REPUBLIC OF ZAIRE
Ministry of Agriculture, Rural Animation
and Community Development

REPORT ON THE

SURVEY OF PROCAR'S AGRICULTURAL EXTENSION PROGRAM

JULY - AUGUST 1990

BY

WENDY WEIDNER

USAID/ZAIRE AREA FOOD AND MARKET
DEVELOPMENT PROJECT (660-0102)

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EXECUTIVE SUMMARY

This report presents the results of an intensive survey conducted during July and August of 1990 to assess the effectiveness of the agricultural extension program used by the Zaire Area Food and Market Development Project (known by its French acronym, PROCAR). Since Season A 1988, the project has pursued an active agricultural extension program through four Zairian intermediate management organizations in the Bandundu region. In April 1990, after two years and 3-1/2 growing seasons (Seasons A & B 1988-89, Season A and part of Season B 1989-90) of promoting better techniques and improved seed varieties to contact farmers, USAID/ARD and PROCAR reached a joint decision to evaluate the program's progress and success. The survey was conducted by PROCAR's Research and Information Division (DRI).

The survey's objective was twofold: 1) to assist PROCAR in assessing whether or not the messages in its extension package were getting across to the contact farmer, thus allowing the project to estimate its progress and to reevaluate and readjust its methodology to improve its extension system; and 2) to establish a set of indicators through which PROCAR could monitor -- and eventually evaluate -- its work with the intermediate management organizations.

PROCAR's Extension Program

The purpose of PROCAR is to increase agricultural production, marketing, and processing in central Bandundu, with the ultimate goal of raising the standard of living of the rural population. The project's mandate is to work through Bandundu-based intermediate management organizations (IMOs), using these local institutions and private companies as mechanisms for technology transfer in production, processing, and marketing of agricultural products to benefit the small farmers, merchants, and the population in the sixteen collectivité s covered by the project area.

The thrust of PROCAR's extension program consists of distributing improved varieties of seeds and manioc cuttings and of promoting better planting techniques to farmers in central Bandundu through extension agents from the various IMOs with which it works. The project's extension methodology is three tiered. Each IMO begins with a **demonstration stage**, where new techniques and varieties are compared with local varieties and techniques. Next, the IMO passes to the **multiplication stage**, where the new varieties are multiplied to ensure self-sufficiency in seed production and to decrease the IMO's dependence on PROCAR for agricultural inputs. Finally, the IMO reaches the **distribution stage** in which new varieties are disseminated to village members.

The key aspect of PROCAR's extension program is the demonstration and multiplication fields. **Demonstration fields** are divided into four parts, combining local and improved techniques and varieties in such a way to show clearly the contact farmer the advantages (or disadvantages) of the new techniques and varieties and how they effect the growth of crops and the amount the farmers are able to harvest. **Multiplication fields** focus on the reproduction of improved varieties for eventual distribution to the farmers. This study adds an additional non-technical term, **combination fields**, which describes fields that fuse elements of the demonstration and multiplication fields. Combination fields often contain a crop that PROCAR would like to introduce to the region that does not have a local variety with which it can be compared. To make the best use of the field, the new variety is usually planted using a new technique, thus using aspects of both the demonstration and multiplication fields.

The PROCAR extension package promotes the following improved varieties and techniques. In keeping with local food production and consumption patterns, PROCAR is promoting improved **manioc F100**. In an effort to introduce more protein into the diets of the local population, the project promotes four new varieties of **cowpeas, H4, H36, IT83D, and Muyaya** as well as **soy Jupiter and SJ-66**. Rice is also a key crop in the project area; PROCAR has distributed an improved variety of **rice, R66**. Finally, the project extends three different varieties of both **corn and peanuts: Bandundu I, Kasai I, Ikenne, and JL24, P43, A1052,** respectively. The new techniques promoted are as follows:

- **Planting in line**
- **"Billonage"**: mounding earth before planting
- **Respecting number of seeds per pocket**: 1-2 grains for rice; 2 for corn.
- **Weeding**
- **Length of manioc cutting**: +/- 25-30 cm.
- **Distance between plants**: 1 meter for manioc
- **Oblique planting of manioc cutting** (plant in a slanting position)
- **Tilling/plowing**

Survey Findings

The target population for this survey was the principal beneficiaries of PROCAR's extension system, the **contact farmers**, men and women who work directly with extension agents from the various IMOs. They are the individuals with direct exposure to the new varieties and techniques promoted by the PROCAR extension package. PROCAR works with a total of 2,945 contact farmers: 42 (in 3 villages) from CEAE, 1,761 (in 63 villages) from CAL, 200 (in 7 villages) from PADR, and 942 (in 61 villages) from DPP.

The DRI ultimately decided on a two-stage stratified sampling strategy: a random choice of villages followed by a random choice of contact farmers within those villages. We conducted an exhaustive survey in Ekubi (all 42 contact farmers); surveyed 6 contact farmers in each of the seven PADR villages (42 contact farmers); and interviewed 5 contact farmers in 10 villages for both CAL and DPP (50 contact farmers from each IMO). The total survey sample size was 182 contact farmers. In each of the villages, we used a random number chosen by the village chief to choose the contact farmers to be surveyed from a list of names supplied by the extension worker. Since the project was also interested in finding out the secondary effects of its extension system, the DRI decided to run an informal side-survey of **observer farmers,** farmers living in the same villages as the contact farmers but who did not have direct contact with the extension worker. We surveyed roughly half as many observer farmers as contact farmers. The results of this side-survey can be found in Annex B of this report.

Adoption Rates of New Techniques. Awareness of new techniques varies from crop to crop, but overall averages by technique without distinguishing among crops show that only 21 percent of the contact farmers surveyed indicated they had been exposed to the new techniques. Of those who had been exposed, a moderate 33 percent had adopted the techniques. For those contact farmers who were surveyed and did adopt the new techniques, the most striking overall averages for adoption were for tilling/hoeing the soil, with 29 percent of the contact farmers who were exposed to the technique adopting it, and respecting the number of seeds per pocket, with an adoption rate of 31 percent for the contact farmers who answered the question. However, when one takes the analysis one step further to look at overall adoption rates (that is, of the 182 contact farmers surveyed, not just of those who

indicated they were familiar with the techniques), we find the aggregated percentage of adoption rates decreases even further to a low 6 percent.

The key question becomes: Why is the contact farmer not applying the techniques in his/her own fields? The contact farmers' most common response of why they did not adopt was that the new techniques took too much time -- an indication that perhaps some of the new techniques promoted in the extension may not be appropriate for the labor and/or time constraints of the contact farmers. Another frequent response was that the contact farmers were waiting for improved seeds and manioc cuttings before trying the new techniques. Since the PROCAR extension package does not require that new techniques be used exclusively with new varieties, this is a strong indication that somewhere along the line the message has been reinterpreted or changed, resulting in fewer farmers who are trying the new techniques in their personal fields.

Adoption Rates of New Varieties. Similar to the contact farmers' general exposure to the new techniques, the average overall exposure of the 182 contact farmers surveyed to new varieties is just under one quarter, at 22 percent. However, most contact farmers are still using local varieties in their private fields. Of those individuals who indicated they were exposed to the new varieties, only 14 percent had actually planted them in their own fields. Most commonly adopted varieties were R66 (29%), a combination of local and improved varieties (23%), unnamed improved varieties (18%), and a combination of improved varieties grown in association (15%). When we take the analysis even further and look at adoption rates as they relate to the total number of contact farmers surveyed, the overall adoption rate drops to 1 percent.

An interesting point is that despite these extremely low overall adoption rates, the contact farmers reacted positively when asked their opinions of the quality of the new varieties. On average, 82 percent of the contact farmers who responded felt that the improved varieties were superior in quality to local varieties.

This would lead us to conclude that contact farmers are in fact satisfied with the new varieties and that perhaps the reason they are not planting them in their private fields is due to the lag time between growing the seeds in multiplication fields and distributing the seeds to the contact farmers for planting. As mentioned earlier, PROCAR's extension system follows a three-tier methodology; passing from demonstration to multiplication and finally to distribution of seeds. Since this survey was conducted after only 3-1/2 growing seasons, it would seem logical that we hit most of the IMOs in their multiplication stage. In other words, distribution of seeds of new varieties is, at present, limited.

Continued Interest in PROCAR's Extension System. An ample 97 percent of the contact farmers surveyed indicated they wanted to continue working with their extension agent. Similarly, a substantial number of farmers wanted to continue working on demonstration and multiplication fields, with 87 and 92 percent respectively responding positively. These high percentages lead us to conclude that the contact farmer is interested in and would like to continue working with PROCAR's extension package. However, this high level of interest is contradicted by low rates of adoption for both new techniques and improved varieties. This would lead us to deduce one or both of two things: 1) that for some reason, the messages in the extension package are not getting across as effectively as they could be; or 2) that the messages transmitted are not appropriately adapted to the specific constraints faced by the contact farmers or to the farming systems they practice.

Conclusions and Future Studies

The results of this survey lead us to conclude that an in-depth reassessment of the messages PROCAR is extending needs to be conducted by the project's Production and Outreach Division. PROCAR needs to rethink how it is going about transmitting its extension messages. The following are key points for contemplation:

- **How to Work More Effectively with the IMOs.** If PROCAR is to continue to work through IMOs in order to transmit its extension messages, then it needs to determine how it can more effectively work through these IMOs to ensure the messages its extension package contains pass more easily and more directly to the contact farmer.

- **How to Clarify and Refocus Extension Messages.** PROCAR's agronomists and extension specialists need to contemplate how to refocus, simplify, and clarify the extension messages to more appropriately address the techniques and varieties the contact farmers accept more easily or in which they show more interest.

- **Conduct Intensified Training for All Agents.** Once these modifications are made in the extension package, an intensified training program for PROCAR agents and at both the IMO and extension agent levels should take place to ensure that the refurbished extension messages are fully understood by all agents involved in PROCAR's extension system and that the messages found with the package will be transmitted more effectively to the contact farmer.

