
**AGRICULTURAL DEVELOPMENT SUPPORT II
HAITI**



**University of Arkansas,
Fayetteville**

IMPLEMENTING A FARMING SYSTEMS
RESEARCH PROGRAM:
A CASE STUDY IN HAITI

Report #2A

IMPLEMENTING A FARMING SYSTEMS RESEARCH PROGRAM:
A CASE STUDY IN HAITI

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IMPLEMENTING A FARMING SYSTEMS RESEARCH PROGRAM A CASE STUDY IN HAITI*

INTRODUCTION

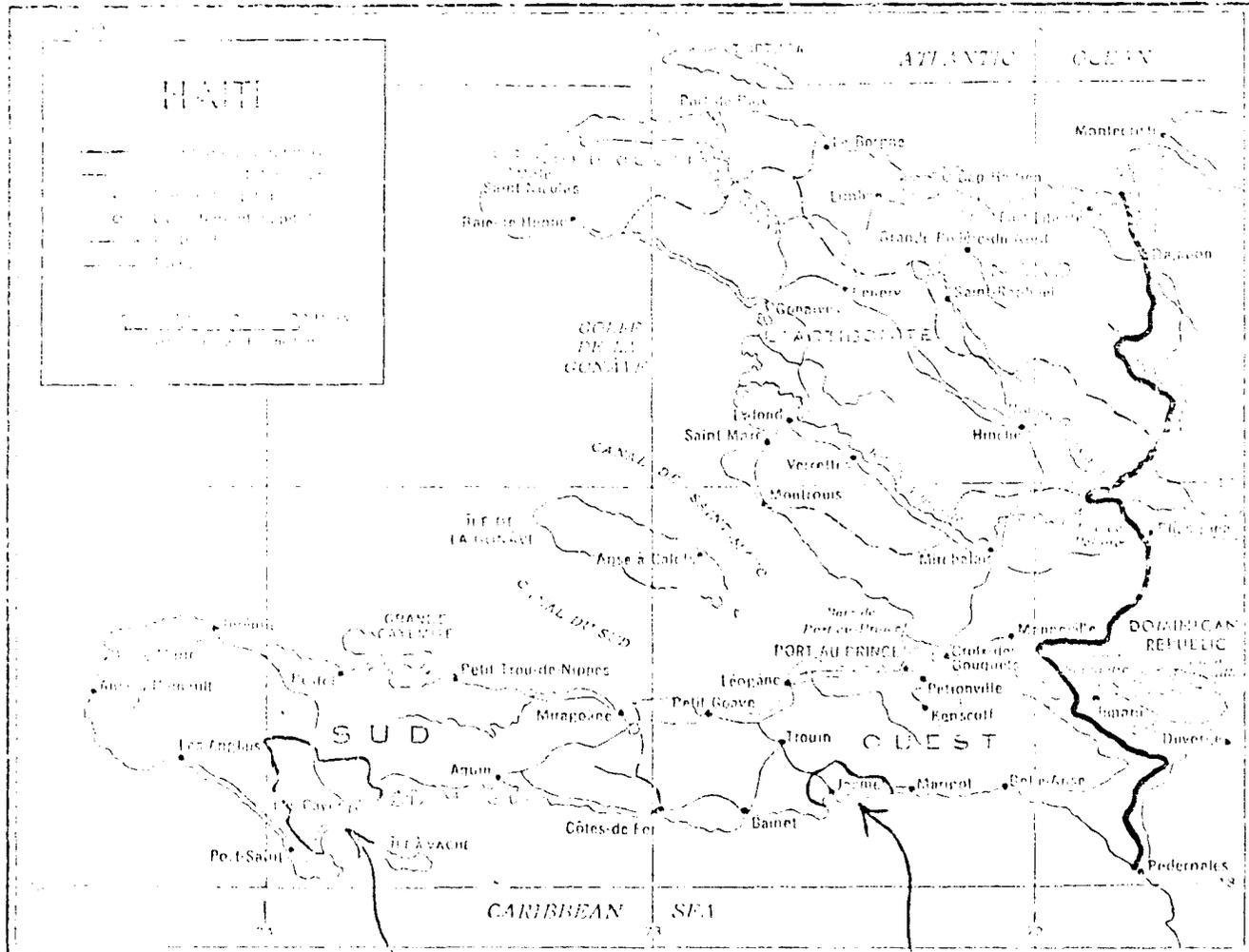
One objective of the Haitian Ministry of Agriculture's (MARNDR) agricultural research program, implemented through its University Faculty of Agriculture, is to develop a methodology to identify and eliminate constraints to increasing agricultural production, particularly among small farmers. Much past agricultural research has proven unacceptable and inapplicable to the agro-socio-economic conditions of such farmers. Experience in many regions of the world has demonstrated that an interdisciplinary approach which combines agronomic, socio-economic and cultural perspectives is essential to accomplish this objective.

For this reason the Haitian University Faculty of Agriculture, in association with the University of Arkansas and Winrock International, through the financial assistance of the United States Agency for International Development (USAID), created a farming systems program (ADS-II). Primarily based in Jacmel and Cayes districts, each region includes a mountain and a plains zone (Figure 1, see map).

The methodology used to develop this program is based on the principle that the central focus of all action must be the peasant farmer and his family, and by extension, the community groups in which the family may participate. This farmer is the central figure together with whom researchers work through a series of steps seeking greater productivity of his resources. It is only through an understanding of the major dynamics of agricultural households and with their members total collaboration that appropriate measures can be taken to modify or change a production system.

It is evident that changes at regional or national levels can often help to eliminate certain constraints, or open new opportunities for farmers. However an agricultural research program such as our own can rarely effect such change. Macro policy initiatives that create a fertile environment for development can only come from the higher echelons of socio-political power at regional or national levels. By providing accurate farm-level information however to leaders at this level, an applied research program can indirectly hope to have such influence.

* An earlier version of this paper appeared in French under the title "Revue des Etapes a Suivre pour un Programme agricole approprié en Haiti", FAMV/ CRDA, Haiti, June 1984.

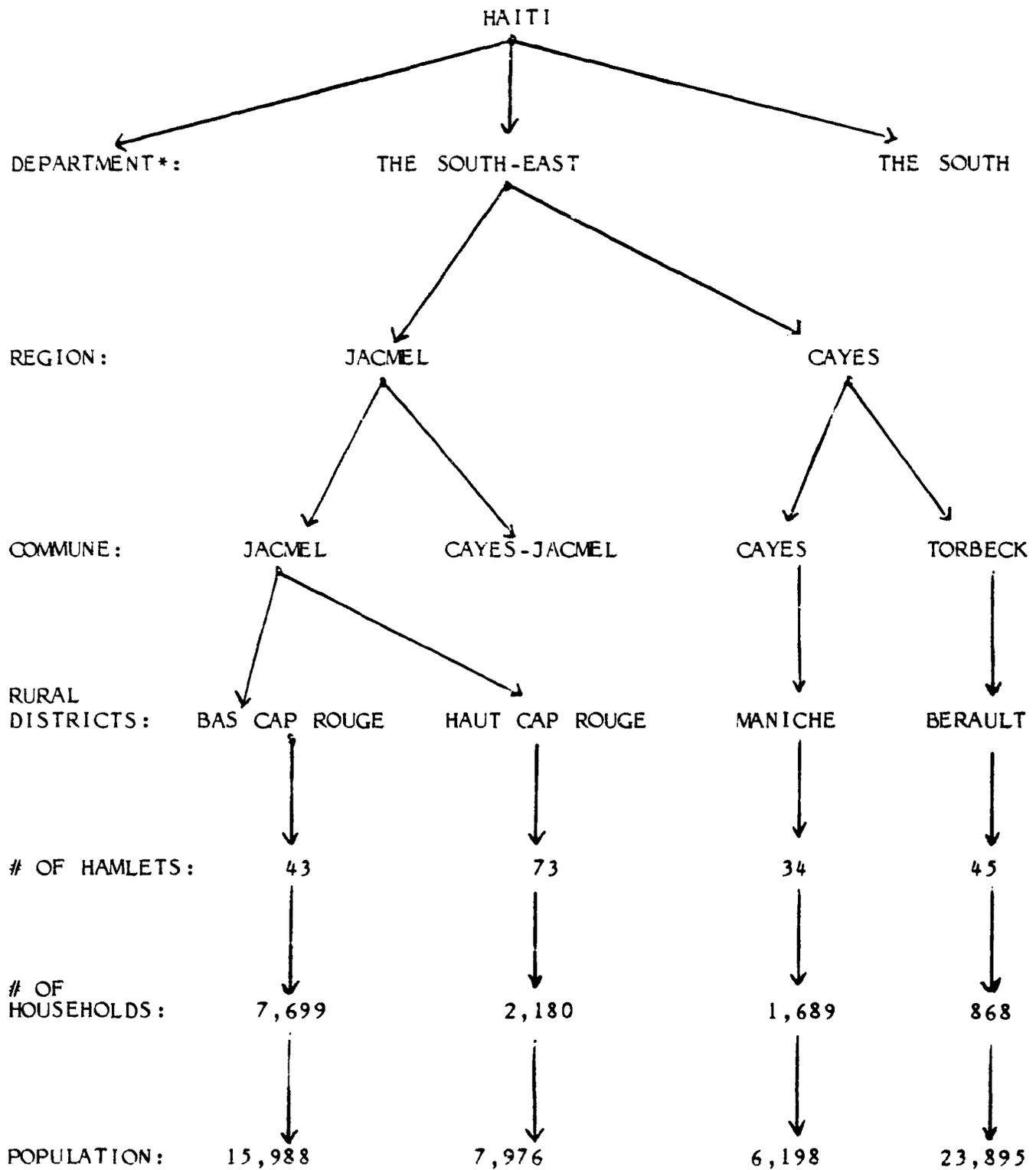


Cayes Region

Jacmel Region

Source: "Social Institutional Profile of the Cayes Plain Basin: Towards a Coordinated Rural Regional Development Strategy", William Coffey, Lewis, Hauge, January 1984, USAID/Haiti Project Document.

