A METHODOLOGY FOR CONDUCTING RECONNAISSANCE SURVEYS IN AFRICA

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A METHODOLOGY FOR CONDUCTING RECONNAISSANCE SURVEYS IN AFRICA

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Introduction

Reconnaissance surveys (informal surveys, rapid rural appraisals, sondeos, etc.) are quick, informal, cost-effective surveys that attempt to characterize the farming systems found within a region. These surveys are usually implemented at the beginning of an FSR project to rapidly familiarize researchers with the key constraints facing farmers within a target area. Five distinguishing attributes of such surveys have been identified by Steven Franzel (1984). These included:

1) "Farmer interviews are conducted by researchers themselves, not by enumerators, as in formal surveys" (Franzel, 1984:2).

2) "Interviews are essentialy unstructured and semi-directed, with emphasis on dialogue and probing for information. Questionnaires are never used; however, some researchers use topical guidelines so as to ensure that they cover all relevant topics on a given subject" (Franzel, 184:3).*

3) "Informal random and purposive sampling procedures are used instead of formal random sampling from a sample frame" (Franzel, 1984:3)

4) "The data collection process is dynamic, that is, researchers evaluate the data collected and reformulate data needs on a daily basis." (Franzel, 1984:3), (See Honadle, 1982).

5) "Informal surveys are generally conducted over a period of one week to two months during the growing season" (Franzel, 1984:3).

Recently, the role of the reconnaissance survey in farming systems research has incrased in importance relative to the formal survey (Franzel, 1984:3). According to Franzel (1984), this trend can be attributed to the advantages the informal

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* There is a difference of opinion as to whether topical outlines should be used. See Hildebrand, 1981 and Collinson, 1982.

survey provides in diagnosing farming systems, such as: "1) the low cost and rapid turnaround **; 2) the emphasis placed on direct researcher-farmer teamwork; 3) its sequential, iterative data collection procedure in which data are evaluated and data needs are reformulated on a daily basis; 4) it facilitates interdisciplinary interaction; and 5) its conduciveness to collection of data concerning farmers values, opinions and objectives" (Franzel, 1984:3).

Despite these advantages, reconnaissance surveys do have some shortcomings. First, researchers cannot be certain that farmers interviewed in the survey are representative of most farmers in the region (Franzel, 1984:4). This is due to the way farmers are selected for interviews. Thus, statistical testing is not usually possible (Shaner, Philipp, and Schmehl, 1982). Second, such surveys may not be sufficiently focused to determine the relative importance of factors limiting production opportunities for farmers. Therefore other diagnostic procedures may be required to verify and fine-tune hypotheses generated by informal surveys. For instance, confusing and difficult to interpret aspects of the existing system may be investigated through the use of more focused, topic-specific formal surveys.

In spite of these limitations, reconnaissance surveys have come to play a critical role in the diagnostic phase of farming systems research. Therefore, it is essential that the methodology for conducting such surveys continues to be developed

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** See the table comparing variable costs in Appendix B.

and fine-tuned as experience with the technique accumulates. The purpose of this paper is to outline a stepwise procedure for conducting such surveys which was implemented by the authors in a recent study in Liberia (Frankenberger, Lichte, Gedeo, Jallah and Sherman, 1984). This procedure should be viewed as a complementary alternative to informal survey procedures previously described in the literature (See Hildebrand, 1981; Rhoades, 1982; Collinson, 1982).

This methodology will be presented as a series of important considerations which the FSR team should address prior to, during and after the reconnaissance survey is conducted. The ultimate response to each consideration will be variable and highly dependent upon the circumstances and setting in which the study is conducted. These considerations are presented in an outline format beginning with the major objectives of the study.

Methodology

1. Determine What are the Objectives of the Study -- This should be done in collaboration with all participating organizations and institutions involved or directly affected by the research. This step helps insure that all groups involved understand the goals of the research and that information which is given high priority is collected by the team. Unfortunately, if several organizations and institutions are involved, reaching concensus regarding the objectives will be more difficult. The following list consists of some of the possible organizations and institutions whose input might be sought in deriving objectives.

   A) Collaborating institutions (universities, consulting firms, etc.)