- **How to Increase Access to Seeds of Improved Varieties.** Finally, since it is evident that contact farmers are interested in the new varieties the project is promoting but may lack access to seeds, PROCAR would do well to intensify its efforts to facilitate the distribution of seeds to the contact farmers, whether directly or through the various IMOs.

Regardless of the process chosen by PROCAR for the amelioration of its extension program, it is clear that changes need to occur in order to increase adoption rates as well as the overall impact of the project. Implicit in this is the need for future studies to measure the impact that any modifications to the existing extension program have made. The Production and Outreach Division and the Research and Information Division should make a combined effort to follow-up continually on the progress being made by the IMOs and extension agents with the "revised" extension package. Most importantly, this survey should be viewed as a baseline study from which the progress and effectiveness of the new extension package can be measured. A follow-on survey should be conducted in the future to assess the progress the new extension package has made in more adequately transmitting PROCAR's extension messages to the contact farmers.

PROCAR'S AGRICULTURAL EXTENSION SYSTEM
A Survey to Assess its Progress and Success

Introduction

Since Season A 1988, the Zaire Area Food and Market Development Project (known by its French acronym, PROCAR) has pursued an active agricultural extension program through four Zairian intermediate management organizations in the Bandundu region. In April 1990, after two years and 3-1/2 growing seasons (Seasons A & B 1988-89, Season A and part of Season B 1989-90) of promoting better techniques and improved varieties to contact farmers, USAID/ARD and PROCAR decided it was time to assess the effectiveness of the extension activities to evaluate their progress and success. A collaborative decision was reached to conduct a survey during the months of July and August. The following report presents the results of this survey, conducted by PROCAR's Research and Information Division (DRI).

The survey was closely tied to the development of a monitoring and evaluation (M&E) system through which the project could track the performance and the impact of its extension program. With this in mind, the survey was designed to focus on specific issues and questions that could be measured and evaluated over time. Key points were:

- Which extension themes are known by the farmer
- Which extension themes she/he is putting into practice
- Which extension items are not accepted and why
- How many farmers are reached directly (contact farmers) and how many indirectly (follower farmers)
- Likely impact of the adoption of extension recommendations
- Major constraints to the adoption of extension recommendations
- Frequency of contact between the extension agents and farmers
- Effectiveness of demonstration and multiplication fields
- Role of the "fermiers du Kwilu" as progressive farmers and as intermediaries (role models) for more effective extension

The survey's objective was twofold: 1) to assist PROCAR in assessing whether or not the messages in its extension package are getting across to the contact farmer, thus allowing the project to estimate its progress and to reevaluate and readjust its methodology to improve its extension system; and 2) to establish a set of indicators through which PROCAR could monitor -- and eventually evaluate -- its work with the NGOs and cooperatives.

This report is divided into five parts. **Part One** gives a brief **overview of PROCAR**, with a particular focus on the project's extension system. Principal topics are PROCAR's activities and objectives; a brief background on each IMO; the varieties and techniques promoted by the project; and an explanation of demonstration, multiplication, and combination fields. **Part Two** discusses the **survey methodology**, explaining the sample size; the definition of "contact farmer" versus "observer farmer"; the choice of villages and contact farmers to be surveyed; the design of the questionnaire; the survey team (enumerators and supervisors); and various problems that the survey team encountered along the way. **Part Three** presents the **survey's findings**, concentrating on the contact farmer. It assesses adoption rates of improved varieties and better techniques and describes the demonstration, and

combination fields on which the contact farmer works and what is done with the produce of those fields. In addition, this part will describe the contact farmer's interaction with the extension agent as well as the contact farmer's opinions of the varieties promoted by PROCAR. **Part Four** presents **conclusions** reached after the data were analyzed. Finally, **Part Five** recommends possible future studies that could measure change and progress made by the extension system as the project advances.

This report has three annexes. **Annex A** contains French versions of the two questionnaires we used during the survey. **Annex B** presents some of the findings of the informal side-survey we conducted on the "observer farmer," which are explained in Part II: Survey Methodology. **Annex C** contains two parts, one focusing on "lessons learned" during the survey for use in future follow-on surveys, and a special section on gender concerns.

Part I: Project Background

The purpose of PROCAR is to increase agricultural production, marketing, and processing in central Bandundu, with the ultimate goal of raising the standard of living of the rural population. Although the project has a broad range of activities, including training and research, PROCAR has focused the majority of its resources on agricultural and extension activities.

The project's mandate is to work through Bandundu-based intermediate management organizations (IMOs), which are viable institutions (whether for profit or not-for-profit) including private voluntary organizations (PVOs), non-governmental organizations (NGO)s, and private sector entities. The idea is to use these local PVOs and private companies as mechanisms for technology transfer in production, processing, and marketing of agricultural products to benefit the small farmers, merchants, and the population in the sixteen collectivité s covered by the project area. The initiative for working through IMOs is based on mutual advantage. The IMOs have solid experience in Bandundu and have developed working relationships with the local population that are beneficial to PROCAR. In turn, PROCAR provides the IMO project with resources, training, and logistical support. The underlying theme is institutional development and sustainability. By assisting the IMOs in working with their own rural population and in developing their individual institutional capacities, the project is ensuring a continuity in its methodology of increasing production that would outlast its ten-year life span.

The Intermediate Management Organizations

In 1988, PROCAR staff members conducted an extensive study of various IMOs and cooperatives in the project area. Numerous criteria, including a proven involvement or a serious interest in starting agricultural programs and a focus on village cultivators and food crops, were established to identify organizations with the institutional capacity to absorb the technical assistance PROCAR was offering. Four organizations were chosen: Developpement Progrè s Populaire (DPP) and Projet Alimentaire du Developpement Rural (PADR), both based in Idiofa; Cooperative Elevage Agricole et Artisanale (CEAE), based in Ekubi; and Centre Agricole Lusekele (CAL), based in Lusekele. The following is a brief description of their extension programs.

Developpement Progrè s Populaire (DPP). DPP has a wide range of development activities including agriculture, reforestation, fish culture, animal husbandry, apiculture, and housing. The IMO is organized on three levels: the headquarters in Idiofa; 5 CERs, of which 3 are in the project area (CER-Laba, CER-Yassa, and CER- Mbeo), where supervisors of the extension agents reside; and the parish

level, which contains the villages in which the extension agents work. The IMO works mainly through village level groups, often with cattle cooperatives organized by the agents. The majority of extension agents, all of whom are male, are "animateurs ruraux," primarily community organizers who live at the village level. They receive technical support from technicians, such as agronomists and veterinarians, who are based at the CERs. Each agent is assigned to a parish within one of the CERs and is expected to work with all of the villages in the parish. In reality, the agents work in a maximum of 11 villages. Each has a bicycle. There are also 5 Peace Corp Volunteers who currently work with DPP. They have received motorcycles and materials from PROCAR. Due to transportation constraints, the supervisors are only able visit one agent per month. With 4-6 agents per CER, each agent is visited once during each trimester. Over the past year DPP has instigated an in-service training program and a seed loaning and multiplication program (DPP guarantees to purchase any seed produced above repayment in kind).

Projet Alimentaire du Developpement Rural (PADR). PADR, founded in 1987, focuses its development activities on agriculture, fish culture, "animation" or village organization, and small animal husbandry. There are currently 11 male agents working in anywhere from 4 to 12 villages each. Although they work in a radius of 25 kilometers from where they reside (one agent has a village 40 kilometers away), none of them has a means of transportation. The agents work through village committees. They first make contact with a village, explain PADR's development program, and suggest that a village committee be established. In principal, both men and women can be members of the village committee by paying a one-time fee that is contributed to the committee cash box. In reality, however, the survey team found that the majority of village committees were made up of men who could afford the fee. With assistance from the PADR agent, the village committee plants a collective field whose harvest is divided in two parts: half is for village consumption and half is sold (the money divided evenly between the village cash box and the village's contribution to the agent's prime). PADR has one supervisor, who is also the founder of the IMO. PROCAR has provided him with a motorcycle. The supervisor makes two visits to his agents every month; one planned and the other unannounced. PROCAR has provided PADR, which has no in-service training program, with training in grain storage, visual aides, demonstration/multiplication fields, and rural development (USAID/Israel-funded training).

Cooperative Elevage Agricole et Artisanale (CEAE). CEAE is a dynamic cooperative of 30 members whose activities focus on increasing agricultural production and marketing. The cooperative, which began in 1969 and started up again in 1987 after several years of inactivity, also collaborates with two pre-cooperatives in nearby villages, Ekubi II (seven members) and Pangu (5 members), which they contacted under their own initiative to disseminate information on new varieties and techniques. The cooperative is composed of clan chiefs who receive the manioc cuttings or improved varieties and in turn distribute them to their own clan members. Each clan has its own demonstration field. The cooperative has three extension agents (all male), one working exclusively in Ekubi, while the other two divide their time between Ekubi II and Pangu. There is no supervisor. PROCAR has provided training in demonstration/multiplication fields development. Closely tied to their involvement in production, CEAE has been at the forefront of PROCAR marketing activities and is highly involved in evacuating their rice produce to Kikwit for sale.

Centre Agricole Lusekele (CAL). Of all the IMOs with which PROCAR works, CAL has the most extensive extension system. There are currently 21 male agents and five Peace Corps Volunteers working at CAL. The agents are chosen by village communities or church groups who sponsor the candidates for a six-month training course conducted by the Lusekele staff. During the training, agents reside at the Lusekele Center and, upon completion, are assigned to a community where there is

already a CAL agent for a trial period. After the trial period, the agents return to work in the communities which originally sponsored them. The CAL extension system has increased its emphasis on agricultural extension and also works in small animal husbandry, fish culture, and gardening. CAL also provides improved chicks and a chicken vaccination program. CAL extension agents work in an average of six villages within a radius of eight kilometers from their village of residence. Each agent has a bicycle (Peace Corps Volunteers have motorcycles). CAL has one supervisor who has access to a motorcycle and visits each agent once every two months. The agents receive monthly in-service training at the Center conducted by CAL and EPIF/CAL (a pilot program focusing on agricultural extension for women) staff. PROCAR has also conducted training sessions focusing on visual aides, demonstration and multiplication fields, and tree nurseries.