FIGURE 1: SUBDIVISIONS OF THE ZONES OF RESEARCH



 * There are 9 departments, 41 regions, 130 communes, and 560 rural districts in Haiti.

For this reason, one can foresee two types of results coming from farming systems research.

(1) Research may lead to results which are indeed sensitive to agro-socio-economic conditions of small farmers in an area, and implementing these results can be within reach of farmers without sustained outside assistance. With his own land, labor, and capital resources, the farmer can adopt new technology. Certain farm management techniques, new crop varieties, and improved agricultural equipment might be represented in such results.

(2) Research may lead to results which are sensitive to the agro-socio-economic conditions of small farmers in an area, but these results may require sustained outside institutional support to facilitate and maintain adoption. The availability of certain inputs (fertilizers, pesticides, herbicides, commodity prices, roads, cost of transport, credit programs etc.) may all be important to farmers, but forces outside the local area usually govern their eventual impact.

The ADS-II farming systems project is attempting to develop research results of both kinds.

Each agricultural household is a unique system in itself. However, only by aggregating certain household similarities are farming systems program results useful to the extension service. Farmers within a specific target district need to be stratified into not much more than two or three major groupings sharing similar production constraints or opportunities.

On farm experimentation, by its very nature, is a form of pre-extension and extension activity. This should not only lead to benefits for the concerned farmers, but should also influence research priorities national research stations. Descriptive, qualitative research needs to be balanced by quantitative agro-socio-economic research in an on-going fashion at the farm level.

Many good studies and workshop proceedings have been published describing various approaches for gaining an understanding of the agro-socio-economic conditions of farmers (Byerlee et Collinson, 1983; Gilbert et. al. 1980; Kansas FSR Proceedings, 1983). Excellent research has also been conducted in the Madian-Salagnac region of Haiti (Mathieu, 1984; Bellande, 1984). Even though approaches vary, they all hold in common certain basic concept and approaches.

1.0 Basic Concepts

(1) The focal point of farming systems research/extension is the small farmer.

(2) Research must focus on groups of farmers facing common agro-socio-economic constraints so that results will be applicable to the greatest possible proportion of the farm population.

(3) Because there are so many issues to which researchers might address themselves, it is essential that a list of the major

pr

riorities be made early, with the concerned population, to guide activities. There are few research and extension programs which can simultaneously address all the major constraints (even if known). "It is therefore necessary to establish priorities in order to select those problems of greatest importance which limit farmer productivity and revenues and for which there exist technological responses which would permit early solutions" (CIMMYT:1983:p.11).

2.0 Steps Followed in Farming Systems Research and Extension

The Haiti Faculty of Agriculture has followed the following steps in developing its program in Jacmel and Cayes since February 1984. As illustrated in Figure 2 below, research in a new region begins with broad understandings/generalizations and attempts to focus as quickly as possible towards solving production problems of special concern to local farmers.

FIGURE 2: FOCUSING OF RESEARCH

Rapid Rural Reconnaissance Survey, with a Total
Agricultural Census Survey of Selected
Hamlets in Target Area
(6 weeks)

Design Testable Hypothesis for
on-farm trials and ag.-socio-econ.
needs
(4 weeks)

Researcher managed and superimposed
farmer managed trials* with focused socio-
econ. surveys
(first season-6 months)

Researcher managed and superimposed
farmer managed trials with focused socio.
econ. surveys
(second season- 6 months)

Etc. for life of project, with
aspects of certain farmer managed trials
becoming adopted within the community

Extension
(an on-going process)

* "trials" include experiments with food and tree crops,
livestock, farm equipment, new inputs, etc.

(1) Secondary Data

The program began with the study of the secondary information available from the regions in which the research team, comprised of Haitian/American/Indian agronomists, an agricultural economist, statistician, and anthropologist, were to work. This included an assortment of different studies, topographic and soil maps, regional and local rainfall statistics, and demographic data from the 1982 census. Tables were prepared showing the administrative/demographic divisions of the country at the department, regional, commune, rural district, hamlet and household levels (cf. Figure 1,3).

Within the two regions selected, Jacmel and Cayes, the Ministry of Agriculture wished the ADS-II program to develop recommendations for both the important plain and mountain sub-regions. For example, in the Jacmel plain region surveyed, called Bas Cap Rouge, altitude ranged from 15 to 400 meters; the mountain region surveyed, called Haut Cap Rouge, ranged from 700 to 1000 meters in altitude. Rainfall in the mountain range can exceed that of the plain by 1000 mm. in a given year. As a result cropping systems and soils differ and the nature of field management also differs (irrigation in the plain and erosion control ridging/terrassing on mountain slopes).

A list of all the hamlets was made in both the mountain and plain sub-regions located in Cayes and Jacmel, showing number of households present, population size, and altitude. Though particular sub-regions appeared agro-climatically fairly similar, it became apparent that farmers within the different communities selected for study could differ. For example, in Bas Cap Rouge, three types of land are exploited:

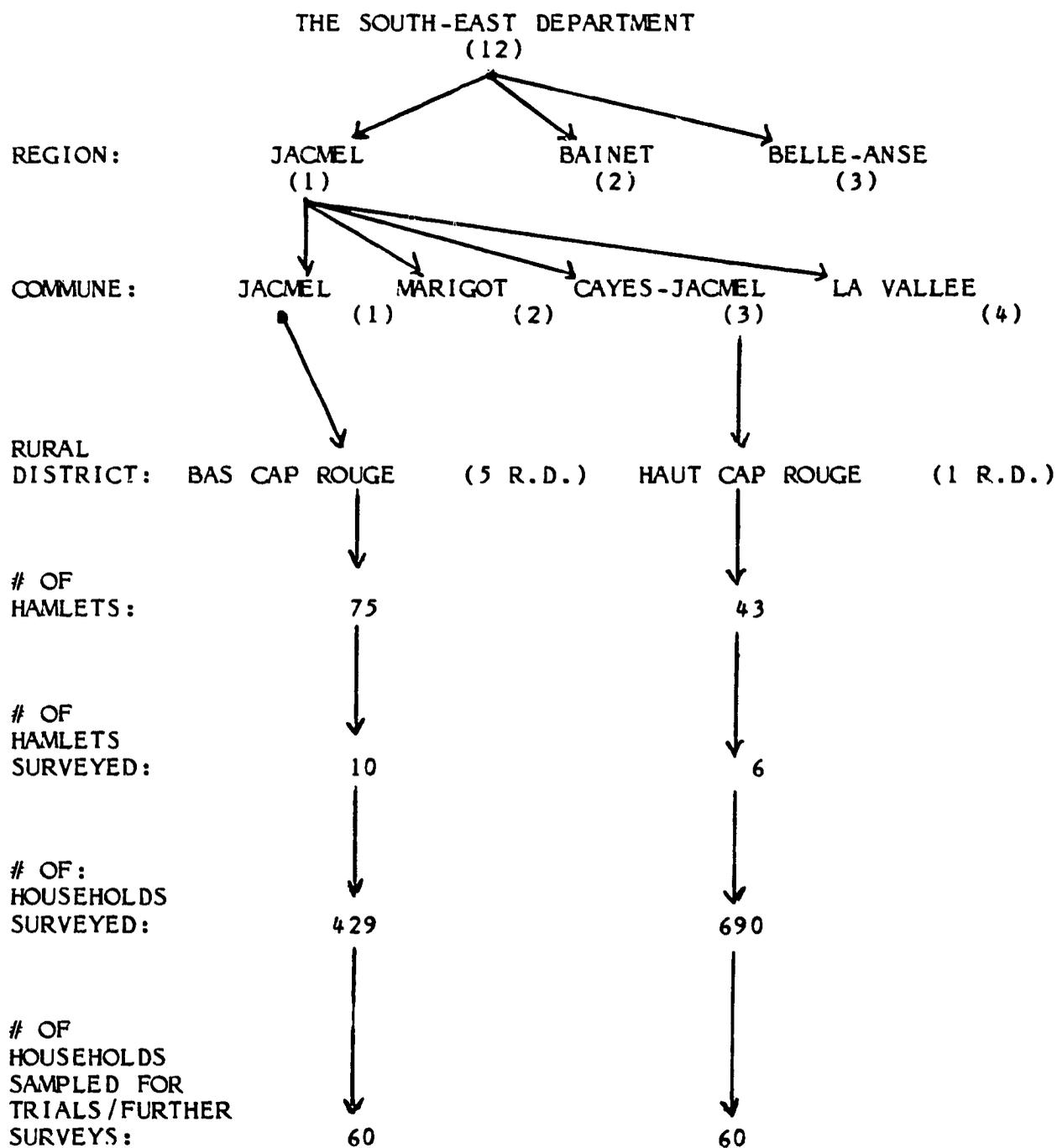
- (1) non-irrigated land
- (2) irrigated land
- (3) land along the lower slopes of mountainsides

Access to more or less of all or some of these land types by farmers could lead to significantly different production capabilities and constraints. Haut Cap Rouge was considered as only one agro-climatic zone.