   B) AID Washington

   C) AID Mission

   D) In-country Research Organizations

   E) Regional Development Organizations

II. Determine Who Should be the Participants in the Diagnostic Research -- The make-up of a reconnaissance survey team will vary from one project to another, depending upon the resources available and context of the research. Useful considerations for devising such teams are as follows:

A) Minimal Pair -- The minimal pair should consist of at least one social scientist and one physical/biological scientist.

B) Expansion of Team -- Decisions regarding the expansion of the team should be determined by:

1) Focus of the project -- Is the project being implemented in a wide geographical area or is it concentrating on more than one crop/livestock enterprise?

2) Environmental/socio-economic setting -- Is the environmental/socio-economic setting extremely complex?

C) The Maximum Number of Team Members Should be About Six -- Six is a good number because it is about all that can comfortably fit into a landrover or land cruiser. Given the shortage of project vehicles usually available for such survey work, one vehicle may be all that the team can obtain. The team should consist of an equal distribution of social scientists and physical/biological scientists. Other important considerations in putting together a team are:

1) Include female researchers on the team -- Make an attempt to include at least one or two females on the team. This could help in situations where male researchers are not allowed to interview the females of a household. This is extremely important in situations where females are responsible for a considerable proportion of the farm labor.

2) Use local scientists as much as possible -- Teams should consist of local scientists rather than a number of expatriates brought in from outside. The maximum number of expatriates on a team should be about two.

3) Attempt to include an extension person on the team -- Collaboration between research organizations and extension can be greatly facilitated by including extension personnel early-on in the project. The knowledge which extension personnel

have for an area may provide insights into the constraints which farmers are facing, and such information can be extremely useful to the other scientists. However, care must be taken to insure that biased views on the part of some extensionists don't over-influence the teams perceptions of the situation.

III. Review of the Existing Literature -- Ideally, team members who are going to conduct a survey are already acquainted with the area to be studied or are familiar with the literature. However, this is not always the case. Thus, it is important for team members (especially the expatriates) to review the existing literature in-country for at least one week prior to going to the field. Such literature includes books, research reports, government documents, fugitive papers and any other materials which will help familiarize the team with the area to be studied. Begin this literature search with the AID Mission, local libraries and library at the research station.

IV. Collect Background Information from Knowledgeable Personnel Such as Local Government Officials, Project Personnel, AID Officials, and Other Resource Persons -- When contacting these individuals, be aware of the following:

A) Networks of Knowledgeable People -- Follow-up leads given by contacted persons regarding other knowledgeable sources. Be aware of the fact that there are networks of knowledgeable people which you need to gain access to.

B) Inquire About Other Written Materials From Each Person Contacted -- Through this process, the team can accumulate a sizable amount of material in a very short time.

V. Obtain Maps and Letters of Introduction from the Appropriate Officials -- Maps of the area to be surveyed can usually be obtained from geological survey offices within the capital city. Sometimes updated maps may be obtained from agricultural development projects working in the region to be studied. In addition to maps, it may be useful to have letters of introduction from Ministry officials to facilitate collaboraion with regional officials and to insure access to the study area. AID Mission personnel may help the team members obtain such letters.

VI. Prior to Conducting the Survey, Contact the People Who Will Use the Results of the Study to Elicit Their Support, Data Needs, and to Obtain as Much Information About the Area From Them as Possible. This Interaction Will Help Delineate the Mandate of the Research and Political Limitations -- For example, when working with a research station, contact the administrators, department heads and other important personnel (e.g., expatriate advisors) to clarify objectives and to elicit information needs. If the team has not been selected or constituted prior to these meetings, the administrators and department heads should participate in the selection process. Criteria for the selection of the members should be discussed with these research station personnel. (See Step II)

VII. Team Members Should Come Together to Formulate a Topical Outline to Be Used in Guiding Interviews Prior to Going to the Field -- (See Appendix A) Important considerations for constructing such a topical outline are the following:

A) Consult Other Topical Guides to Insure that Major Topical Areas Are Considered -- For instance, if previous sondeos or reconnaissance surveys have been done in the area, these should be reviewed. In addition, the topical lists put together by Collinson and CIMMYT or outlines used in surveys in other countries may be worthwhile to review.

B) Use the Information Obtained from Secondary Data Sources to Devise the Topical List -- Topics may be derived from a variety of sources such as:

1) Written reports

2) Interviews with resource persons

3) Information needs of research personnel

4) Previous knowledge of team members

5) Prior research experience

C) Consensus Should be Reached Among the Team Members on Every Topic Included in the Outline -- This insures that all team members are satisfied with the topics chosen for the outline.