It is important to note here that each of the organizations assisted by PROCAR is an autonomous entity. PROCAR lends technical and logistical assistance, but it does not force its extension package on the IMO. The PROCAR extension methodology is often one of several extension packages to which the IMO has access. This can lead to a mixing and matching of techniques or varieties, according to the desires of the IMO. Although, in principal, the idea of working through IMOs to ensure institutional development is a good one, in actuality, it may have proven to hinder the effectiveness with which the project's extension messages have been passed. As is often the case, messages passed through several sources message can change or become less clear. This, of course, depends on the extension agent's presentation.

PROCAR's Extension Program

The thrust of PROCAR's extension program consists of distributing improved varieties of seeds and manioc cuttings and of promoting better planting techniques. PROCAR trains the extension agents from the various IMOs in the proper use of the new seeds and techniques and conducts follow-on visits to the check progress of the extension agents' activities. The project's extension methodology is three tiered. Each IMO begins with a **demonstration stage**, where new techniques and varieties are compared with local varieties and techniques. Next, the IMO passes to the **multiplication stage**, where the new varieties are multiplied to ensure self-sufficiency in seed production and to decrease the IMO's dependence on PROCAR for agricultural inputs. Finally, the IMO reaches the **distribution stage** in which new varieties are disseminated to village members. PROCAR works mainly through demonstration and multiplication fields, which will be explained below. First, however, it's important to be familiar with the types of new varieties and techniques the project is promoting.

New Varieties. Bandundu's number one crop and the staple of the region's population is manioc. In keeping with local food production and consumption patterns, PROCAR is promoting improved **manioc F100**. In an effort to introduce more protein into the diets of the local population, the project promotes four new varieties of **cowpeas, H4, H36, IT83D, and Muyaya** (although this survey only covered two of these varieties, H4 and H36), as well as **soy Jupiter and SJ-66** (this survey covered Jupiter). Rice is also a key crop in the project area; PROCAR has distributed an improved variety of **rice, R66**. Finally, the project extends three different varieties of both **corn and peanuts: Bandundu I, Kasai I, Ikenne, and JL24, P43, A1052,** respectively. PROCAR receives the bulk of these new varieties from SENARAV and BUNASEM.

The distribution of the new varieties differs among the IMOs. From the time PROCAR actively started its extension program during Season A of 1988 until now, CAL has received seeds for all of the new varieties except soy SJ-66. To DPP, PROCAR has distributed manioc F100; corn Bandundu I and Kasai I; peanuts JL24, P43, and A1052; cowpea Muyaya; rice R66; and soy Jupiter and SJ-66.

CEAE has received manioc F100, corn Bandundu I, peanuts JL24, cowpeas Muyaya, and rice R66. Finally, to PADR, PROCAR has distributed manioc F100, corn Bandundu I, and peanuts A1052.

New Techniques. Although the new techniques promoted by PROCAR differ from crop to crop, they are listed in totality here.

- **Planting in line**
- **"Billonage"**: mounding earth before planting
- **Respecting number of seeds per pocket**: 1-2 grains for rice; 2 for corn.
- **Weeding**
- **Length of manioc cutting**: +/- 25-30 cm.
- **Distance between plants**: 1 meter for manioc
- **Oblique planting of manioc cutting** (plant in a slanting position)
- **Tilling/plowing**

These new techniques have been promoted at each IMO.

The linchpin of PROCAR's extension program is the demonstration and multiplication field. **Demonstration fields** are divided into four parts, each demonstrating the effects of production of local versus improved techniques and varieties. A typical field is +/- 12.5 ares (100 ares=1 hectare) and is divided as follows:

LOCAL VARIETY/ LOCAL TECHNIQUE	IMPROVED VARIETY/ LOCAL TECHNIQUE
LOCAL VARIETY/ IMPROVED TECHNIQUE	IMPROVED TECHNIQUE/ IMPROVED VARIETY

The demonstration field is a means to clearly show the contact farmer the advantages (or disadvantages) of the new techniques and varieties. The idea is to motivate the contact farmers to adopt the PROCAR extension package, once they are able to see for themselves how the new varieties and techniques effect the growth of their crops and the amount they are able to harvest. The demonstration field allows the contact farmer to compare the techniques promoted in PROCAR's extension package to his/her own practices from the moment the seeds/manioc cuttings are planted until the produce is harvested.

Multiplication fields focus on the reproduction of improved varieties. These fields tend to be larger, measuring +/- 40 ares and are not divided to demonstrate new techniques. In principal, multiplication fields are instigated after demonstration fields, when the contact farmers have expressed an interest in increased access to seeds or manioc cuttings of the new variety.

As with any extension package, over time there takes place a mixing and matching of the parts that make up the whole. In addition to pure demonstration and multiplication fields, there are what are referred to in this study as "**combination fields**" which fuse elements of the two. Combination fields are not a technical term used in the PROCAR extension package, it merely serves to define the fields that can be considered both demonstration and multiplication fields at the same time. For example, combination fields often contain a crop that PROCAR would like to introduce to the region, such as soy, that does not have a local variety with which to compare. To make best use of the field,

PROCAR plants the new variety (for multiplication purposes) using a new technique (for demonstration purposes). Corn is usually grown in combination fields. Due to cross pollination problems, local and improved varieties cannot be planted close to one another as is required by demonstration fields.

Part II: Survey Methodology

The Sample Size

Since the principal beneficiaries of PROCAR's extension system are contact farmers, they were chosen as the target population for the survey. In this study, **contact farmers** are defined as the men and women who work directly with extension agents from the various IMOs. They are the individuals with direct exposure to the new varieties and techniques promoted by PROCAR or the direct beneficiaries of the PROCAR extension package. At the time DRI initiated its work on the survey, there was no comprehensive list of contact farmers. Before choosing a sample size, the Division's first task was to find out the exact number of contact farmers with which PROCAR was working. Members of DRI spent several weeks talking to each extension worker with whom the project works, asking them to give their total number of contact farmers and the villages in which they worked. We found that PROCAR works with a total of 2,945 contact farmers: 42 (in 3 villages) from CEAE, 1,761 (in 63 villages) from CAL, 200 (in 7 villages) from PADR, and 942 (in 61 villages) from DPP.

The major constraining factor on the decision of sample size was the time in which to conduct the survey. The DRI ultimately decided on a two-stage stratified sampling strategy; a random choice of villages followed by a random choice of contact farmers within those villages. Due to lack of information on variance to calculate an optimal sample size, the DRI decided to do an exhaustive survey in Ekubi (all 42 contact farmers); to survey six contact farmers in each of the seven PADR villages (42 contact farmers); and to survey five contact farmers in 10 villages for both CAL and DPP (50 contact farmers from each IMO). A random table was used to choose the villages. In each of the villages, we used a random number chosen by the village chief to chose the contact farmers to be surveyed from the list of names supplied by the extension worker.

The project was also interested in finding out the secondary effects of its extension system, to assess whether or not other farmers were picking up new techniques or varieties on there own by observing the contact farmers. For this reason, the DRI decided to run an informal side-survey of **observer farmers**, farmers living in the same villages as the contact farmers but who did not have direct contact with the extension worker. We surveyed roughly half as many observer farmers as contact farmers. The results of this side-survey can be found in Annex B of this report.

The Questionnaires

There were two questionnaires for the survey, the Contact Farmer Questionnaire and the Observer Farmer Questionnaire. Each questionnaire was translated into Kikongo to facilitate communication between the enumerator and the contact/observer farmer. The Contact Farmer Questionnaire was divided into four parts:

- **Part I: General Agricultural System**: An overview of the contact farmer's agricultural habits and general farming systems information.

- **Part II: Relationship with Extension Worker**: This part sought to establish the amount of contact between the extension worker and the contact farmer; what kind of techniques she/he used; whether or not contact farmer passed recommendations onto observer farmers; and so on.

- **Part III: Demonstration/Multiplication Fields:** This focused on the number and types of demonstration and multiplication fields and included information on what was done with the harvest.

- **Part IV: General Information**: Information on the household members and size; education level; and contact farmer opinions of the quality of the new varieties.

The Observer Farmer Questionnaire consisted of three parts:

- **Part I: General Agricultural System**: Same as in the Contact Farmer Questionnaire.

- **Part II: The Observer Farmer**: Establishes whether or not the observer farmer is familiar with the demonstration or multiplication fields or with the extension worker; his/her level of contact with the contact farmer; and what techniques and varieties he/she recognizes or has adopted.

- **Part III: General Information**: Same as the Contact Farmer Questionnaire, excluding the section on opinions of the quality of the new varieties.

To ensure overall consensus on their contents, both questionnaires were developed in collaboration with the Production Division and with input from USAID/ARD and PROCAR's Director and Chief of Party. French versions of the questionnaires are included in Annex A.

The Enumerators and Supervisors

Two highly qualified individuals from the Direction d'Etudes, Evaluation, et Planification (DEEP) in Kinshasa assisted the DRI in the design and implementation of the survey. One acted as a supervisor and the other, who spoke fluent Kikongo, as an enumerator. In total, the survey team consisted of six enumerators (four female and two male) and three supervisors (two male and one female). To ensure that we received the best information possible, the survey team made a concerted effort to match enumerators and farmers of the same sex to facilitate communication and eliminate possible barriers that could arise during interviews between men and women.

Eight enumerator candidates were chosen out of numerous applicants after rigorous testing and interviews. In collaboration with PROCAR's Production and Training Divisions, DRI conducted a two-day training session that focused on PROCAR's extension methodology, communication skills, the survey methodology, and the questionnaires. We then conducted a pilot-test of the questionnaire in a village that was both in the project area and in close proximity to Kikwit. The pilot test served two main purposes: 1) to test the questionnaire for any questions that proved to be problematic and needed to be changed; and 2) to allow the supervisors to observe the enumerator candidates in order to select those which demonstrated the greatest ease in communication and grasp of the questionnaire. Following the pilot test, six enumerators were chosen as the final survey team.