(2) Qualitative Data

During April/May, the research team conducted a series of rapid rural reconnaissance surveys in the four target sub-regions of the project, Haut Cap Rouge and Bas Cap Rouge of Jacmel, and Maniche and Berrault of Cayes (cf. Sorel & Pierre, 1984; Fleurintin and Chatterjee, 1984). This permitted further study of possible physical or other differentiation of sub-regions into sub-zones. These qualitative surveys consisted of a series of interviews with small groups of farmers and community leaders in different parts of the sub-region on the production systems practiced. Questions included the relative importance of different types of crops, the structure of permanent and seasonal labor, technology used in area, types of inputs used, land tenure arrangements, estimates of land cultivated under different types of crop associations, agricultural constraints, livestock issues, etc. The program put together a form with 51 worksheets for this purpose and spend approximately one week and a half per sub-region completing them (Questionnaire # 1, Reconnaissance Survey For a Zonal Perspective).

FIGURE 3: SUBDIVISIONS OF THE JACMEL REGION



 * These codes were established by the Haitian Institute for Statistics and Programming (IHSI). These codes permit standardization of information coming from various regions of the country and permits processing by computer.

** This indicates the total number of rural districts (R.D.) found in each commune.

During the life of the project, in each sub-region for research/extension, researchers will need to continually be in the process of gaining a better understanding of the production systems through observation and discussion with farmers.

This survey provided the first opportunity for the research team to interact and gain together an overall general perspective of the target regions. It was an opportunity to explain the project's role to groups of farmers and to permit farmer input into the first season's research priorities and design.

(3) Quantitative Data

Because the program was to place three enumerators and three junior agronomists in each sub-region, we divided the region into three portions and selected sample hamlets in which to initiate the first formal survey. All the households in six and ten hamlets of Haut Cap Rouge and Bas Cap Rouge respectively (cf. Figure 3) were selected (based primarily on accessibility) to participate in the initial survey questionnaire of two pages (cf. Appendix 1).

Numbering as many as 600 households per sub-region, all the households of selected hamlets were interviewed. The process for interviewing and analysis of data took no longer than six weeks and ran concurrently with the qualitative survey mentioned above. The research team was able to use both surveys as a basis upon which the first season's research managed trials and additional agro-socio-economic data needs could be planned in a logical manner.

This first quantitatively orientated survey also provided the first opportunity for the technical assistance team and Haitian counterparts to interact and train field enumerators. Because all families in the selected communities were interviewed, an early means of contact with the entire community was possible. Such contact was important for familiarizing the team with the area and becoming known to local residents.

(4) Data Processing

Without intentionally doing so, we were able to assess some of the comparative advantages between micro-computer and manual processing. The general household census (cf. Appendix 1) contained 58 columns of data. In Jacmel the survey included 1,119 households. A statistician was trained to input this data on a Model 4 Radio Shack micro-computer. The initial training and completion of data inputting took 4 weeks. We experienced problems with the machine and proceeded to manually process the same survey data for the Cayes region - with 221 less households surveyed.

The manual tabulation took the same statistician three months to complete. When completed we had some descriptive data for Maniche and Berault in Cayes similar to that achieved in Jacmel (Table One), with the exception that it was not possible to calculate tests of significance (T-Tests). It was only after reviewing these tables and the t-tests from Jacmel that we realized we would want to stratify the

sample according to hectares cultivated. We did so in a matter of days for Jacmel but couldn't even begin for Cayes. It would take between six and nine months for one person to manually stratify out the six sub-zones of Cayes. We have begun to put the original Cayes data on computer instead.

(5) The Sample

Together, for each sub-region, the group qualitative survey and the individual respondent, household level quantitative survey permitted program leaders to base the first year's applied research program on a non-subjective and prioritized basis. With research results, we were able to identify groups of farmers which appeared to share similar agro-socio-economic constraints and production goals. A set of research priorities, described in more detail below, became evident upon which we were able to hypothesize possible means of testing solutions at the farm level. This included stratifying farmers into several groups for both researcher managed trials and farmer managed trials, and for survey monitoring of agro-socio-economic data needs of the research program.

(6) Researcher Managed Trials (RMT's) and Supplementary Survey Data

During our first agricultural season, beginning in July 1984, a group of about 20 farmers per stratified group began cooperating with us in each sub-region through a series of researcher managed and superimposed farmer managed trials. Trial themes were based on major issues/constraints which had become apparent in these areas during the course of our initial contact with the farmers. RMT's are located on a portion of cooperating farmer fields and are supervised by research personnel to assure correct timing of those factors under consideration in the particular trial (date/spacing of planting, date and quantity of different fertilizers, herbicides, insecticides, dates of weeding, etc.).

As RMT's take so much of the research team's time, therefore limiting the number of farmers with whom we can interact directly, the program also manages superimposed and demonstration type trials with a much larger group of farmers. For example, interested farmers are given a new variety of sweet potatoes to plant in one portion of his field, alongside his local variety. Research assistants will take yield measurements from both sections of this farmer's garden, asking for farmer evaluation of the crop (growth, tuber size, taste preference, etc.). Or, in another case, we may provide sprayers and spray to some farmers, only asking them to notify us when they wish to spray. We will help them spray only a portion of their field. Again yield measurements will be taken at harvest time. Such information will guide us in improving the RMT's for the next season.

Socio-economic data are also being obtained from the cooperating farmers about other aspects of the household production system (total land cultivated, production potentials of various crops, labor use on selected fields, household livestock, commercialization issues).

Researcher managed trials differ from farmer managed trials in their complexity and their smaller size. Researcher managed trials

demand careful supervision from the program agronomists or their assistants for success. Yields equal to farmer control plots are guaranteed to the farmer, in the event of loss due to the trial theme itself. Researcher managed trials include the best planting material coming from the national agricultural research station. A recently completed USAID funded research team out of Texas A&M University, working with the Faculty of Agriculture, has identified a number of promising varieties of maize, red and black beans, sweet and bitter manioc, rice, sorghum, and pigeon pea. Many of these are in the process of being tested and evaluated by researchers and farmers through our on-farm trial program.

(7) Farmer Managed Trials

No matter how good the results of on-farm researcher managed trials may be, no matter how promising the economic analysis of an experiment may appear, there is still no objective assurance that a particular combination of management techniques or varieties will be actually adopted by farmers. Farmers should be expected to modify so called "tech-pacs". The manner in which farmers will modify a technological package when in the process of actually adopting a practice can sometimes teach us the most as research observers. It is for this reason that we feel it is important that successful on-farm research go one step further to include farmer managed trials. Only if the technological recommendation is screened under the total management conditions of the farmer, can one be assured that a theme is ready for extension. It is possible for unforeseen constraints to render unpracticable even a successful research managed trial.

Researcher managed trials, appropriate to one or other of Haiti's two agricultural seasons will be conducted each year of the ADS-II program. By the second year however, research results for both the trials and agro-socio-economic surveys, combined with farmer and researcher's evaluations, should permit evaluation of the past season's successes or failures. Research themes will be either:

- (a) abandoned as unacceptable for various known reasons; or
- (b) modified for a further season of researcher managed trial evaluation; or
- (c) will pass to farmer managed trials.

Beginning at least by the second year, each zone of research should include farmer managed trials as well as researcher managed trials. When researcher managed trials show favorable results and cooperating farmers demonstrate interest, simple, but larger, trials with not more than two treatments will be evaluated in farmer fields. A new management intervention may be superimposed or a new variety placed by the farmer in a portion of his field alongside his local practice or variety. Researchers will monitor activities through the season, taking yield samples at harvest. An agro-socio-economic analysis will be made of the results, placing major attention on the farmer's response and future intentions.