D) The Development of This Topical Outline Can be a Crucial Team Building Exercise -- This process allows each of the team members to express his/her concerns, interests and biases up-front so that every team member knows the others' views. Although this is a tedious, time-consuming process, the key benefits derived from this exercise are:

1) It allows the team to function as a single unit or entity;

2) The disciplinary concerns of each member are incorporated into the outline;

3) Survey priorities are established before going to the field;

VIII. The Topical Outline Should be Tested Prior to Going to the Field -- This test can be conducted in a village near the research station before initiating the survey. This procedure will allow the team to determine the appropriate manner in which to ask some questions and help them refine their interviewing techniques. Following this pre-test, tables can be constructed from the topical list which allow for the transfer of data from field notes to a comparative format. These tables have two useful purposes:

A) The Tables Allow for Continual Comparaisons Among Farmers Which Helps Focus the Discussion Between Team Members.

B) The Tables Provide a Means for Immediately Evaluating or Checking the Completeness of the Field Notes -- However, sometimes team members will not want to pursue all the topics on the list in order to obtain more detailed information on a particular aspect of the system. In such cases, the tables will be deliberately incomplete.

IX. Target Area Selection -- Often the choice of target area is made in advance of researcher participation. If there is some flexibility in the choice of the area, the decision should be made in conjunction with the collaborating institutions (i.e., the research organization, development organization, USAID Mission, research station administration/researchers, etc.). Important points to consider when choosing a target area are:

A) When Considering the Target Area, Be Sure to Consider What Can Be Reasonably Covered in the Time Allotted -- Coverage will be influenced by a number of factors such as environmental uniformity, technological development, socio-economic conditions, infrastructural development and access during the rainy season. Compromises may have to be made concerning the amount of time to spend in each demarcated region. The team should plan to spend more time in regions where the agricultural systems are more diverse/variable than in regions where they are more uniform if this can be determined in advance.

B) The Team Should Draw Up a Schedule, Specifiying the Number of Days to Be Spent in Each Demarcated Region/Area as Well as for Travel, Discussing Results and Writing -- Building in some flexibility in this schedule is extremely useful.

X. When the Team Arrives in a Region to Be Surveyed, It Should First Contact Local Officials to Establish Collaborative Links and to Elicit Their Help -- Such officials might include regional administrators, regional project personnel, and/or regional extension officers. These contacts serve two useful purposes:

A) These Individuals Can Help Select Potential Villages for the Survey Based on Their Knowledge of the Area.

B) The Information Needs of These Regional Administrators Can Be Elicited During These Initial Contacts to Insure that the Survey Results Might Be Useful to Them -- However, it is important to realize that the objective of the regional officials may be in conflict with those of the research organization. Thus, it is important for the team to establish its priorities regarding the information it plans to gather even if these are not consistent with the objectives of the regional officials.

XI. Village Selection -- There are a number of factors that should be taken into account when selecting villages for the survey. These include:

A) Location in Relation to the Base of Operation -- Aside from using variable direction as a selection criteria, distance from the base of operation should be considered for future on-farm trials. Typically, on-farm trials should be within about one hour's drive from the local base.

B) Size

C) Access to Roads

D) Institutional Complexity (Infrastructural Development)

E) Ethnic Distribution (Tribes or Sub-Tribes)

F) Prior Contact of Villages Before the Survey May or May Not be Necessary and Advantageous -- For instance, in Liberia, the survey team found that prior contact was not advantageous for it made the team's arrival a political event. In other areas of the world this may not be the case. The resarch team should use its best judgement on this matter.

XII. Upon Arrival in the Village, the Team Should First Meet With the Village Leaders and Explain to Them and Other Villagers Present the Purpose of the Study -- In this initial meeting, the team members can explain who they represent, what the results will be used for and why so many questions will be asked. While the group is assembled, general inquiries can be directed to them regarding village infrastructure, land tenure arrangements, sources of credit, marketing, typical labor arrangements and project interventions.