Various Problems Encountered

As with any survey, we encountered several unforeseen problems during survey implementation. This section will focus on survey-specific problems. Problems with data will be treated separately in Part III: The Survey Findings.

Confusion in the definition of demonstration/multiplication fields. This was probably the most prominent problem encountered during the survey. There was a lack of understanding of just what constituted a demonstration or multiplication field on several levels, most often from the view of the contact farmer, sometimes from the extension worker and, thus, even the enumerator. This was mainly due to the fact that the questionnaire was designed to focus on only demonstration fields or multiplication fields. There was no space on tables or no blanks in questions for combination fields. This problem did not become apparent until we were into the survey, and thus too late to change the questionnaire. Although definitions of the two field types were included in the questionnaire manual (which explained key points of each questionnaire), confusion still arose. Fortunately, during nightly meetings between the supervisors and enumerators, we were able to form a clearer distinction among the three field types. However, the initial confusion caused some inconsistencies in questionnaires from the villages at the outset of the survey and proved that not only are the definitions unclear to some contact farmers, but they are often mind boggling to those of us who are trained in PROCAR's extension package methodology. This will be dealt with in more detail in Part III.

Some randomly chosen villages turned out to be schools. Some of PROCAR's contact farmers are students. Some extension agents work with older members of a school on demonstration or multiplication fields. Given the months in which we were conducting the survey (July and August -- school was not in session) and the fact that we wanted to target contact or observer farmers who had their own fields in which they worked to test whether or not they were adopting better techniques or varieties in their private fields, DRI decided to drop all schools from the survey. Unfortunately, not all the schools were clearly marked on the list we used to randomly select villages and several times we fell upon villages in which the contact farmers were students. Out of the 32 villages in which we worked, 3 villages were actually schools. We were obligated to drop these villages and choose the next village on the list as we would have done during random selection. However, in the field, due to lack of time and fuel (and to limit the amount of physical fatigue and stress for the enumerators), we were sometimes obligated to select the village closest in proximity to the one we were required to drop rather than follow the rule of random selection.

Problems with the definition of "Contact Farmer." This problem was unique to two IMOs, CEAE and CAL. At CEAE, we were told that all members of the cooperative were contact farmers. In reality, after our first day of surveying the cooperative members, we found that several of the "contact farmers" were actually business people or nurses in the village's dispensary. The second day in the village we met with the cooperative's manager and extension workers to clearly define who was a contact farmer and who was not. Any discrepancies were dropped from the sample.

CAL works almost exclusively with church organizations and parishes. In one case specifically, we were told that one extension agent worked with 12 female contact farmers in one village. When we arrived to conduct the survey, we found that the extension agent worked directly with the pastor of the parish and he worked directly with the 12 women. Given our definition of contact farmers, he should have been the only contact farmer as he had direct contact with the extension worker. Luckily, the extension worker had worked directly with these women on another field during a previous season, so

we were still able to count them as contact farmers. But this situation drove home a point. Each of the IMOs with which the project works has its own method of extension. The fact that CAL often works through parishes develops a five tier system where the message passes from PROCAR to CAL, from CAL to the extension worker, from the extension worker to the parish pastor, and from the pastor to the contact farmer. Although we maintained these women as contact farmers, it became clear through this example just how tenuous the lines of communication can be due to the many layers the message has to pass through before reaching the contact farmer.

Part III: Survey Findings

Overview: The Contact Farmer and Farming Systems Information

There were 182 contact farmers interviewed in this survey, of which 39 percent were women and 60 percent were men.[1] This coincides with the survey team's general observation that an overwhelming number of contact farmers, especially in PADR and CEAE, were male. All farmers, with the exception of one, were over 18 years of age. Seventy-six percent of the contact farmers surveyed had studied; with 59 percent finishing primary school (38% women, 62% men) and 40 percent completing secondary school (18 % women, 82% men). The average household size was seven people.

As the following tables indicate, the contact farmers surveyed had, on average, four fields with an average of three household members assisting regularly in maintaining them.

Table I. **Number of Fields**

Fields	Number of Respondents	Percent
1-2 fields	22	12
3-4 fields	105	58
5-6 fields	46	26
7 or more fields	4	4
TOTAL	181*	100

* One missing response

Table II. **Number Household Members Working Regularly in Field**

Number of Family Members	Number of Respondents	Percent
0-1 members	29	16
2-3 members	104	59
4-5 members	29	16
6 or more members	15	8
TOTAL	181*	100

* One missing response

[1] For clearer presentation, percentages in this survey have been rounded in the following manner: all percentages ending in .5 or below are rounded down and percentages of.6 and above are rounded up. Thus, a percent of 12.5 would be written as 12%. Cases in which percentages add up to 99% rather than 100% are due to the way they were rounded.

It should be noted here that the questionnaire was designed in such a way to get information on each of the contact farmer's fields. For this section, the coded data have been broken down by field rather than by individual farmer. The number of responses exceeds the total number of contact farmers surveyed (182). Therefore, the following percentages should be regarded as information related to fields, rather than to percentages of farmers actually reporting on those fields.

A substantial number of farmers claimed the majority of their fields were found in forest areas. According to the project's Baseline Document, most of the project zone comprises forest soil or mixed soil in transition zones (combination savannah and forest) (West 1990). Even farmers located in areas dominated by the savannah will seek out fields in gallery forests whenever possible due to the fertility of the soil. There is some speculation that when surveyed, farmers tend to under report their savannah fields and give priority to listing their forest fields. The Small Farmer's Study found that 77 percent of the farmers it surveyed had fields in forest areas, while 50 percent declared no savannah fields (West 1990). Similarly, our survey found a substantial 86 percent of the contact farmer's fields were in forest areas, while only 14 percent were in the savannah. Most of the fields (61%) in forest areas had a fallow period of 4-6 years. This was very similar to the savannah, with 54 percent having the same 4-6 year span.

Consistent with findings from previous reports, we found that crops in the project region are most commonly grown in association, usually variations on the theme of manioc/peanuts/corn/squash (Russell 1990). Growing crops in association, or inter-cropping during the same growing season, should be distinguished from growing crops in rotation from one season to the next. **Table III** indicates what the 182 contact farmers surveyed are growing in their fields. **Table IV** summarizes the reasons farmers associate crops. The tables are on the following two pages.

One key observation of Table III is that although growing crops in association is clearly the preferred agricultural method used by farmers in the project area, the types of crops grown in association varies considerably. There seems to be no "typical" crop association, rather an amalgamation of key crops, with manioc forming the common thread. Most farmers associate crops out of custom or habit. One can speculate that the concern for conserving forest land has not reached a significant level at this time and that the connection between crop association and increased production is not the primary concern for the contact farmer.

When asked from where/whom they got their seeds, the farmers reported that 71 percent of their fields were planted with seeds and manioc cuttings kept from previous growing seasons. A surprisingly low percentage of seeds came from the IMOs (DPP .4%, PADR .3%, CAL 1.1%, and CEAE .1%). Women are the key decision makers as to what is grown in private fields. When asked who decides what to grow, in 51 percent of the fields, contact farmers responded they decided themselves. Of those who answered this question, 64 percent were female and 36 percent were male. Thirty-one percent of the male contact farmers said their wives decided what should be grown, while 36 percent reported the married couple decided together. Women contact farmers recorded a much lower 4 percent for husbands deciding what to plant and only 8 percent for decisions made together with their husbands.

Not surprisingly, in addition to deciding what is grown in the fields, women carry the major burden of agricultural work. In her 1982 study, Louis Fresco found that 62 percent of work in fields was done by women (Russell 1990). The Small Farmer Study (1985) found that 41 percent of the women it surveyed were responsible for planting, weeding, and harvest fields. Our survey also found a high percentage of women responsible for the majority of agricultural activities, particularly hoeing, ridging

Table III.

	Number of Responses	Percent of Fields
Corn, Squash, Manioc	106	15
Corn, Manioc	75	10
Manioc, Peanuts, Squash	58	8
Manioc	56	8
Peanuts, Manioc	37	5
Peanuts, Corn, Squash, Manioc	34	5
Peanuts, Squash	30	4
Rice, Manioc	29	4
Peanuts	28	4
Rice, Manioc, Corn	27	4
Rice	25	3
Corn, Rice, Manioc, Squash	22	3
Rice, Manioc, Corn	19	3
Corn, Peanuts, Manioc	18	2
Peanuts, Squash, Corn	13	2
Manioc, Squash	13	2
Millet	11	1
Corn	6	.8
Squash	3	.4
Voandzou	1	.1
Cowpeas	1	.1
Tobacco	1	.1
Peppers	1	.1
Other crop combinations	112	15

Table IV.

	Number of Responses	Percent of Fields
Custom	140	25
Habit	40	7
Custom/save forest land	33	6
Save forest land	30	5
Save time	28	5
Better production	27	5
Not enough land	25	4
Custom/habit	22	4
Custom/better production	20	3
Lack energy	15	3
Custom/lack energy	15	3
Custom/not enough land	15	3
Habit/better production	14	2
Better use of land	12	2
Have many products at once	11	2
Not enough land/better production	10	2
Field's too large	4	.7
Other combinations of above reasons	92	16
Other reasons not listed	16	3

soil, labor, planting, and weeding. One striking observation is the amount of work that was said to be shared by men and women. One reason for this phenomenon could be that, as mentioned earlier, 60 percent of the contact farmers surveyed were male. Their responses to the question of the division of labor may not be representative of the general population. Tasks such as de-stumping land, preparing fields for planting, and harvesting had particularly interesting percentages. **Table V** summarizes the percentages of fields in which work is done by women, men, and women and men together (missing values are not included).

Table V.