(8) Extension

Research results from the second year should lead either to:

- (a) new researcher managed trial themes;
- (b) modified researcher managed trials ready for farmer managed trial evaluation
- (c) technological themes ready for (and actually already in process of) more widespread extension. It would be useful to continue to monitor some farmers who have adopted new varieties or new management techniques for at least another year, taking yield estimates and preparing partial budgets.

Beginning with the first year, and intensifying in succeeding years, agricultural field days will be organized for each zone in order to more widely communicate successful research results.

3.0 Data Analysis: The Plain Bas Cap Rouge Sub-region of Jacmel

Within this context, the ADS-II program has been developing its farming systems research activities in Jacmel and Cayes. Some of the results from the plains region of Jacmel, in Bas Cap Rouge, are given here.

The rural population of Bas Cap Rouge (city of Jacmel excluded), with some 75 communities and 15,988 persons, was represented in the initial quantitative survey by 13% of the population from 10 communities, representing the three divisions made of the Bas Cap Rouge sub-region: Orangers, Cyvadier, and La Source. These divisions were made more in terms of better coverage (for representativeness) of the entire sub-region by the personnel of the program than because of any evident agro-climatic differences (Sorel and Pierre, 1984:5).

With the quantitative survey, we were able to begin to understand some of the characteristics of the production household (Table 1).

TABLE 1: LAND CULTIVATED AND INPUT USE

	ORANGIERS	CYVADIER	LA SOURCE
SAMPLE SIZE	112	215	102
PERSONS/HOUSEHOLD (X)	5.6	4.7	4.7
HA.CULT./HOUSEHOLD (X)	1.5	.8	1.6
CHILDREN % OF RESIDENT	46%	39%	45%
CHILDREN % OF AG.WORKERS	8%	7%	2%
% OF LAND SHARECROPPED	44%	23%	12%
% OF HOUSEHOLDS WOMAN THE HEAD	24%	53%	30%
% HOUSEHOLDS USE INSECTICIDE	13%	73%	1%
% HOUSEHOLDS USE CHEM.FERTILIZ.	7%	40%	1%
% HOUSEHOLDS HIRE LABOR	66%	64%	64%
% HOUSEHOLDS MEMBER FARM ASSOC.	38%	76%	56%
% HOUSEHOLDS USE IRRIGATION	17%	53%	22%

The quantitative survey also permitted us to determine the relative importance of major crops and crop associations and livestock to the production system (Tables 2,3).

TABLE 2: HOUSEHOLD CROPS

	ORANGIERS	CYVADIER	LA SOURCE
SAMPLE SIZE	112	215	102
CASH CROPS (ORDER PRIORITY)	CORN MANIOC* PLANTAIN SORGHUM	CORN RED BEANS TOMATOES MANIOC*	MANIOC* RED BEANS CORN PLANTAIN
FOOD CROPS (O.P.)	CORN MANIOC* SORGHUM PLANTAIN	CORN SORGHUM BEANS RED BEANS	CORN SORGHUM SWEET POTATO PLANTAIN
MOST COMMON JAN-JUNE ASSOCIATION	CORN/SORGHUM/ MANIOC*/BEAN	CORN/SORGHUM MANIOC*/BEAN	CORN/SORGHUM MANIOC*/BEAN
MOST COMMON JULY-DEC. ASSOCIATION	CORN/SORGHUM MANIOC*/SP**	CORN/SORGHUM MANIOC*/SP**	CORN/SORGHUM MANIOC*/SP**

* = BITTER MANIOC

** = SWEET POTATOES

TABLE 3: HOUSEHOLD LIVESTOCK

	ORANGIERS	CYVADIER	LA SOURCE
SAMPLE SIZE	112	215	102
% OF HOUSEHOLDS POSSESSING:			
FOWL	79%	76%	83%
GOATS	68%	55%	89%
SHEEP	3%	0	0
CATTLE	59%	65%	65%
DONKEY	22%	31%	35%
HORSE	11%	10%	10
PIG	0	0	0

We were able to consider the relative importance of four major land tenure arrangements.* The amount of land cropped by various households (purchased, rented, inherited, sharecropped) was seen to be significantly correlated (T-Test, 99.9% level) with use of agricultural inputs such as fertilizers and insecticides.** The tables of data generated from these results (cf. Appendix 2), combined with the more general understanding gained from the qualitative survey results for the area led us to stratify our sample in terms of what appeared to be the most important variable - access to land.***

STRATIFICATION

Our micro-computer was therefore used to resort and stratify the sample of households interviewed according to four groupings: farmers exploiting and/or having access to between:

- (1) 0- .645 ha. of land (.645 hectares or 1.593 acres)
- (2) .6.5 - 1.29 ha. of land
- (3) 1.29 - 6.45 ha. of land
- (4) 6.45+ ha. of land (cf. Appendix 3 A,B,C)****

* Haitian farmers use a land unit called the "carreau", one of which is equal to 1.29 hectares or 3.186 acres. A farmer will say a particular garden has 1/16 carreau or 3/16 carreau, etc.

**Sprayers were always rented from community cooperative groups.

***Smucker has noted the same in terms of the structure of peasant rural debt and access to credit. "It is useful to compare access to land, labor, and capital as the key factors in peasant economy. Capital is by far the most scarce in relation to demand. Labor is the least scarce and land is the pivotal factor. The land serves as a powerful fulcrum for gaining access to labor and capital resources. Land is the primary source of livelihood and the most significant form of investment." (Smucker, 1983:7,6).

We have not been able to verify Murray's statement that land tenure arrangements among farmers are closely linked with life cycle stages of various peasants in a community. "Most young men fall into the category of sharecropper, most old men fall into the category of landlord, and most men of all ages are found straddling two, and sometimes three, categories simultaneously." (Murray 1977:543). Certainly age of household heads, who seem to control most of the land arrangements for the households, is not correlated to size of land holdings or access to land in our data (Figure 10). However, our data make clear that the smaller the land holding of a household, the more likely the household is headed by a women.

**** Our decision to stratify Bas Cap Rouge according to these categories was not arbitrary. Murray's work in 250 households in the Cul de Sac Plain stratified farmers into groups of 0-.5; .5-1; 1-1.5; 1.5-2; 2.5 - 3; 3 - 3.5; 3.5 - 4; 4+ carreaux. For applied research purposes this represents too many categories. Because Murray quotes other researchers as stating that most Haitian peasant farmers exploit between 1.5 and 2 hectares of land (Ibid.:245), we chose the above

categories. Future sortings will break the third class into 1.29 - 2.57 ha. and the fourth class into farmers with over 2.56 ha.

Data from the quantitative survey, once stratified, were highly instructive. Using these stratification classes, the sample of farmers with whom we are working this year was grouped into three groups representing the first three classes above. We expect that, while each group may cultivate similar crops, and may aspire to possess similar livestock, what can be realized in terms of resource management and productivity will be quite different. Technical recommendations may need to differ for different groups.

The qualitative survey in Bas Cap Rouge suggested that about 40% of all land is sharecropped, with about 40% privately owned and 20% rented (cf. Sorel and Pierre, 1984:12). The quantitative survey was able to break this out more accurately in terms of the three sub-zones (cf. Table 4).

TABLE 4: STRUCTURE OF LAND USE

BAS CAP ROUGE			
LAND:	ORANGIERS	CYVADIER	LA SOURCE
SHARECROPPED	44%	23%	12%
RENTED	15%	18%	19%
OWNED	41%	59%	69%

When the 215 households for Cyvadier are stratified (cf. Table 5), we learned that farmers with small land holdings appear to depend more on sharecropping, while more land prosperous households have ownership or inheritance rights to a larger share of their land. While the La Source data also confirmed this, Orangiars data revealed the 1-5 carreaux group of farmers with the largest portion of their land under sharecropping arrangements (Appendix 3A). Reasons for this will need to wait further research.

TABLE 5- STRATIFIED STRUCTURE OF LAND USE

CYVADIER				
LAND:	0- .6.45 ha.	.645 - 1.29 ha.	1.29 - 6.45 ha.	6.45+ ha.
SHARECROPPED	34%	32%	16%	5%
RENTED	18%	19%	21%	5%
OWNED/UNDIVIDED	48%	49%	63%	90%
INHERITANCE				

While the vast majority of peasant farmers are landowners (Shmucker, 1983:6), most of them have access to very limited, almost non-viable, holdings. In Cyvadier, 38% of the resident population

farmed only 12% of the cropped land, and 71% farmed only 48% of the land (ie. those farmers with less than 1.29 ha.). Of this land, more than half represented rented and sharecropped land supplemented to the farm household's purchased or inherited holdings. In La Source, 48% of the resident population farmed less than 19% of the cropped land.

