto Apoyo a las Instituciones Nacionales para el Desarrollo y Transferencia de Tecnologias para la modernizacion de la agricultura del Pays. 1988;
  v. Service de la Protection des Vegetaux : Depistage de la Rouille des Cafeiers, Octobre 1988.

- Institut Interamericain de Cooperation pour l'Agriculture et Fond International pour le Developpement Agricole, Agricultural Sector Assessment, May 1991.

- Institut Interamericain de Cooperation pour l'Agriculture, Final Proposal for the First Revision of the Coffee Revitalization Project, September 13, 1992.

- Inter-American Development Bank, Economic and Social Progress in Latin America, 1987 Report, 1987.

- JWK International Corporation/Unite de Programmation Departement de l'Agriculture, des Ressources Naturelles et du Developpement Rural (DARNDR), Etudes de Politique Agricole en Haiti : CAFE, Damien, Haiti, Septembre 1976.

- Ministere de l'Agriculture, des Ressources Naturelles et du Developpement Rural et de l'Environnement, Nouvelles Orientations des Interventions du Ministere dans le Secteur Agricole, Volume II, Reajustement Structurel du MARNDR. Juin 1988.

- Ministere de l'Agriculture, des Ressources Naturelles et du Developpement Rural et de l'Environnement, Bulletin Agricole, Publication Bimestrielle, Port-au-Prince, Haiti, Juin-Octobre 1988.

- Ministere de l'Agriculture, des Ressources Naturelles et du Developpement Rural, Projet de Developpement Integre dans les communes de Dondon et Marmelade, Etude de Factibilite, Novembre 1978.

- Ministere de la Plannification et de la Cooperation Externe, Bulletin de Resume Analytiques sur l'Information Scientifique et Technique, Port-au-Prince, May 1989.

- Ministere Van Landbouw, Veeteelt & Visserij, A Short Course in Agricultural Technology Transfer, Paramaribo, Suriname, August 1985.

- Nations Unies Programme pour le Developpement, Rapport de Programmation, Port-au-Prince, Aout 1975.

- Nations Unies/Conseil Economique et Social: Projet CEPAL/Gouvernement des Pays-bas, Agriculture Paysanne et Marches Alimentaires, L'Agriculture Paysanne et Marches Alimentaires - Etude de Cas : Haiti, Santiago du Chili, Novembre 1983.

- PROMECAFE, Diez anos de Labores 1978-1988, San Jose de Costa Rica.

- PURSEGLOVE J.W. Tropical Crops Dicotyledons 1, London 1968.

- SAINT-CLAIR Pierre Michel, Les Cultures Importantes de l'Espace Tropical, Tome I, Les cultures industrielles, Quebec, Canada, 1985.

- SETA, Haiti: Affectation STABEX, Rapport Final, CEE, 10 avril 1989.

- SYLVAIN P.G., i. Le Cafe du Yemen, L'Agronomie Tropicale Vol. XI, No.1, Janvier-Fevrier 1956.
  ii. Los nematodos afectan la produccion del cafe, Reproducido de La Hacienda,Junio 1960;
  iii. Les Innovations Agro-Techniques en Cafeiculture, ASIC, 8e Colloque, Abidjan, 1977.

- The Economist Intelligence Unit, Coffee to 1995: Recovery Without Crutches, March 1991.

- World Bank, Haiti Agricultural Sector Review, February 11, 1991

- World Bank, Restoration of Growth and Development, May 1991.

Newspapers and Magazines consulted:

- Forbes, USA, October 30, 1989, Another Cartel bites the dust, by Peter Fuhrman.

- Le Nouvelliste, 23 - 25 octobre 1992, Des Plantations de cafe transformees en charbon, par R.J.F.

- Listin Diario Republica Dominicana, November 5th, 1989, Hacia un nuevo acuerdo cafetero? por Alberto Pineau.

- The New York Times, October 29, 1989, Waking up market Coffee Industry seeks to stir up interest in iced cappucino.

THE INTERAMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE is the specialized agency for agriculture of the inter-American system. It was founded in 1942.

The objectives of IICA are to encourage, promote, and support the efforts of its 33 Members States to achieve agricultural development and rural well-being.

IICA focuses its activities on five Programs: Agricultural Policy Analysis and Planning; Technology Generation and Transfer; Organization and Management for Rural Development; Trade and Integration, and Agricultural Health.

The following countries are members of IICA: Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominica, the Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, the United States of America, Uruguay and Venezuela.

In addition to its 33 Member States, it has 14 Permanent observers: Arab Republic of Egypt, Austria, Belgium, European Communities, Federal Republic of Germany, France, Isarel, Italy, Japan, Kingdom of the Netherlands, Portugal, Republic of Korea, Romania and Spain.