Division of Labor (percent of fields) N=731

Task	Female	Male	Female & Male
Clearing land	6	90	4
Felling trees	5	93	2
De-stumping land	49	2	48
Arranging field	38	9	53
Incorporating weeds/grass into soil	70	--	30
Ridging soil	75	1	24
Labor/tilling/hoeing	63	10	27
Planting	71	2	27
Weeding	59	2	39
Harvest	34	1	65

One of the key issues we wanted to find out in this survey was what the contact farmer considered his/her greatest agricultural problem. We asked each farmer to list the five problems, in order of importance, that most constrained increased production. Although this question was open-ended and each contact farmer came up with his/her own responses, for coding purposes we included possible responses (such as plant disease, lack of good seeds, insects, poor soil, and so on) to the side of the question. Each enumerator was asked to choose the number of the precoded responses that corresponded most closely to the response given by the contact farmer. If the response was not included on the list, the enumerator was instructed to mark "other." During analysis of the data, we found that in each of the five categories (order of importance), the category "other" was most frequently named as the greatest constraint. We then went through each questionnaire and recorded by hand the responses that comprised the "other" category. The most common responses from the "other" category were:

- Lack of tools
- Sale/marketing/evacuation of produce

While the most frequent responses from the precoded list were :

- Weeds
- Insects
- Plant disease

- Animals destroying fields
- Lack of labor

This proves an important point for any extension specialist or agronomist attempting to design an extension package that aims to alleviate the problems most commonly faced by farmers. Often, our own perceptions of what constitutes a constraint to increased production may be very different than those perceived by the farmer him/herself. In the case of our study, farmers indicated that their greatest constraints were lack of tools and the timely evacuation or sale of their agricultural produce, two problems that we had not anticipated and therefore did not include in our questionnaire. If any changes or readjustments are to be made in PROCAR's extension package, it is key that the opinions of the contact farmer be taken into account during the design phase to ensure that the new package will address the issues the contact farmer considers to be most important.

When asked to indicate who was their primary source for assistance in alleviating the above listed constraints, 61 percent of the contact farmers indicated that the IMO extension agent helped them the most, while 14 percent sought assistance from their husbands or wives. Only 6 percent received help from government extension agents.

We also asked the contact farmers to list in order of importance the five methods most commonly used to increase production. **Table VI** below summarizes the most cited answers given for each level of importance. We ran frequencies for each of the five levels of importance and then took the top three responses and included them in the table. For example, under the first heading, "Most Important Method," 35 percent of the contact farmers who gave a response for a most important method listed enlarging the size of their fields as the key manner in which to increase agricultural production. Similarly, under the category, "Second Most Important Method," 25 percent of the contact farmers who listed a second way in which to increase production indicated they used improved seeds and manioc cuttings. Weeding, one of the improved techniques included in PROCAR's extension package, was the most cited response among the five levels.

Table VI

Five Most Important Ways to Increase Production

Method	Percent of Contact Farmers
Most Important Method	
Enlarge field size	35
Find fertile land in forest	23
Start a new field	10
Second Most Important Method	
Use improved seeds/manioc cuttings	25
Weed	23
Enlarge field size	21
Third Most Important Method	
Weed	32

Use improved seeds/manioc cuttings	28
Find fertile land in the forest	12
Four Most Important Method	
Weed	57
Enlarge field size	10
Use better tools	7
Use improved seeds/manioc cuttings	7
Fifth Most Important Method	
Weed	33
Use better techniques	17
Find fertile land in forest	17

Adoption Rates and Relations with the Extension Agent

Adoption rates are key indicators of whether an extension program is working or not. Careful analysis of who is or who is not adopting can assist project personnel in ameliorating the extension system. However, it is also important to note that adoption rates can be influenced by outside forces. For example, a farmer may want to adopt an new variety in her private field, but may not have adequate access to seeds. Although this is still an indication that the extension program needs improvement, it would also tend to make adoption rates lower and perhaps lead the researcher to conclude that the farmer lacked interest in rather than access to the new variety. It is, therefore, important to look at the big picture when assessing adoption rates to account for any outside factors that may be of influence before drawing conclusions.

Before moving on to discussing adoption rates of new techniques and improved varieties, it is important to note two caveats. First, due to time and budget constraints, we were not able to hire enough enumerators or to take the time to visit each of the contact farmers' fields. Responses indicating the numbers of fields or adoption of a certain techniques were recorded as fact and we took the contact farmers at their word. We were not able to verify the contact farmers' responses. Second, since this survey was designed to assess the effectiveness of PROCAR's extension system, it was imperative that we interview the contact farmers. Unfortunately, the majority of contact farmers were male (especially at PADR and Ekubi). It is a widely accepted fact that the bulk of the agricultural labor in Zaire is performed by women. If this is the case, then we need to ask whether or not PROCAR is targeting the "real" farmers and more importantly -- since we interviewed a larger percent of men for this survey -- how precise are our data on adoption rates since we probably spoke to individuals who were not responsible for agricultural activities? If our contact farmers are taking part in demonstrations conducted by the extension agents, are they passing on this information to their wives who are most likely the individuals doing the farming? Are the men (whom we were required to ask, given the objective of the survey) really the best people to ask about adoption rates of new techniques and varieties if they are not the people responsible for the fields? This gender issue will be discussed further in Annex C, but it is important to keep these two caveats in mind when reading through the results of the survey.

ADOPTION RATES OF NEW TECHNIQUES

The overall adoption rate for the new techniques promoted by PROCAR's extension system was fair, with 33 percent of contact farmers who responded to the question adopting. Twenty-eight percent of the women surveyed adopted new techniques and 72 percent did not. Of the men surveyed, 26 percent adopted and 74 percent did not. Of those individuals who did adopt the new techniques, 77 percent had received some form of education and 23 percent had not. However, these global figures give a only vague idea of how the extension program is progressing. More telling figures are the disaggregated adoption rates by key variables such as crops and the actual techniques. Since adoption rates of new techniques vary from crop to crop, **Table VII** on the following page breaks down the data by crop and by technique to give a more concrete idea of what is being adopted.

The most striking observation one makes when first examining the table is the profoundly low rate of exposure to the new techniques. On average, only 37 percent of the contact farmers reported any exposure to the use of improved agricultural techniques with manioc, while merely 18 percent indicated they were familiar with new techniques used in conjunction with peanuts. The average rate of exposure of new techniques in use with both corn and rice was even lower at only 10 percent. Finally, contact farmers planting cowpeas and soy were least familiar with new techniques, with 9 and 10 percent respectively indicating exposure. These low rates of exposure to the new agricultural techniques are particularly surprising when one considers that at the time of the survey, PROCAR had already been promoting its extension package for two years or 3-1/2 growing seasons.

The use of new techniques with manioc tended to be higher than with other crops. On average, 14 percent of the contact farmers surveyed planted their manioc cuttings using an oblique slant rather than by laying them flat and burying them, while 10 percent planted manioc cuttings of the recommended +/- 25-30 centimeters in length. Rates of adoption for new techniques used with corn, rice, and peanuts were notably analogous, although contact farmers were more inclined to till the earth and to respect the number of seeds per pocket with peanuts than with corn or rice. Adoption rates for the use of new techniques with cowpeas were universally low. This may be due to the fact that cowpeas were introduced at a later stage than the rest of the crops promoted by PROCAR. Without taking crops into account, the two techniques which were most readily adopted were tilling/hoeing soil, with 29 percent of the contact farmers who were exposed to the technique adopting it, and respecting the number of seeds per pocket, with an adoption rate of 31 percent for the contact farmers who answered the question.

Without distinguishing crop type, the overall adoption rate of new techniques for the 182 contact farmers surveyed was considerably low at 6 percent. When one combines the low level of exposure to the new techniques with the humble overall adoption rate, one is struck by the rather base level of progress PROCAR's extension package has made thus far.

When a contact farmer indicated that he had adopted a new technique, the survey team then asked him how much time the new technique took in relation to the local technique. In addition, we also queried about levels of production. **Table VIII** illustrates the contact farmers' responses. As would be expected, a substantial

Table VII.

N = 182	Manioc No. farmers Exposed	No. Farmers Adopting	% Adopting All Farmers	Corn No. Farmers Exposed	No. Farmers Adopting	% Adopting All Farmers	Rice No. Farmers Exposed	No. Farmers Adopting	% Adopting All Farmers
Planting in Line	105	27	15	39	11	6	41	10	5
Tilling/hoeing	22	1	2	3	1	.5	6	2	1
Mounding earth	73	25	14	**	**	**	**	**	**
Respecting distance between plants	80	29	16	21	6	3	14	3	2
Respecting number of seeds per pocket	**	**	**	12	6	3	12	1	2
Oblique planting	88	25	14	**	**	**	**	**	**
Proper length of manioc cutting	35	18	10	**	**	**	**	**	**

N = 182	Cowpeas No. Farmers Exposed	No. Farmers Adopting	% Adopting All Farmers	Soy No. farmers Exposed	No. Farmers Adopting	% Adopting All Farmers	Peanut No. Farmers Exposed	No. Farmers Adopting	% Adopting All Farmers
Planting in Line	27	1	2	30	2	1	76	9	6
Tilling/hoeing	**	**	**	11	1	.5	27	14	8
Mounding earth	**	**	**	**	**	**	6	1	.5
Respecting distance between plants	12	2	1	14	2	1	26	1	1
Respecting number of seeds per pocket	10	1	.5	16	1	.5	29	15	9
Oblique planting	**	**	**	**	**	**	**	**	**
Proper length of manioc cutting	**	**	**	**	**	**	**	**	**

12.