Throughout Bas Cap Rouge and elsewhere (cf. Appendix 2, Fleurintin and Chatterjee 1984; Dupont and Swanson, 1984), size of land holdings (sharecropped, rented, or owned) was significantly correlated to use/non use of fertilizers and insecticides, which through the qualitative survey (Sorel and Pierre, 1984:6), we learned was used principally for corn and beans, major cereal and cash crops. This is illustrated in Table 6 below for Orangers

TABLE 6: STRATIFIED USE OF INPUTS
ORANGIERS

INPUTS	0-.645 ha.	.645-1.29 ha.	1.29-6.45 ha.	6.45+ ha.
USE OF SPRAYER	0	6%	22%	NA*
USE OF INSECTICIDE	0	3%	14%	NA
% OF HOUSEHOLDS	26%	29%	44%	NA

* There were no households with holdings of over 6.45 ha. in Orangers.

Households with access to small amounts of land also had fewer workers per unit of land and were more likely to be headed by women (cf. Table 7). As expected, households with less land used a higher percentage of their produce for subsistence. Perhaps reflecting the availability as well as great importance placed on education by peasants, children in this zone contribute little labor to agriculture/ livestock in relation to their numbers.

TABLE 7: SELECTED STRATIFIED VARIABLES FOR CYVADIER

INPUTS	0-6.45 Ha.	6.45-1.29 ha.	1.29-6.45 ha.	6.45+ ha.
% OF HOUSEHOLDS	41%	33%	24%	2%
HA./WORKER (X)	.136 ha.	.354 ha.	.713 ha.	1.93 ha
% WOM.HEAD House	61%	48%	44%	33%
% USE FERT.	27%	61%	58%	100%
OWN CATTLE	43%	76%	87%	68%
OWN HORSE	3%	11%	17%	68%
% USE IRRIGATION	8%	51%	71%	100%
% Child Workers	3%	5%	13%	23%

Farmers in Bas Cap Rouge were not familiar with new crop varieties and, while having access to fertilizers (10-20-10), seemed to be using higher than expected basal application rates. Corn/

sorghum/bean and corn/sweet potatoes/bean were major second season crops (July-December). Tomatoes were an often mentioned cash crop.

The qualitative survey underscored that labor is often a constraint during land preparation and weeding periods. This constraint varies among farmers. Farmers with small land holdings often have to work on the fields of better off farmers to earn money needed to purchase the seed necessary to plant their own plots. Such late planting would likely result in lower yields and greater dependency on the more prosperous farmers and speculators for cash/food loans - to be again paid off with additional labor (to be confirmed by research). Larger farmers frequently depend on non-family paid labor to help in land preparation and weeding peak labor periods.

This and much more permitted the research team over a period of three months to set its research priorities for the on-coming July-December season in Bas Cap Rouge. The initial household and agricultural descriptive statistics suggested trends and issues which will require closer analysis.

A first series of researcher managed trials, with up to 15 replications each, are presently being placed among some 60 cooperating farmers. The trial themes:

- (1) Corn Variety trial in association with beans (fertilizer and insecticide). Researcher Managed Trial (RMT)
- (2) Sweet Potato Variety trial in association with corn (fertilizer and insecticides).(RMT)
- (3) Tomato Trial (fertilizer and insecticide).(RMT)
- (4) Use/Non-use of insecticides on corn/sorghum or corn/sweet potato associations.(RMT)
- (5) Herbicide land preparation treatment/non-herbicide treatment (split plot) on corn/sweet potato plot. Superimposed farmer managed trial (SFMT)
- (6) Sweet Potato Variety trial (3 varieties). SFMT
- (7) Insect control with Sprayers (any crop farmer might choose) (SFMT)

Socio-economic analysis will include potential impact (net returns, partial budgets) of different techniques on different groups of farmers. Research during this initial season may also include programs with tree crops (coffee, fruit and hardwood trees), and livestock (swine, goats, and rabbits).

4.0 Conclusions

Rapid rural reconnaissance surveys, when combined with a well-designed and executed quantitative survey, can permit an inter-disciplinary team, in about three months, to come to a prioritized set of appropriate research themes for a new zone. As such a program is implemented and as experience and knowledge is gained during the first year, modifications should permit ever better response to local needs in coming years. For the University Faculty of Agriculture, this experience will also be a basis upon which we may

anticipate obtaining valid and on-going current agro-socio-economic data on a national level to better inform agricultural policy and farm-related decision makers.

APPENDIX 2
HOUSEHOLD CHARACTERISTICS FOR JACMEL AND CAYES

Plain : Bas Cap Rouge, Jacmel ; Berault, Cayes
Mountain : Haut Cap Rouge, Jacmel ; Maniche, Cayes

	<u>Bas Cap Rouge</u>			<u>Haut Cap Rouge</u>		
	<u>Orangers</u>	<u>Cyvadier</u>	<u>La Source</u>	<u>Cotanso</u>	<u>Salignat</u>	<u>Clemestre</u>
1. # of Household Sampled	112	215	102	251	215	224
2. Population	622	1,018	482	1,164	965	1,064
3. Persons per Household (X)	5.6	4.7	4.7	4.6	4.5	4.8
4. Active Agr. Workers/Household (X)	2.3	2.5	1.5	2.6	2.7	2.7
5. Ratio Workers/Residents	41%	53%	33%	56%	60%	57%
6. Hectares/Household (X)	1.534	.806	1.62	.37	1.07	1.18
7. Ha./Worker (X)	.68	.42	1.05	.14	.63	.43
8. % of Cultivated Land						
Sharecropped	44%	23%	12%	8%	12%	5%
Rented	15%	18%	19%	5%	16%	15%
Undivided Inheritance	14%	31%	20%	80%	25%	39%
Owned	41%	59%	69%	7%	47%	41%
9. Age of Household Heads (X)	50	45	52	50	50	49
10. % of Household Heads/Male	76%	47%	70%	63%	74%	72%
11. % of Households						
Catholic	46%	80%	66%	69%	58%	67%
Protestante	53%	19%	34%	30%	41%	33%
12. % of Households Using						
Insect Sprayers	13%	73%	1%	0%	21%	3%
Fertilizers	7%	40%	1%	7%	94%	67%
13. Food Crops						
1st Importance	Cors (30%)	Corn (48%)	Corn (44%)	Beans (31%)	Corn (48%)	Corn (48%)
2nd Importance	Bitter				Red	Red
3rd Importance	Manico (17%) Sorghum (14%)	Sorghum (15%) Beans (13%)	Sorghum (33%) Sweet Potato (11%)	Corn (25%) Sweet Potato (25%)	Beans (49%) Igame (1%)	Beans (48%) Sorghum (2%)
4th Importance	Plantin (13%)	Red Beans (11%)	Plantin (3%)	Sorghum (10%)	Sweet Potato (1%)	Igame (1%)

Household Characteristics

	<u>Bas Cap Rouge</u>			<u>Haut Cap Rouge</u>		
	<u>Orangers</u>	<u>Cyvadier</u>	<u>La Source</u>	<u>Cotango</u>	<u>Salignat</u>	<u>Clemestre</u>
14. Cash Crops						
1st Importance	Corn (22%)	Corn (14%)	Bitter Manioc (39%)	Corn (24%)	Red Beans (48%)	Red Beans (46%)
2nd Importance	Bitter Manioc (18%)	Red Beans (13%)	Red Beans (14%)	Beans (22%)	Corn (41%)	Corn (42%)
3rd Importance	Plantin (14%)	Tomato (11%)	Corn (13%)	Sorghum (18%)	Coffee (10%)	Coffee (9%)
4th Importance	Sorghum (10%)	Bitter Manioc (10%)	Plantin (10%)	Sweet Potato (16%)	Ignam. (1%)	Ignam. (2%)
15. Most Important Association during First Season	Corn/Sorghum/ Bitter Manioc/ Beans (14%)	Corn/Sorghum/ Beans/Bitter Manioc (30%)	Corn/Sorghum/ Bitter Manioc/ Sweet Potato (30%)	Corn/Sorghum/ Ignam/Beans (51%)	Corn/Red Beans/Ignam (79%)	Corn/Sorghum/ Red Beans (25%)
# of Different Associations Encountered	39	66	29	32	8	16
% of Households Including in their Associations:						
Corn/Sorghum	64%	65%	72%	67%	7%	44%
Corn/Beans	?	?	?	85%	95%	98%
Sorghum/Beans	0	?	?	63%	0%	0%
Corn/Red Beans	50%	60%	79%	5%	1%	18%
16. Most Important Association during Second Saison	Corn/Sorghum/ Bitter Manioc/ Sweet Potato (17%)	?	Corn/Bitter Manioc, Sweet Potato (30%)	Corn/Sweet Potato/Beans (17%)	Corn/Sorghum/ Red Beans/ Sweet Potato (94%)	Corn/Sorghum/ Red Beans/ Sweet Potato (35%)
# of Different Associations Encountered	37	?	24	36	9	17
# of Households Including in their Association:						
Corn/Sorghum	33%	?	25%	45%	98%	58%
Corn/Sweet Potato						