XIII. After the Initial Inquiries With the Assembled Villagers, the Team Should Split Up Into Groups of Two to Conduct Interviews With Farmers -- If the team members do not know the language, a translator should accompany them. Three important points should be taken into consideration when conducting these interviews:

A) Interviews Should Be Conducted With the Farm Family, Not Just the Male Farmer -- Both the husband and wife should be present for the interview if this is possible. This is because the woman of the farm household may be responsible for a considerable amount of the labor performed in the fields. This is especially true in most African societies.

B) Interviews Should Be Conducted On the Farm Households' Fields Away From the Village -- This is to enable the researchers to see the fields they are inquiring about and to obtain answers and opinions specific to the farm family being interviewed rather than the group consensus. In addition, farm families are more likely to believe that the researchers are committed to helping them if the researchers make the effort to come to their fields. As a consequence, the farm families responses are likely to be more truthful. However, it would be counter-productive if the team spent all of the time walking to distant fields. Thus farm families should be selected whose fields are less than one hour walking distance.* Using this interviewing strategy, each pair of researchers should be able to interview at least two farm families in a day. In those situations where only partial interviews are conducted, more farmers can be interveiwed.

C) Team Members Should Not Work With the Same Research Partner Every Day -- (See Hildebrand, 1981b) Rotating team members on a daily basis gives each researcher an opportunityto work with and learn from the other team members. This greatly facilitates the exchange of ideas and helps establish better communication between

team members. Ideally, one social scientist and one physical/biological scientist will be matched up in each pair.

XIV. After Interviews With Farm Families Are Completed for Selected Village in a Demarcated Area, the Team Members Should Get Together to Formulate Hypotheses About the Farming Systems Which Characterize that Region -- This procedure helps summarize the important attributes and constraints of the farming systems and provides a basis for comparison when survey work is started in other demarcated areas. The team should reach a consensus for every hypothesis formulated. As with the development of the topical outline, the process can be a crucial team building exercise. This procedure of hypotheses formulation should be done for every demarcated area that is surveyed.

XV. Once the Survey is Completed and Hypotheses Have Been Derived for Each Demarcated Area, General Hypotheses Can be Formulated Which Apply to All Regions Surveyed -- These general hypotheses identify farming system characteristics that are commonly found throughout the surveyed area. This process helps sift out those characteristics which are unique to a given demarcated area. Once again, the team should reach a consensus on all general hypotheses formulated.

XVI. After the General and Specific Hypotheses Have Been Formulated on the Attributes and Constraints of the Exisiting Farming Systems in an Area, the Team Members Should Derive a Series of Recommendations to Help Alleviate the Identified Constraints -- Team consensus should be reached on all recommendations proposed. In addition to being another team building exercise, this activity gives the team members an opportunity to combine their various disciplinary expertise in formulating possible solutions. In some cases, the team may be called upon to prioritize these recommendations. However, this last step may be handled by the research organization.

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* Occasionally, the researchers will want to interview farmers with fields farther than one hour away to see if there are major differences with those fields which are close to the village.

XVII. The Results of the Reconnaissance Survey Should Be Written Up in a Time-Effective Manner -- Three important points to consider in writing up the report are:

A) The Format to be Followed for Organizing the Report should be Devised By the Team Leaders

B) To Facilitate the Write-up, the Team Leaders Should Assign Each Member a Portion of the Report to be Written -- When the sections of the report are being assigned, team members should be able to negotiate for the portions they want to write. Flexibility in these assignments is very important.

C) The Finished Report Should be Attractively Packaged -- If the report has an appealing cover and is well printed, it is more likely to be taken seriously and more likely to be read.

Summary

Due to the increased emphasis placed on time-effective diagnostic research techniques in recently implemented farming system projects, reconnaissance surveys hav come to play a more critical role. The primary objectives of this paper has been to identify the major attributes of reconnaissance surveys and to outline a stepwise procedure for conducting them. This procedure was based on the methodology used by the authors in a recent study in Liberia. Viewed as a complementary alternative to other informal survey procedures previously described in the literature, it is hoped that this presentation will help further the development and refinement of such techniques. Such fine-tuning should continue as experience with these techniques accumulates.