Table VIII.
N = 182

	Manioc Number	Less Time	Equal Time	More Time	Corn Number	Less Time	Equal Time	More Time	Rice Number	Less Time	Equal Time	More Time
Planting in Line	27	12	4	11	11	7	1	3	10	3	1	6
Tilling/hoeing	4	2	1	1	1	1	**	**	2	**	**	2
Mounding earth	25	7	5	13	**	**	**	**	**	**	**	**
Respecting distance between plants	29	12	8	9	6	3	1	2	3	**	1	2
Respecting number of seeds per pocket	**	**	**	**	6	2	3	1	4	2	1	1
Oblique planting	25	9	8	8	**	**	**	**	**	**	**	**
Proper length of manioc cutting	18	8	3	7	**	**	**	**	**	**	**	**

N = 182

	Cowpeas Number	Less Time	Equal Time	More Time	Soy Number	Less Time	Equal Time	More Time	Peanut Number	Less Time	Equal Time	More Time
Planting in Line	1	3	**	1	2	2	**	**	9	3	1	5
Tilling/hoeing	**	**	**	**	1	**	**	1	14	2	6	6
Mounding earth	**	**	**	**	**	**	**	**	1	**	1	**
Respecting distance between plants	2	1	**	**	2	1	**	1	1	**	**	1
Respecting number of seeds per pocket	1	2	**	**	1	1	**	**	15	3	11	1
Oblique planting	**	**	**	**	**	**	**	**	**	**	**	**
Proper length of manioc cutting	**	**	**	**	**	**	**	**	**	**	**	**

number of contact farmers who adopted the new techniques reported they took less time to use than the local techniques. However, when one looks more closely at the data, one notes that a nearly equally significant percent of contact farmers responded that the improved techniques took more time. This could lead us to conclude two things: 1) the contact farmers who chose to adopt the improved techniques did so because these new methods saved time; or 2) those farmers who adopted did so even though the techniques took more time -- perhaps because they felt the techniques helped raise production, and so on. Indeed, a majority of the contact farmers who reported information on production levels of the new techniques versus local techniques indicated the improved methods produced more. This leads us to believe that although a rather low percentage of contact farmers are adopting the new techniques, those who do adopt, more often than not, claim that it takes less time to produce more.

In contrast to the contact farmers who adopted techniques, those who did not felt the new techniques took too long, were too complicated or difficult, and did not produce as much. Unfortunately, the questionnaire was not designed to establish precise reasons why contact farmers did not adopt techniques. As the survey progressed, the survey team decided this would be valuable information and asked the enumerators to make notations on the side so we could later evaluate reasons for non-adoption. It should be noted that these reasons are by no means complete as they were collected late in the survey. In other words, the frequency of collecting this information varies greatly among the IMOs. The information should only be used to give a general idea of why farmers are only adopting moderately. Some of the reasons cited by contact farmers are as follows:

- **Do not have improved seeds/manioc cuttings.** This was a surprisingly common response. Many farmers associate trying new techniques with better varieties; they do not try new techniques without having the better varieties to use during planting.

- **Takes too much time.** This was the most common response.

- **Too much work.**

- **Using better varieties and local techniques produces more.**

- **Planting in line leaves too much empty space between plants.** This was especially true with peanuts. Some farmers reported less production when peanuts were planted in line. One farmer complained that planting corn in line not only took too much physical labor, but also demanded too much mental gymnastics to calculate the distance.

- **The spacing for corn is too close, the plant does not receive enough nutrients and produces small cobs.**

- **Techniques are too difficult and complicated.**

- **Cannot change method of planting all at one time; want to try during several seasons before adopting.**

- **More used to traditional methods.**

- **Plan to try the new techniques next season.** In some cases, this response was due to the fact that the contact farmer had just learned of the new techniques during the present season and had already planted his/her own fields using the local technique.

ADOPTION RATES OF NEW VARIETIES

When the survey team designed the questionnaire, we sought to establish if contact farmers were adopting the new varieties promoted by PROCAR in their private fields. We developed a table that focused on the varieties of all crops grown in each of the contact farmers fields. Unfortunately, as explained earlier under the section on farming systems information, the fact that we recorded information on all of the contact farmers' fields required us to code in such a way that one farmer may have several fields. Thus, the following data and percentages are based on the number of fields for which we have information. They do not indicate one response per farmer. This is particularly problematic because it hinders our ability to assess adoption rates of farmers directly. Rather, this information allows us to estimate adoption rates by percentage of fields in which the new varieties are being used.

In an effort to roughly estimate the adoption rates for the contact farmer of the new varieties, we developed the following strategy. We divided the total number of responses, 710, by the total number of contact farmers surveyed, 182, to get an average number of fields per farmer, 3.9. This corresponds with our earlier estimate that each farmer has between 3-4 fields. Then, we divided the number of responses for a particular crop and variety by 3.9 to get an approximation of the number of farmers adopting the variety. To get an idea of what percent this number is of the total number of contact farmers surveyed, we divided by 182. For example, if we know that manioc F100 was adopted in 40 fields and wanted to estimate the number of contact farmers adopting the variety, we would divide 40 by 3.9 and come up with an estimate of 10 contact farmers who were planting manioc F100 in their fields. Then, we would divide this number by 182 (the total number of contact farmers we surveyed) to come up with an approximate percentage of contact farmers who have adopted the technique in their own fields. In this case, the percentage would have been 6 percent. The data below will present the actual number of fields in which the variety has been adopted. We will then go on to approximate the number of contact farmers adopting using the logic explained above.

The following data give information reported by farmers who recorded what varieties they were using. Missing information is not included. In other words, the fields listed below include only those in which we have information on the varieties used. **Table IX** summarizes adoption rates of the varieties of the crops mentioned in the survey. It is important to note here that several of the improved varieties were unnamed. We assume that this means although the contact farmers may know they are using a new variety, they may not know the exact name. Whether or not the contact farmers knows the scientific name of the variety, the important point is that they recognize they are using a new variety and can judge its effectiveness.

Table IX clearly reveals that the majority of contact farmers use local varieties in their personal fields. On average, local varieties are used exclusively in 78 percent of the farmers' fields. As we noted earlier, growing crops in association is the most common agricultural practice, with a sizeable number of contact farmers indicating they plant combinations of local and improved varieties or various combinations of improved varieties together. Although we cannot state precisely that manioc F100 is used in greater frequency than the other improved varieties, the fact that manioc is used quite often in

crop associations -- particularly those in which improved varieties are indicated -- would lead us to deduce that several contact farmers are using manioc F100 (alone or in combination with local varieties) in their own fields. Another striking observation is that of the contact farmers' fields in which rice was planted, 29 percent had used R66 and 7 percent had planted a combination of local varieties and R66. Table VIII also underscores our previous observation that many farmers may recognize that they are using an improved variety, but may not know the scientific name.

As was the case for adoption rates of techniques, the questionnaire did not ask specifically why contact farmers were not using new varieties in their own fields. As the section on opinions of the new varieties in comparison with the local varieties will demonstrate, 82 percent of the contact farmers responded they felt the improved varieties were of higher quality. This would lead us to conclude that perhaps the reason the farmers are not using the improved seeds in their personal fields is due to lack of access. Our survey did hit many of the villages while they were still in the seed multiplication stage, before they had begun their distribution stage. Perhaps this caused the lag time between observing the results of growing the new varieties in demonstration and multiplication fields and in actually receiving seeds to try in their own fields.

It should be noted here that 84 percent of the contact farmers surveyed indicated they did receive seeds from the extension agent. It is not clear whether the contact farmer interpreted this question as receiving seed for demonstration or multiplication fields rather than for his/her own fields. If that is the case, our original speculation could be correct that many contact farmers are waiting to receive seed from multiplication or demonstration fields before trying the varieties in personal fields. However, if the contact farmer receives seeds for his/her personal fields, then the issue becomes even more pressing and curious -- a question for further research.

CONTACT FARMER'S RELATIONS EXTENSION AGENT

Of the 182 contact farmers surveyed, 177 responded to the question of whether or not they would like to continue working with the extension worker. An abundant 97 percent responded positively, while only 3 percent responded negatively. When asked to explain why they preferred to continue, 21 percent said they wanted to increase their knowledge of improved techniques and new varieties. Other key responses included 15 percent who indicated that the extension worker taught them what they did not already know. Thirteen percent felt the extension agent's advice helped them to ameliorate their agricultural methods. Eleven percent indicated that the extension worker's presence pushed them to work harder, and 9 percent said they wanted to continue because their extension worker had a "good character" and worked hard. Eight percent wanted to continue because the extension worker corrected their mistakes and gave advice. Six percent reported that the extension worker taught them methods to increase production and the same percent felt he/she helped initiate working together.

Most contact farmers indicated that the extension agent visited them between 2-3 times (34% and 29% respectively) during Season A and between 1-2 times (39% and 34% respectively) during Season B. Ninety-nine percent reported that the extension worker visits the demonstration or multiplication field. Most extension agents spend between 1-2 hours with the contact farmer (indicated by 54% of the 182 contact farmers surveyed). Twenty-one percent indicated the agent spent all morning and 9 percent said he/she spent all day per visit. Fifteen percent indicated "other" time periods.

Table IX.

	Local Variety			Improved Variety			Manioc F100			Rice Ann			Peanuts A1052			Combo Local/Unnamed		
	No.	Percent of Fields	% Total Farmers	No.	Percent of Fields	% Total Farmers	No.	Percent of Fields	% Total Farmers	No.	Percent of Fields	% Total Farmers	No.	Percent of Fields	% Total Farmers	No.	Percent of Fields	% Total Farmers
Manioc	40	74	6	**	**	**	3	6	.4	**	**	**	**	**	**	**	**	**
Corn	3	100	.4	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Rice	7	29	1	8	33	1	**	**	**	7	29	1	**	**	**	**	**	**
Peanuts	22	81	3	1	4	.1	**	**	**	**	**	**	1	4	.1	**	**	**
Squash	3	100	.4	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Cowpeas	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Tobacco	1	100	.1	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Millet	8	100	1	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Peppers	1	100	.1	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Corn, Manioc	67	89	9	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Peanuts, Manioc	29	78	4	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Peanuts, Squash	28	93	4	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Manioc, Squash	12	92	2	**	**	**	**	**	**	**	**	**	**	**	**	1	3	.1
Rice, Manioc	7	21	1	**	**	**	**	**	**	**	**	**	**	**	**	1	3	.1
Manioc, Peanuts, Squash	19	86	7	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Rice, Peanuts, Manioc	11	82	2	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Corn, Squash, Manioc	91	89	13	**	**	**	**	**	**	**	**	**	**	**	**	1	2	.1
Rice, Manioc, Corn	6	42	.8	**	**	**	**	**	**	**	**	**	**	**	**	3	18	.4
Peanuts, Squash, Corn	13	100	2	**	**	**	**	**	**	**	**	**	**	**	**	3	3	.4
Rice, Manioc, Squash	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Peanuts, Corn, Squash, Manioc	27	79	4	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Corn, Rice, Manioc, Squash	9	11	1	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Other Crop Associations	75	68	10	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
																9	8	1