Household Characteristics

	<u>Bas Cap Rouge</u>			<u>Haut Cap Fougé</u>		
	<u>Orangers</u>	<u>Cyvadier</u>	<u>La Source</u>	<u>Cotanso</u>	<u>Salignat</u>	<u>Clemestre</u>
17. % of Cultivated Land Used for Food Crops (X)	87%	74%	99%	99%	84%	61%
% of Food Crops Kept for Household Consumption	70%	61%	70%	99%	57%	63%
18. % of Resident Population:						
Men (over 15 yrs.)	26%	30%	24%	26%	26%	22%
Women (over 15 yrs.)	28%	31%	31%	36%	32%	31%
Children (under 15 yrs)	46%	39%	45%	38%	42%	47%
19. % of Active Agricultural Workers:						
Men (over 15 yrs.)	52%	48%	66%	38%	43%	39%
Women (over 15 yrs.)	40%	45%	32%	52%	50%	48%
Children (under 15 yrs.)	8%	7%	2%	10%	7%	13%
20. % of Various Animals Possessed by Households Surveyed:						
Fowl	79%	76%	83%	85%	96%	86%
Goats	68%	55%	89%	31%	51%	20%
Sheep	3%	0%	0%	5%	1%	0%
Cattle	59%	65%	65%	47%	62%	58%
Donkeys	22%	31%	35%	3%	11%	2%
Mules	4%	9%	5%	2%	6%	3%
Horses	11%	10%	10%	9%	23%	24%
Pigs	11%	10%	10%	.4%	0%	0%
Bees	1%	2%	5%	1%	2%	0%
21. % of Households Using Outside labor (non-family)	66%	64%	64%	30%	77%	55%
22. % of Households Having at least one member absent for short term migration (less than 6 months)	39%	63%	90%	39%	57%	84%

Household Characteristics

	<u>Bas Cap Rouge</u>			<u>Haut Cap Rouge</u>		
	<u>Orangers</u>	<u>Cyvadier</u>	<u>La Source</u>	<u>Cotanso</u>	<u>Salignat</u>	<u>Clemestre</u>
23. % of Household which belong to a farmer cooperative or association	38%	76%	56%	19%	71%	58%
24. % of Households using Irrigation in their fields	17%	53%	22%	0%	.5%	0%
25. T-Test: Correlation between use of land holding, Households						
Using Insecticide:	2.76 ha **	.90 ha**	N.A.	N.A.	2.44 ha***	2.52 ha**
Not using Insecticide	1.38 ha	.55 ha			1.52 ha.	1.14 ha.
26. T-Test: Correlation between use of Chemical Fertilizers and size of land holding, Households:						
Using Fertilizers:	2.99 ha.**	1.13 ha***		.85 ha.***	1.75 ha.**	1.38 ha.***
Not Using Fertilizers	1.43 ha.	.6 ha	N.A.	.33 ha.	.90 ha.	.76 ha.
27. T-Test: Correlation between use of Insecticides and # of Active Household Workers						
Using Fertilizers	2.7 actifs NS	2.4 actifs NS	N.A.	N.A.	3.32 actifs NS	2.7 actifs NS
Not Using Fertilizers	2.2 actifs	2.5 actifs			2.56 actifs	3.17 actifs
28. T-Test: Correlation between Size of Land Holdings and Possession of Cattle						
With Cattle	1.59 cx***	.97 cx***	1.41 cx**			
Without Cattle	.61 cx	.50 cx	.89 cx			
29. T-Test: Correlation between use of non-family labor and size of Land Holdings						
Use of Non-family labor	1.44 cx***	.89 cx N S	.79 cx NS			
Non-use	.73 cx	.66 cx	1.05 cx			

	<u>Bas Cap Rouge</u>			<u>Haut Cap Rouge</u>		
	<u>Orangers</u>	<u>Civadier</u>	<u>La Source</u>	<u>Cotanso</u>	<u>Salignat</u>	<u>Clemestre</u>
30. T-Test: Correlation between Households with Members absent in short-term migration and size of land holding						
with members absent:	1.57 cx**	.95 cx**	1.21 cx NS			
without members absent	.97 cx	.56 cx	1.42 cx			

(.) Commentary: The sample was divided up in different manners in order to determine the possible correlation of various variables. For example, T-Tests were run to look at whether or not sex of household head was correlated to other variables, such as size of land holdings, possession of different animals, using insecticides, etc. There was no significant correlation, nor did difference in religious persuasion show a correlation with other variables.

T-Test

- * Significant at 95% probability level.
- ** Significant at 99% probability level.
- *** Significant at 99.9% probability level.
- N.S. Non Significant.

Appendix 2 (cont)

BERAULT (CAYES)

CARACTERISTIQUES DES MENAGES

	<u>Gauvin</u>	<u>Macieu</u>	<u>Macolin</u>
1. Nombre de ménages recensés	118	145	73
2. Nombre total de personnes	866	1,165	638
3. Résidents moyens (x) ménages	4.9	5.4	3.05
4. Résidents actifs agricoles /ménage (x)	1.8	2.5	1.6
5. Proportion d'actifs dans le ménage	33%	32%	31%
6. Hectares cultivées par ménage (X)	1.50	1.64	1.93
7. Hectares cultivées par actif (X)	0.48	0.49	0.56
8. Pourcentage (%) de terres cultivées			
En Demoiitié	24%	13%	7%
En Location	6%	9%	3%
Indivisé	14%	27%	42%
En Propriété	56%	51%	48%
9. Age moyen des chefs de ménage	50	54	48
10. Pourcentage des chefs de ménage			
Femmes	29%	56%	31%
Hommes	71%	44%	69%
11. Pourcentage des chefs de ménage			
Catholique	75%	82%	90%
Protestant	24%	18%	10%
12. Pourcentage des ménages utilisant			
Pulvérisateur	2%	3%	0%
Engrais	10%	12%	14%
13. Cultures vivrières			
1ère Importance	Riz (26%)	Mais (20%)	Mais (34%)
2ème Importance	Mais (19%)	Banane (15%)	Petit-Mil (18%)
3ème Importance	Banane (13%)	Pois Noir (12%)	Banane (9%)
4ème Importance	Patate (12%)	Patate (10%)	Patate (6%)

.../...

(Bérault - Caractéristiques des Ménages). -

	<u>Gauvin</u>	<u>Macieu</u>	<u>Macolin</u>
14. Cultures de rentes			
1ère Importance	Riz (22%)	Mais (19%)	Canne à sucre (11%)
2ème Importance	Mais (19%)	Banane (14%)	Banane (9%)
3ème Importance	Petit-Mil (14%)	Pois Noir (10%)	Pois Noir (8%)
4ème Importance	Banane (10%)	Arachide (8%)	Vétiver (6%)
15. % de ménages ayant dans leur Association			
	Mais/Riz (31%)	Mais/Patate/ Banane (17%)	Mais/Patate (14%)
	Mais/Pois Noir (13%)	Mais/Banane/ Pois Noir (16%)	Mais/Pois Noir (7%)
	Mais/Manioc Doux (9%)	Mais/Patate/ Pois Noir (8%)	
16. 2ème Saison Agricole Association la plus importante:			
# d'Associations Enregistrées:			
% de Ménages ayant dans leur Association:			
	Petit-Mil/Patate (14%)	Banane/Petit-Mil (19%)	Petit-Mil/Banane (4%)
	Mais/Petit-Mil (7%)	Banane/Mazombel (6%)	Mais/Pois Noir (3%)
17. % de Terres sous Culture Vivrière (X)	95%	84%	72%
18. Ménages enquêtés: les Résidents:			
% Homme (plus de 15 ans)	28%	32%	31%
% Femme (plus de 15 ans)	28%	36%	28%
% Enfant (moins de 15 ans)	44%	36%	41%
19. Ménages enquêtés: les Natifs Agricoles:			
% Homme (plus de 15 ans)	48%	58%	56%
% Femme (plus de 15 ans)	39%	40%	42%
% Enfant (moins de 15 ans)	13%	2%	2%

.../...