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APPENDIX A

TOPICS OF INQUIRY FOR FARMING SYSTEMS RECONNAISSANCE SURVEY FOR GRAND GEDEH, NIMBA, AND BONG COUNTIES

I. Village Characteristics

A. Size of Village (either in household or population)

B. Institutional Development

Schools
Health Clinic
Market
Other Government Offices
Access to Roads
Access to Water

II. Demographic Characteristics

A. Ethnic Affiliation

Tribe
Subtribe
Other Tribal Relationships

B. Composition of Household (who participates jointly on a family farm)

Adults (males, females)
Children
Education of Household Members
Out-migration

III. Farm Characteristics

A. Access to Land (land tenure inquiries)

Upland
Swampland
Ownership

B. Farm Size (May be determined for rice fields by the amount of seed used. Fields of tree crops may be determined by number of trees. Some verification of field sizes will be done through measurement, e.g. # of 5 gallon tins.)

C. Family Fields vs. Individual Fields

IV. Cropping Patterns

A. Kinds of Crops Grown (e.g. upland rice, swamp rice, cassava, coffee, cocoa, peanuts, sugar cane, citrus, oil palm, rubber, other intercrops)

Why?

B. Sequence of Crops (period cultivated)

C. Length of Fallow

Past and present
Indicators of when bush is ready to be cultivated after fallow (plants)
Different fallowing strategies

V. Crops

A. Upland Rice

Area grown
Site selection
Varieties
Local-name, characteristics, source, selection criteria
Introduced-name, characteristics, source, selection criteria
Diseases and pests
Inputs used - fertilizer, pesticides
Land preparation

Brushing	methods,	timing,	who,	mandays,	constraints
Felling of trees	"	"	"	"	"
Burning and clearing	"	"	"	"	"

Other problems and constraints

Planting	methods,	timing,	who,	mandays,	constraints,	intercrops,
Bird watching	"	"	"	"	"	replanting
Fencing	"	"	"	"	"	
Weeding	"	"	"	"	"	2nd weeding,
Harvesting	"	"	"	"	"	use of weeds
Post harvest	"	"	"	"	"	

(drying methods, storage methods, threshing methods, milling)
Control of output
Portion marketed - income received

B. Swamp Rice (traditional vs. improved)

Area grown
Site selection
Varieties
Local-name, characteristics, source, selection criteria
Introduced-name, characteristics, source, selection criteria
Diseases and pests
Inputs used - fertilizer, pesticides

Land preparation (traditional vs. improved)

Brushing	methods,	timing,	who,	mandays,	constraints
Felling of trees (stumping)	"	"	"	"	"
Burning and clearing	"	"	"	"	"

Other problems and constraints

Planting	methods,	timing,	who,	mandays,	constraints,	intercrops,
Bird watching (1st & 2nd)	"	"	"	"	"	replanting
Fencing	"	"	"	"	"	
Weeding	"	"	"	"	"	2nd weeding,
Harvesting	"	"	"	"	"	use of weeds
Post harvest	"	"	"	"	"	

(drying methods, storage methods, threshing methods, milling)

Control of output

Portion marketed - income received

Linkage with upland rice and other crops

C. Cassava (pure stand vs. secondary crop)

Area grown

Site selection

Varieties

Local-name, characteristics, source, selection criteria

Introduced-name, characteristics, source, selection, criteria

(cooking preparation, leaf characteristics)

Diseases and pests

Inputs used - fertilizer, pesticides

Land preparation

Brushing	methods,	timing,	who,	mandays,	constraints
Felling of trees	"	"	"	"	"
Burning and clearing	"	"	"	"	"

Other problems and constraints

Planting	methods,	timing,	who,	mandays,	constraints,	intercrops, # of
Fencing	"	"	"	"	"	cuttings and
Underbrushing	"	"	"	"	"	pattern
Harvesting	"	"	"	"	"	

(leaf harvesting, timing relative to rice and rains)

Post harvest	"	"	"	"	"

(storage - how long do they leave it in the ground and how long will it keep out of the ground?)