	Local & Improved			Local/Manioc F100			Local/Rice R66			Combo Improved Var.		
	No.	Percent of Fields	% Total Farmers	No.	Percent of Fields	% Total Farmers	No.	Percent of Fields	% Total Farmers	No.	Percent of Fields	% Total Farmers
Manioc	**	**	**	11	20	.1	**	**	**	**	**	**
Corn	**	**	**	**	**	**	**	**	**	**	**	**
Rice	1	1	.1	**	**	**	1	4	.1	**	**	**
Peanuts	1	1	.1	**	**	**	**	**	**	**	**	**
Squash	**	**	**	**	**	**	**	**	**	**	**	**
Cowpeas	**	**	**	**	**	**	**	**	**	1	100	.1
Tobacco	**	**	**	**	**	**	**	**	**	**	**	**
Millet	**	**	**	**	**	**	**	**	**	**	**	**
Peppers	**	**	**	**	**	**	**	**	**	**	**	**
Corn, Manioc	1	1	.1	1	5	.6	**	**	**	3	1	.1
Peanuts, Manioc	3	8	.4	2	5	.3	**	**	**	2	5	.3
Peanuts, Squash	**	**	**	**	**	**	**	**	**	1	3	.1
Manioc, Squash	1	8	.1	**	**	**	**	**	**	**	**	**
Rice, Manioc	16	55	2	**	**	**	3	10	.1	3	10	.1
Manioc, Peanuts, Squash	**	**	**	5	9	.7	**	**	**	2	3	.3
Corn, Peanuts, Manioc	**	**	**	**	**	**	**	**	**	**	**	**
Corn, Squash, Manioc	3	3	.1	4	4	.6	**	**	**	1	1	.1
Rice, Manioc, Corn	9	17	1	**	**	**	2	10	.1	2	10	.3
Peanuts, Squash, Corn	**	**	**	**	**	**	**	**	**	**	**	**
Rice, Manioc, Squash	21	78	3	1	4	.1	3	11	.1	2	7	.3
Peanuts, Corn, Squash, Manioc	2	6	.3	1	3	.1	**	**	**	4	12	.6
Corn, Rice, Manioc, Squash	12	54	2	**	**	**	1	.1	.1	**	**	**
Other Crop Associations	9	8	1	6	5	.8	4	4	.6	7	6	1

Best Available Document

Fifty-nine percent of the 182 contact farmers surveyed reported that other villagers ("observer farmers") participated in the extension workers visits, while 41 percent maintained there were no other participants. Of the farmers who said there were participants, 33 percent indicated there were usually 6-10 persons. Twenty- five percent reported the participants usually ranged from 1-5 persons and 12 percent maintained there were from 11-15 participants. Thirty percent said there were 15+ participants. Eighty-nine percent of the contact farmers maintained they told other villagers when the extension agent was planning a visit, while 11 percent maintained they did not. The reaction to how often the contact farmer wanted the extension worker to visit was mixed, with 53 percent wanting him/her to visit with greater frequency and 45 percent saying they were satisfied with the current amount of visits per season. Two percent said they wanted the extension worker to visit less often.

We asked two important open-ended questions: 1) what does the extension worker do during his/her visit to your field; and 2) what kind of advice does he/she give. Because these questions were open ended, it is difficult to come up with exact percentages of who answered a specific way. However, tallying the responses, we came up with the following observations and approximations. When asked to describe the extension agent's visit, the majority of contact farmers replied that he/she gives advice on agricultural methods. Another key response was that the extension worker demonstrated new techniques. Other popular answers were that the extension worker visited their fields and that he/she visited to see if the contact farmers were following the agricultural calendar.

When asked to specify the type of advice the extension worker gives, the responses were remarkably close -- with no one answer standing out as significantly more common than the others. Advice included: to plant in lines, even with local varieties; to use new techniques; to gather the earth in mounds ("billonage") when planting; to weed and maintain their fields from the time they plant until harvest; to work together; to respect the distance between manioc plants; to plant large fields each year to increase production; and to respect the agricultural calendar. The fact that not one of these responses resulted in the majority leads us to conclude that the messages promoted by PROCAR extension agents are highly variable. The question then becomes, is it more difficult for contact farmers to adopt messages or new techniques when the messages vary too greatly? Would PROCAR increase the efficiency of transmitting its message if it focused on a few techniques rather than several? An interesting issue to pursue in future studies or research.

The exchange of information at the village level was moderate, with 48 percent of the contact farmers maintaining they always discussed the extension agents advice with other farmers in their village and 47 percent indicating they sometimes shared advice. Four percent claimed they never discussed the information with other farmers.

PROCAR facilitated the training of 5 blacksmiths from each of the IMOs (CAL, CEAE, DPP, and PADR) in techniques for fabricating improved tools. In turn, the IMO was to sell the tools (for example, hoes and machetes) at a reduced price to the contact farmer. However, 78 percent of the contact farmers indicted they did not receive tools from the extension worker. This rather high percentage could be explained by two factors. First, the contact farmer may not have had the money to purchase the tools and therefore replied that he/she did not receive any from the extension worker. Second, the way the question was worded may have confused the contact farmer, asking "does the extension agent give you tools?" Obviously, if the contact farmer was required to pay for the tools, he/she could have been confused by this question and would have replied no, as the tools were not meant to be "given" but "purchased."

The above issue becomes even more significant when we look at the responses to the open-ended

question, "what more can the extension worker do for you?" Over half of the contact farmers who responded indicated they wanted the extension worker to bring them tools. As mentioned above, lack of tools was found to be one of the largest constraints to increasing agricultural production. Other responses included the desire for other improved varieties, assistance in evacuating agricultural produce, and exposure to appropriate technology (for example, tractors, rice huskers, and mills).

Finally, we asked the contact farmer if there were any subjects they would like the extension worker to teach in more detail. Most contact farmers responded they wanted to learn about and have more access to other better varieties; to receive more advice on techniques to use with better varieties; to learn improved agricultural techniques; to learn about fish culture or pisciculture; and to learn how to eliminate the problem of evacuating agricultural produce from the village. Other subjects included better storage techniques, the role of men and women in increasing agricultural production, and gardening.

DEMONSTRATION, MULTIPLICATION, AND COMBINATION FIELDS

This section of the questionnaire had two key objectives: to find out the contact farmer's perspective of demonstration, multiplication, and combination fields and to get an idea of what contact farmers were doing with the produce of these fields once harvested. This part of the report will be divided to 1) describe the demonstration, multiplication, and combination fields per season; and 2) illustrate what contact farmers are actually doing with the harvest of these fields. The number of fields is given in each case along with its percent of the total fields in parenthesis following it. Missing values are not included.

Before beginning, however, we should note that the data presented here focus on communal fields: demonstration, multiplication, and combination fields whose work and harvest is often shared by the contact farmers who maintain it. Since we interviewed several contact farmers who tend these communal fields together, some of these data may overlap. For example, two contact farmers may report that they work on two demonstration fields. These responses would have been recorded as four demonstration fields (two recorded for each farmer). Therefore, some of these data may be skewed due to over-recording. Because of this, the reader is asked not use these data to estimate levels of production of the demonstration, multiplication, or combination fields or the number of fields covered by the PROCAR project. Rather, they should be used to illustrate trends of what types of fields PROCAR has promoted more often or what contact farmers choose to do with the harvests of these communal fields.

Demonstration Fields

Season A

Crops and Varieties. There were 118 demonstration fields reported during Season A, although we have combined information for crops and varieties in only 115 of them. There were 38 (or 32% of all the demonstration fields) manioc F100 demonstration fields. There were 2 peanut fields (2%) and 4 cowpea fields (3%) that were reported to have improved varieties, although the name of the variety was not known. There were 6 fields (5%) of rice R66 and 1 field (.8%) of soy Jupiter. After manioc F100, the next most popular crop and variety was peanut A1052, with 21 fields (18%). The other peanut varieties, JL24 and P43, had 1 field each (.8%). In addition, there were 7 (6%) peanut fields

and 1 (8%) cowpea field comprising unspecified improved varieties. There were 6 corn Bandundu I fields (5%) and 10 other corn fields (8%) which were made up of a combination of improved varieties. Six fields (5%) combined improved varieties of manioc and peanuts in association. Finally, there were 10 (8%) fields comprising an unspecified association of crops that were reported to be a combination of improved varieties.

Acreage. The acreage of demonstration fields during Season A varied greatly; ranging from 1 to 200 ares. Although the typical demonstration field should have the acreage of +/- 12.5 ares, only 3 percent of the were 12 ares and only 10 percent were 13 ares. The most common response was 10 ares, making up 14 percent of the responses.

Location and Who is Responsible. Seventy-one percent of the demonstration fields during season A were in forest areas, while 29 percent were found in the savannah. Men were responsible for 61 percent of the demonstration fields during Season A. Women were responsible for 18 percent. In 21 percent of the cases, both men and women are responsible.

Harvest. Since harvest information varies so greatly among the crops and varieties found in the demonstration, multiplication, and combination fields, the data will be presented in disaggregated form in **Table X** for all fields in Season A and Season B. Please refer to the table for information on demonstration field harvest during Season A.

Commentary. Eighty-one percent of the 99 who responded concerning the 118 Season A demonstration fields felt the harvest was good, while 2 percent felt the harvest was average. Seventeen percent felt they had a poor harvest.

Season B

Crops and Varieties. There were only 17 demonstration fields recorded during Season B. Of these, 10 (59%) were manioc F100 (some of which could have been left over from Season A, since manioc is harvested throughout the year), and 4 (23%) consisted of soy Jupiter. There were two peanut fields, 1 (6%) composed of JL24 and the other (6%) A1052. There was 1 cowpea field (6%) which was made up of the H4 variety.