(Bérault - Caractéristiques des Ménages)

	<u>Gauvin</u>	<u>Macieu</u>	<u>Macolin</u>
20. % de Ménages pratiquant l'Elevage des animaux suivants:			
Volaille	93%	99%	75%
Chèvre	49%	54%	63%
Mouton	24%	22%	0%
Boeuf	66%	67%	7%
Ane	19%	26%	21%
Mulet	14%	16%	12%
Cheval	30%	39%	27%
Porc	0%	0%	0%
Abeilles	0%	4%	0%
21. % de Ménages utilisant:			
la Main-d'oeuvre Agricole	89%	91%	74%
22. # de Ménages ayant des Résidents en Migration Temporaire (moins de six mois)	67%	56%	56%
23. % de Ménages qui sont Membres d'une Association, Groupement Communautaire, etc.:	51%	39%	14%
24. % de Ménages pratiquant l'Irrigation	0%	52%	0%

(APPENDIX 2 (cont))

MANICHE (CAYES)

CARACTERISTIQUES DES MENAGES

	<u>Leroy</u>	<u>Melon</u>	<u>Dory</u>
1. Nombre de ménages recensés	107	212	222
2. Nombre total de personnes	844	1735	1450
3. Résidents moyens (x)/Ménage	5.2	5.1	4.8
4. Résidents Actifs Agricoles/Ménage	2.5	3	1.8
5. Proportion d'Actifs dans le Ménage	32%	58%	27%
6. Hectares cultivées par Ménage (X)	0.99	1.30	1.50
7. Hectares cultivées par Actifs (X)	0.37	0.42	0.81
8. Pourcentage (%) de Terres cultivées			
En Demoitié	15%	9%	11%
En Location	15%	12%	9%
Indivisé	14%	0%	18%
En Propriété	56%	79%	62%
9. Age moyen des Chefs de Ménage	46	49	51
10. Pourcentage des Chefs de Ménage			
Femmes	10%	20%	18%
Hommes	90%	80%	81%
11. Pourcentage des Chefs de Ménage			
Catholique	77%	79%	84%
Protestant	21%	19%	16%
12. Pourcentage des Ménages utilisant:			
Pulvérisateur	2%	8%	0%
Engrais	0%	8%	0%
13. Cultures Vivrières:			
1ère Importance	Petit-Mil (41%)	Mais (46%)	Petit-Mil (27%)
2ème Importance	Mais (22%)	Petit-Mil (32%)	Mais (27%)
3ème Importance	Manico Amer (9%)	Pois Congo (14%)	Manico Amer (20%)
4ème Importance	Pois Noir (7%)	Fatate (13%)	Pois Congo (8%)

.../...

(Caractéristiques des Ménages - Maniche (Cayes))

	<u>Leroy</u>	<u>Melon</u>	<u>Dory</u>
20. % des Ménages pratiquant l'Elevage des animaux suivants:			
Volaille	76%	95%	81%
Chèvre	50%	60%	59%
Mouton	25%	21%	27%
Boeuf	61%	63%	52%
Ane	14%	11%	32%
Mulet	12%	17%	25%
Cheval	17%	17%	29%
Porc	0%	0%	0%
Abeilles	0%	0%	0%
21. % de Ménages utilisant: la Main-d'oeuvre Agricole	95%	86%	77%
22. # de Ménages ayant des Résidents en Migration temporaire (moins de six mois)	7%	43%	26%
23. % de Ménages qui sont Membres d'une Association, Groupement communau- taire, etc..	44%	51%	30%
24. % de Ménages pratiquant l'Irrigation	24%	42%	21%

(Caractéristiques des Ménages - Maniche (Cayes))

	<u>Leroy</u>	<u>Melon</u>	<u>Dory</u>
14. Cultures de Rentes			
1ère Importance	Petit-Mil (27%)	Mais (20%)	Petit-Mil (30%)
2ème Importance	Mais (23%)	Petit-Mil (13%)	Mais (24%)
3ème Importance	Café (11%)	Manioc Amer (12%)	Manico Amer (19%)
4ème Importance	Manico Amer (7%)	Pois Noir (7%)	Pois Congo (7%)
15. % de Ménages ayant dans leur Association			
	Mais/Pois Noir (19%)	Mais/Petit-Mil/ Manico Amer (43%)	Mais/Manioc Amer (38%)
	Mais/Manioc Amer (12%)	Mais/Petit-Mil/ Pois Congo (29%)	Mais/Pois Noir (27%)
	Mais/Pois Congo (5%)	Mais/Petit-Mil/ Patate (26%)	Mais/Pois Congo (20%)
	Mais/Pois Inconnu (5%)	Mais/Petit-Mil/ Riz (12%)	Mais/Pois Inconnu (4%)
16. 2ème Saison Agricole Association (la plus Importante)			
# d'Associations Enregistrées:			
% de Ménages ayant dans leur Association:			
	Mais/Riz (11%)	Riz/Café/Pois Noir (9%)	Petit-Mil/ Patate (4%)
	Mais/Manioc Amer (9%)	Igname/Café/ Pois Noir (8%)	Petit-Mil/Café (3%)
	Mais/Pois Noir (7%)		
17. % de Terres sous Culture Vivrière (X)	71%	45%	88%
18. Ménages enquêtés: les Résidents			
% Homme (plus de 15 ans)	29%	28%	30%
% Femme (plus de 15 ans)	27%	26%	26%
% Enfant (moins de 15 ans)	44%	46%	44%
19. Ménages enquêtés: les Actifs Agricoles			
% Homme (plus de 15 ans)	54%	46%	68%
% Femme (plus de 15 ans)	41%	44%	31%
% Enfant (moins de 15 ans)	5%	10%	1%

.../...

(Bas Cap Rouge de Jacmel -

Orangers)

Page

	<u>0 - .5 cx</u>	<u>.5 - 1 cx</u>	<u>1 - 5 cx</u>	<u>5 + cx</u>
15. Cultures de Rentes				
1ère Importance	Mais (29%)	Manioc Amer (27%)	Mais (26%)	Banane
2ème Importance	Manioc Amer (24%)	Mais (21%)	Sorgho (17%)	Manioc Amer
3ème Importance	Banane (21%)	banane (17%)	Manioc Amer (15%)	Sorgho
4ème Importance	Sorgho (28%)	Pois Rouge (8%)	Banane (12%)	
16. 1ère Saison Association la plus Importante	Mais/Sorgho/Manioc Amer/Pois Inconnu (14%)	Mais/Sorgho Manioc Amer/Pois/ Inconnu (9%)	Mais/Sorgho/ Manioc Amer/Pois Inconnu (16%)	Mais/Sorgho/ Manioc Douce
# d'Associations Enregistrées	14	22	24	
% de Ménages ayant dans leur Association				
Mais/Sorgho	65%	67%	63%	
Mais/Haricots	57%	76%	63%	
Sorgho/Haricots	43%	45%	39%	
17. 2ème Saison Association la plus Importante	Mais/Manioc Amer/ Patate	Mais/Manioc Amer/ Patate	Mais/Manioc Amer/ Patate	Mais/Sorgho/ Manioc Amer/ Pois Rouge
# d'Associations Enregistrées	8	20	24	
% de Ménages ayant dans leur Association				
Mais/Sorgho	11%	38%	44%	
Mais/Pois Rouge	6%	17%	25%	
Mais/Patate	78%	59%	65%	
18. % de Terres sous Culture Vivrière	99%	96%	88%	99%
% de Culture Vivrière Autoconsommé	99%	74%	68%	50%
19. Ménages Enquêtés: Les Résidents				
% Hommes (plus de 15 ans)	20%	27%	27%	100%
% Femmes (plus de 15 ans)	33%	30%	27%	100%
% Enfants (moins de 15 ans)	47%	43%	46%	100%

.../...

(Bas Cap Rouge de Jacmel

Page

0 - .5 cx* .5 - 1 cx 1 - 5 cx 5 + cx

20. % de Ménages Enquêtés: Les Actifs Agriculteurs				
% Hommes (plus de 15 ans)	58%	52%	50%	100%
% Femmes (plus de 15 ans)	39%	41%	40%	100%
% Enfants (moins de 15 ans)	3%	7%	10%	100%
21. % de Ménages Pratiquant l'Elevage des animaux suivants:				
Volaille	72%	73%	86%	100%
Chèvre	52%	73%	74%	100%
Mouton	0	3%	4%	0
Boeuf	28%	55%	80%	100%
Ane	10%	21%	31%	0
Mulet	0	0	6%	100%
Cheval	7%	6%	14%	100%
Porc	0	0	0	0
Abeilles	0	0	2%	0
22. Main-d'oeuvre	48%	58%	84%	100%
23. Migration	26%	27%	55%	100%
24. Groupement/Association	29%	39%	45%	0
25. Irrigation.	8%	18%	22%	0

APPENDIX 3B

BAS CAP ROUGE DE JACMEL

CYVADIER

	<u>0 - .5 cx*</u>	<u>.5 - 1 cx</u>	<u>1 - 5 cx</u>	<u>5 + cx</u>
1. Nombre de Ménages Recensés	89 (41%)	71 (33%)	52 (24%)	3 (2%)
2. Nombre total de Personnes	382 (38%)	334 (33%)	284 (28%)	18 (2%)
3. Résidents Moyens (\bar{X}) Ménages	4.3	4.7	5.5	6
4. Résidents Actifs Agricoles/Ménage (\bar{X})	2.2	2.4	3.0	4.3
5. Proportion d'Actifs dans le Ménage	56%	50%	56%	72%
6. Hectares Cultivés par Ménage	.298	.832	2.17	8.36
7. Hectares Cultivés par Actif (\bar{X})	.136	.354	.713	1.93
8. Total d'Hectares Cultivés	26.574 (12%)	59.12 (26%)	112.71 (50%)	25.08 (12%)
9. Pourcentage (%) de Terres Cultivé				
De moitié	34%	32%	16%	5%
Location	18%	19%	21%	5%
Indivisé	22%	22%	30%	28%
En Propriété	26%	27%	33%	62%
10. Age Moyen des Chefs de Ménage	44	44	47	62
11. Pourcentage des Chefs de Ménage:				
Femmes	61%	48%	44%	33%
Hommes	39%	52%	56%	67%
12. Pourcentage des Chefs de Ménage:				
Catholique	82%	85%	69%	100%
Protestant	18%	16%	29%	0
13. Pourcentage des Ménages Utilisant:				
Pulvérisateur	65%	75%	81%	100%
Engrais	27%	61%	58%	100%
14. Cultures vivrières				
1ère Importance	Mais	Mais	Mais	Mais
2ème Importance	Pois Inconnu	Sorgho	Sorgho	Pois Rouge
3ème Importance	Sorgho	Pois Inconnu	Pois Rouge	Sorgho
4ème Importance	Pois Rouge	Pois Rouge	Pois Inconnu	Pois Inconnu

*1 carreau (Cx) = 1.29 hectares = 3.186 acres.