Preparation techniques

Portion marketed - income received

Perception of cassava in relation to rice - (hungry season crop)

Use as animal feed

D. Other Field Crops (pursue cropping pattern questions when appropriate)

Tuber crops (eddoes, sweet potatoes, yams, cocoa yams, other)

Maize

Sugar cane (cane juice preparation and marketing)

Groundnuts and other legumes (e.g. cowpeas)

Vegetables (e.g. bitterball, eggplant, okra, pepper - melegulata pepper, tomatoes, pumpkin, watermelon, greens, cabbage, onions, cucumbers, others)

E. Wild Food

Kinds
Names
Uses

F. Tree Crops

1. Coffee
   Number of years growing coffee
   Site selection
   Area grown
   Varieties
      Local-name, characteristics, source, selection
      Introduced-name, characteristics, source, selection
   Diseases and pests
   Inputs used - fertilizer, pesticides
   Land preparation
      Brushing timing, who, mandays, constraints
      Thinning and pruning " " " "
      Problems and constraints (hired labor)
   Planting methods, timing, who, mandays, constraints, intercrops
   Underbrushing " " " " "
   Harvesting " " " " "
      (years from planting, hired labor, period of harvest, cherry)
   Post harvest
      Pulping methods, timing, who, mandays, constraints
      Drying " " " " "
      Storage " " " " "
      Constraints
   Marketing (channels, price, transport)

2. Cocoa (see coffee list)
   Site selection constraints (soils)
   Harvesting
      Pods (yellow color)
   Post harvest
      Depoding (method and timing)
      Farmer practice (drying or fermenting)
      (drying - tend to split)
      (1 week fermenting recommended then slow drying 3-4 hours a day and stir for 3-4 days then continual drying for 3-4 more days)
   Marketing (channels, price, transport)
      (price vs. quality if improper drying and fermenting)

3. Citrus (backyard vs. orchard)
   Kinds grown (orange, grapefruit)
   Site selection
   Varieties
      Local-name, characteristics, source, selection
      Introduced-name, characteristics, source, selection
   Diseases and pests
   Inputs used

Land preparation
Brushing timing, methods, who, mandays, constraints
Felling trees " " " " "
Problems and constraints
Planting " " " " " intercropping
(spacing, size of seedling, seedling or bud)
(20 x 16) (5 yr. vs. 3 yr.)
Underbrushing timing, methods, who, mandays, constraints
Harvesting " " " " "
(number of years, period of harvest, days can store)
Marketing (channels, prices, transport, days can store before marketing)

4. Bananas and plantain (see citrus list)
How many suckers allowed

5. Mangoes (see citrus list)

6. Oil palm (wild vs. introduced)
Area grown
Site selection
Varieties
Wild name, characteristics
Introduced " " source
Inputs used - fertilizer, pesticides, etc.
Land preparation
Brushing methods, timing, who, mandays, constraints
Felling trees " " " " "
Problems and constraints
Planting " " " " " intercrop
(spacing 30 x 30)
Underbrushing methods, timing, who, mandays, constraints
(Intercropping or cover crop)
Harvest " " " " "
Post harvest
Storage
Sale vs. consumption
Oil vs. wine
Marketing (channels - LPMC, local, prices)
Fresh fruit
Palm kernels
Oil
Wine

7. Rubber
Area grown
Site selection
Varieties name, characteristics, source
Diseases and pests
Inputs used - fertilizer, pesticides, etc.
Land preparation
Brushing methods, timing, who, mandays, constraints
Felling trees " " " " "
Problems and constraints

Planting
(intercrop or cover crop)
Underbrushing
Tapping
(frequency, professional vs. amateur, chemical aids)
Processing latex vs. cuplump (coagulated)
Marketing (channels, prices, transport)
latex vs. cuplump

8. Minor & wild tree crops
(see other tree crops lists)

VI. Animal Husbandry

A. Goats
Number
Husbandry pattern
Feeding practices
(Free vs. controlled)
Diseases, mortality
Role in system
Marketing
Storage of wealth
Social uses
(reciprocal exchange, feed communal labor, bride price, ceremonial, religious, status symbol)
Other factors to consider
(prestige differences, taste differences, ownership - ethnic, religious, sexual)

B. Sheep
(see goat list)

C. Cattle
(see goat list)
Breed

D. Poultry (chickens and ducks)
(see goat list)
Introduced breeds
Egg sales

E. Pigs
(see goat list)
Breeds

F. Food taboos

VII. Wild Game

A. Source of Meat
Deer, groundhog, bush hog, monkey, baboon, rat, snakes, lizards, etc.

B. How often wild meat eaten (importance in diet)

C. Food taboos

D. Cultural values associated with consumption of wild meat

E. Source of income (meat, hides, other animal products - marketing)

F. Game population trends

G. Hunting restrictions

VIII. Fishing

A. Traditional Fishing
- Fishing patterns
- Importance of fish in diet
  - Fresh vs. dried
- Marketing (sales and purchases, penetration of marine fish)

B. Fish Ponds
- Size
- Annual vs. seasonal
- Rice or other crop association
- Source of fingerlings
- Marketing
- Feeding patterns
- Pond construction
- Type of fish

IX. Other Sources of Income

A. Off-farm employment
- Seasonal migration (concessions, mining, urban employment)
- Local off-farm employment (shops, mills, itinerant trader, government employee)
- Arts and crafts
- Farm laborer
- Money sent home from relatives (permanent migration)
- Other enterprises
- Bride price

X. Credit

A. Credit association (formal)

B. Susu

C. Government loans (projects, Ag. Coop. Dev. Bank)

D. Relatives

E. Cooperatives

F. Other sources

G. Loan terms (time, interest, grace period)

H. Reasons for borrowing (social, production improvements, sickness, home improvement)

XII. Consumption

A. Food preferences
   Crops
   Meat

B. Food habits
   Who eats with whom
   Number of meals (timing, composition)
   Consumption of main meal
   Order of eating

C. Recipes (ingredients in main dishes)

D. Seasonality of foods consumed

E. Culturally prescribed foods (infants, lactating women, elderly)

F. Home grown vs. market purchased food

G. Ceremonial foods (occasions and kinds of food eaten)

H. Food taboos

XIII. Material Good Status Indicators (observation)

A. House construction (zinc roof, wall characteristics, type of door and windows)

B. Radio/tape recorder

C. Other

XIV. Kuu Labor

XV. Community Farms

XVI. Other Labor Requirements (village self help)

XVII. Project Interventions

APPENDIX B

A Comparison of Variable Costs of Informal Versus Formal FSR Diagnostic Surveys in Mali*

Formal 1 year survey		Formal single visit survey (3m)		Informal survey	
3 villages each 200 kms from HQ		area 200 km from HQ, 14 villages		Many villages, 200 kms from HQ	
3 enumerator, bi-monthly visits		4 enumerators		Researchers, 5 weeks full time	
16 month turnaround based on DRSPR		7 month turnaround based on DRSPR		7 week turnaround	
3 enumerators x 40,000 x 12m =	1,440,000 FM	4 enumerators x 40,000 x 5m =	800,000 FM		
1 controleur x 50,000 x 12	600,000	1 controleur x 50,000 x 6	300,000		
3 bicycles x 150,000	450,000				
Bi-monthly visits by controleur		Enumerator vehicle			
750 kms per 3 village tour		300 kms/wk x 12 wks = 3600 kms	468,000		
25 l gas per 100 kms					
10 tours separate from researchers					
7500 kms	975,000				
Bi-monthly tours of researchers during cropping season		Researcher visits		Researcher visits	
14 tours = 28 weeks, 10,500 kms	1,365,000	500 kms x 8 trips =4000 kms	520,000	5 visits x 500 kms	325,000 FM
				2500 kms	
Per Diem		Per Diem		Per diem	
Researchers		Researchers		Researchers	
28 wks x 4 days = 112 days		8 visits x 2 persons x 5 days		5 persons x 20 days x 5000 FM	500,000
112 x 3 persons x 5000 FM	1,680,000	80 days x 5000	400,000		
Controleur		Controleur			
40 wks x 4 days = 160 days		90 days x 2000	180,000		
160 days x 3000 FM	480,000	Enumerators			
Drivers		4 x 90 x 2000	720,000	Driver	
49 wks x 4 days = 192 days		Drivers		20 days x 2000 FM	40,000
192 days x 2000 FM	384,000	170 days x 2000	340,000		
Vehicle Maintenance		Vehicle Maintenance		Vehicle Maintenance	
18,000 kms	500,000	7600 kms	210,000	2500 kms	70,000
Field Supplies	300,000	Field Supplies	200,000	Field Supplies	100,000
Computer Operation (6m)	480,000	Computer Operator	240,000		
Computer Supplies	150,000	Computer Supplies	75,000		
Researcher data manipulation		Data manipulated by			
3 months x 150,000 FM	450,000	enumerators and controleur			
	9,254,000 FM		4,453,000 FM		1,035,000 FM
	$11,568		$5,566		$1,294

* Lichte & Franzel, 1983