.../...

	<u>0 - .5 cx</u>	<u>.5 - 1 cx</u>	<u>1 - 5 cx</u>	<u>5 + cx</u>
15. Cultures de Rentes				
1ère Importance	Mais	Mais	Mais	Mais
2ème Importance	Manioc Amer	Pois Rouge	Pois Rouge	Pois Rouge
3ème Importance	Sorgho	Manioc Amer	Tomate	Banane
4ème Importance	Pois Inconnu	Tomate	Manioc Amer	Tomate
16. 1ère Saison Association la plus Importante	Mais/Sorgho/Manioc Amer/Pois Inconnu	Mais/Sorgho/ Manioc Amer/Pois Inconnu	Mais/Sorgho/ Manioc Amer/ Pois Inconnu	Mais/Sorgho Manioc Amer/ Pois Inconnu
# d'Associations Enregistrées	39	35	19	3
% de Ménages ayant dans leur Association Mais/Sorgho:	76%	73%	77%	100%
Mais/Haricots	81%	86%	92%	33%
Sorgho/Haricots	59%	64%	73%	33%
17. 2ème Saison Association la plus Importante	Mais/Sorgho/Manioc Amer et Doux	Mais/Haricots Rouges/Patate/ Tomate	Mais/Pois Rouge/ Manioc Amer Tomate	Mais/Pois Rouge/ Patate/Tomate
#d'Associations Enregistrées	61	47	40	2
% de Ménages ayant leur Association				
Mais/Sorgho	31%	18%	22%	0
Mais/Fois Rouge	26%	28%	31%	68%
Mais/Patate	24%	42%	35%	68%
18. % de Terres sous Culture Vivrière (X)	71%	74%	80%	85%
% de Culture Vivrière Autoconsommé	63%	58%	60%	72%
19. Ménages Enquêtés: Les Résidents				
% Homme (plus de 15 ans)	30%	28%	32%	44%
% Femme (plus de 15 ans)	33%	28%	31%	22%
%Enfant (moins de 15 ans)	37%	44%	37%	34%

.../...

	<u>0 - .5 cx</u>	<u>.5 - 1 cx</u>	<u>1 - 5cx</u>	<u>5 + cx</u>
20. % Ménages Enquêtés: Les Actifs Agriculteurs				
% Homme (plus de 15 ans)	47%	50%	46%	46%
% Femme (plus de 15 ans)	50%	45%	41%	31%
% Enfant(moins de 15 ans)	3%	5%	13%	23%
21. % de Ménages Pratiquant l'Elevage des animaux suivants:				
Volaille	71%	79%	79%	100%
Chèvre	58%	48%	60%	68%
Mouton	0	0	0	0
Boeuf	43%	76%	87%	68%
Ane	18%	38%	39%	100%
Mulet	4%	6%	19%	68%
Cheval	3%	11%	17%	68%
Porc	0	0	0	0
Abeilles	0	1%	2%	0
22. Main-d'oeuvre	56%	66%	71%	100%
23. Migration	57%	62%	73%	100%
24. Groupement/Association	71%	72%	90%	100%
25. Irrigation.	8%	51%	71%	100%

K 2C
BAS CAP ROUGE DE JACMEL

LA SOURCE

	<u>0 - .5 cx*</u>	<u>.5 - 1 cx</u>	<u>1 - 5 cx</u>	<u>5 - + cx</u>
1. Nombre de Ménages Recensés	17 (17%)	28 (27%)	57 (56%)	0
2. Nombre Total de Personnes	71 (17%)	114 (24%)	297 (62%)	
3. Résidents Moyens (\bar{X}) Ménages	4.2	4.1	5.2	
4. Résidents Actifs dans le Ménage (\bar{X})	1.4	1.3	1.7	
5. Proportion d'Actifs dans le Ménage	32%	32%	33%	
6. Hectares Cultivés par Ménage (\bar{X})	.393	.889	2.36	
7. Hectares Cultivés par Actif	.226	.692	21.066	
8. Total d'Hectares Cultivés	6.695 (4%)	24.897 (18%)	134.779 (81%)	
9. Pourcentage (%) de Terres Cultivées				
En Demoié	18%	15%	11%	
En Location	25%	18%	19%	
Indivisé	34%	32%	17%	
En Propriété	23%	35%	53%	
10. Age Moyen des Chefs de Ménage	51	47	55	
11. Pourcentage des Chefs de Ménage				
Femmes	71%	50%	9%	
Hommes	29%	50%	91%	
12. Pourcentage des Chefs de Ménage				
Catholique	53%	82%	61%	
Protestant	47%	18%	39%	
13. Pourcentage des Ménages Utilisant:				
Pulvérisateur	0	0	2%	
Engrais	0	0	2%	
14. Cultures vivrières				
1ère Importance	Mais	Mais	Mais	
2ème Importance	Sorgho	Sorgho	Sorgho	
3ème Importance	Pois Rouge	Patate	Patate	
4ème Importance	Patate	Pois Congo	Pois Rouge	

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*1 carreau (Cx) = 1.29 hectares = 3.186 acres.

	<u>0 - .5 cx</u>	<u>.5 - 1 cx</u>	<u>1 - 5 cx</u>	<u>5 + cx</u>
15. Cultures de Rentes				
1ère Importance	Manioc Amer	Manioc Amer	Manioc Amer	
2ème Importance	Pois Rouge	Mais	Mais	
3ème Importance	Mais	Pois Rouge	Pois Rouge	
4ème Importance	Sorgho	Pois Congo	Pois Congo	
16. 1ère Saison Association la plus Importance	Mais/Sorgho/Manioc Amer/Patate	Mais/Sorgho/ Manioc Amer/ Patate	Mais/Sorgho/ Manioc Amer/ Patate	
# d'Associations Enregistrées	6	14	19	
% de Ménages ayant dans leur Association:				
Mais/Sorgho	63%	64%	56%	
Mais/Pois	50%	64%	44%	
Sorgho/Pois	19%	46%	26%	
Mais/Patate	56%	50%	42%	
17. 2ème Saison Association la plus Importante	Mais/Manioc Amer/ Patate	Mais/Manioc Amer/Patate	Mais/Manioc Amer/Patate	
# d'Associations Enregistrées	7	10	19	
% de Ménages ayant dans leur Association:				
Mais/Sorgho	38%	39%	17%	
Mais/Pois	13%	4%	11%	
Pois/Patate	69%	86%	2%	
18. % de Terres sous Culture Vivrière	99%	97%	92%	
% de Culture Vivrière Autoconsommé	76%	73%	67%	
19. Ménages Enquêtés: Les Résidents				
% Hommes (plus de 15 ans)	15%	22%	28%	
% Femmes (plus de 15 ans)	37%	29%	30%	
% Enfants (moins de 15 ans)	48%	49%	42%	

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	<u>0 - 5 cx</u>	<u>.5 - 1 cx</u>	<u>1 - 5 cx</u>	<u>5 + cx</u>
20. % de Ménages Enquêtés :Les Actifs Agricultores				
% Hommes (plus de 15 ans)	45% (10 h)	53%	73%	
% Femmes (plus de 15 ans)	50% (10 h)	47%	23%	
% Enfants (moins de 15 ans)	5% (10 h)	0%	2%	
21. % de Ménages Pratiquant l'Elevage des animaux suivants:				
Volaille	78%	79%	88%	
Chèvre	89%	96%	86%	
Mouton	0	0	0	
Boeuf	44%	54%	77%	
Ane	11%	32%	45%	
Mulet	0	4%	7%	
Cheval	0	4%	16%	
Porc	0	0	0	
Abeilles	0	4%	7%	
22. Main-d'oeuvre	67%	57%	66%	
23. Migration	94%	96%	86%	
24. Groupement/Association	28%	46%	70%	
25. Irrigation.	6%	21%	27%	