Acreage. Seventeen percent of the fields were reported to have 10 ares, 19 ares, 25 ares or 100 ares. Eight percent spread out over 15 ares, 18 ares, 20 ares, or 48 ares. Few fields were close to the +/- 12.5 ares recommended by PROCAR's extension package.

Location and Who is Responsible. Fifty-three percent of the fields were recorded as being in forest land, while 47 percent were in the savannah. In 47 percent of the fields, men held primary responsibility; whereas in 41 percent of the fields, both men and women were responsible. In 12 percent of the fields, women are responsible.

Harvest. As mentioned earlier, harvest information varies greatly among the crops and varieties found in the demonstration, multiplication, and combination fields. The data will be presented in disaggregated form in **Table X** for all fields in Season A and Season B. Please refer to the table for information on demonstration field harvest during Season B.

Commentary. There were 14 answers to this question, with 93 percent saying the harvest of the demonstration field during Season B was good and 7 percent indicating it was a poor harvest.

Table X.	> 1 Kilo - 30 Kilos No. of Fields	% of Fields per variety	31 - 9 No. of Fields	0 Kilograms % of Fields per variety	91 - 150 Kilograms No. of Fieldsper	% of Fields variety	151+ Kilograms No. of Fieldsper	% of Fields variety
Demonstration Field Season A								
Manioc F100	4	50	3	37	**	**	1	12
Soy Jupiter	1	100	**	**	**	**	**	**
Rice R66	**	**	3	50	**	**	3	50
Peanuts JL24	**	**	**	**	**	**	1	100
Peanuts P43	1	100	**	**	**	**	**	**
Peanuts 1052	1	5	4	19	1	5	15	70
Corn Bandundu 1	5	83	**	**	**	**	1	17
Peanuts improved variety (unnamed)	1	50	1	50	**	**	**	**
Cowpeas improved variety (unnamed)	**	**	2	100	**	**	**	**
Combination of improved corn varieties	**	**	3	37	**	**	5	62
Combination of improved peanut varieties	6	86	**	**	**	**	1	14
Demonstration Field Season B								
Cowpeas H4	1	100	**	**	**	**	**	**
Soy Jupiter	3	100	**	**	**	**	**	**
Peanuts JL24	**	**	1	100	**	**	**	**
Peanuts 1052	**	**	1	100	**	**	**	**
Multiplication Field Season A								
Manioc F100	1	33	**	**	**	**	2	67
Cowpeas H4	1	33	**	**	**	**	2	66
Soy Jupiter	3	60	2	40	**	**	**	**
Rice R66	1	8	2	15	3	23	7	54
Peanuts JL24	**	**	**	**	1	100	**	**
Peanuts A1052	**	**	2	100	**	**	**	**
Corn Bandundu I	**	**	2	50	**	**	2	50
Corn improved variety (unnamed)	**	**	2	100	**	**	**	**
Peanuts improved variety (unnamed)	**	**	1	100	**	**	**	**
Soy improved variety (unnamed)	**	**	1	100	**	**	**	**
Combination of improved peanut varieties	1	33	**	**	**	**	2	66
Multiplication Field Season B								
Manioc F100	**	**	**	**	**	**	1	100
Cowpeas H4	3	75	1	25	**	**	**	**
Soy Jupiter	8	89	1	11	**	**	**	**
Peanuts JL24	**	**	**	**	1	100	**	**
Peanuts A1052	1	100	**	**	**	**	**	**
Peanuts improved variety (unnamed)	1	100	**	**	**	**	**	**
Cowpeas improved variety (unnamed)	1	100	**	**	**	**	**	**
Combination of improved varieties	**	**	**	**	**	**	**	**
Combination Field Season A								
Soy Jupiter	2	100	**	**	**	**	**	**
Rice R66	**	**	**	**	1	25	3	75
Peanuts A1052	3	100	**	**	**	**	**	**
Peanuts improved variety (unnamed)	1	100	**	**	**	**	**	**
Beans improved variety (unnamed)	**	**	**	**	1	100	**	**
Combination of improved cowpeas varieties	**	**	1	100	**	**	**	**
Combination Field Season B								
Soy Jupiter	5	100	**	**	**	**	**	**
Peanuts A1052	1	100	**	**	**	**	**	**
Cowpeas improved variety (unnamed)	2	100	**	**	**	**	**	**
Combination of improved peanut varieties	1	100	**	**	**	**	**	**
Combinatio of improved cowpea varieties	1	100	**	**	**	**	**	**

Multiplication Fields

Season A

Crops and Varieties. There were 85 multiplication fields reported for Season A. We had combined information on crops and varieties for 79 (93%) of them. The largest percent were manioc fields, of which 28 (33%) were F100 and 1 (1%) was an unnamed improved variety. There were 13 (15%) rice R66 fields. The next most popular crop was soy, with 10 total fields: 1 (1%) made up of an unnamed improved variety and 9 (10%) comprising Jupiter. Of the 7 peanut fields reported, 1 (1%) was JL24, 2 (1%) were A1052, 1 (1%) comprised an unnamed improved variety, and 3 (3%) were made up of a combination of improved varieties that weren't specified. There were 6 corn multiplication fields, 2 (7%) containing an unnamed improved variety and 4 (5%) which were made up of Bandundu I. There were 3 (3%) cowpea fields composed of H4. Five (6%) fields were reported to be a combination of improved varieties of rice and manioc. There were also 5 (6%) fields made up of unspecified associations of improved varieties. Finally, there was 1 field (1%) associating improved varieties of corn, manioc, and peanuts.

Acreage. Once again, the circumference of the multiplication fields during Season A varied greatly, ranging from 1 to 120 ares. Although the typical multiplication field, according to PROCAR's extension package, should be +/- 40 ares, only 3 percent were actually found to have this measurement. However, the most common response was not far from 40, being 50 ares, with 12 percent of the responses.

Location and Who is Responsible. Sixty-eight percent of those who responded indicated that multiplication fields during Season A were in forest areas, while 32 percent reported savannah fields. In 57 percent of the cases reported, men were indicated as being responsible for the multiplication fields, while women were responsible for 15 percent. A combined female-male effort was reported by 27 percent.

Harvest. As mentioned earlier, harvest information varies greatly among the crops and varieties found in the demonstration, multiplication, and combination fields. The data will be presented in disaggregated form in **Table X** for all fields in Season A and Season B. Please refer to the table for information on multiplication field harvest during Season A.

Commentary. Of those who responded to this question, 86 percent felt they received a good harvest from the Season A multiplication field. One percent felt the harvest was average and 12 percent claimed it was poor.

Season B

Crops and Varieties. There were 49 multiplication fields during Season B, for which we were able to gather combined crop and variety information on 48 (98%). As with the demonstration fields from both seasons and the multiplication fields from Season A, manioc F100 was the most popular crop and variety, making up 29 (59%) of the multiplication fields. Soy Jupiter was the next most popular crop and variety combination, with 9 (18%) fields. Cowpeas made up 5 of the fields, 1 (2%) containing an unnamed improved variety and 4 (8%) containing H4. There were 3 peanut fields, 1 (2%) made up of unnamed improved varieties, 1 (2%) comprising JL24, and 1 (2%) of A1052. Finally, there were 2 (4%) fields of unspecified crop associations of a combination of improved varieties.

Acreage. There were 37 responses to this question, varying from 6 to 120 ares. The most common response was 25 ares, with 19 percent of the responses. Although the average multiplication field should be +/- 40 ares, 5 percent reported to have fields of 35 ares and 3 percent said their fields were 44 ares.

Location and Who is Responsible. Fifty-five percent of the multiplication fields during Season B were found in the savannah, while 45 percent were reported to be in forest areas. Of the 48 people who responded to who was responsible for the fields, 56 percent claimed men were responsible, 21 percent reported women, and 23 percent indicated both men and women were responsible.

Harvest. As mentioned earlier, harvest information varies greatly among the crops and varieties found in the demonstration, multiplication, and combination fields. The data will be presented in disaggregated form in **Table X** for all fields in Season A and Season B. Please refer to the table for information on multiplication field harvest during Season B.

Commentary. There were 31 responses to this question, with 81 percent indicating Season B's multiplication field's harvest was good and 19 percent claiming it was poor.

Combination Fields

Season A

Crops and Varieties. There were 29 combined fields during Season A and we received combined crop and variety information on 28 (96%) of them. There were 5 (17%) manioc F100 fields and 4 (14%) rice R66 fields. Of the 4 peanut fields reported, 3 (10%) were made up of A1052 and 1 (3%) contained an unnamed improved variety. There were a total of 2 (7%) soy Jupiter fields and 1 (3%) cowpea field made up of a combination of improved varieties. One (3%) bean field of an unnamed improved variety was reported. The combination fields had more crops in association than the demonstration and multiplication fields, with 2 (7%) fields of improved varieties of corn and manioc; 2 (7%) fields associating improved varieties of peanuts and manioc; and 3 fields (10%) combining improved varieties of manioc and rice. Finally, there were 4 fields (14%) of unspecified crop associations of improved varieties.

Acreage. Field circumference varied between 4 and 200 ares. The most common three responses were 10, 25, and 50 ares, each having a response of 15 percent.

Location and Who is Responsible. Seventy-nine percent of the combined fields in Season A were found in forest areas and 21 percent were in the savannah. There were 28 responses to the question of who was responsible for combination fields during Season A, indicating that men were responsible for 75 percent of the fields. Women were responsible for 18 percent and both men and women were responsible for 7 percent of the combination fields in Season A.

Harvest. As mentioned earlier, harvest information varies greatly among the crops and varieties found in the demonstration, multiplication, and combination fields. The data will be presented in disaggregated form in **Table X** for all fields in Season A and Season B. Please refer to the table for information on combination field harvest during Season A.

Commentary. There were 27 responses to this question. Of these, 85 percent indicated they felt their

harvest was good, while 7 percent reported it was average and another 7 percent indicated it was poor.

Season B

Crops and Varieties. As with Season A, there were 29 combination fields in Season B. We were able to obtain combined crop and variety information on 22 (76%) of them. Manioc F100 took the lead in the fields, making up 7 (24%) of them. Next was soy Jupiter, with 5 fields (17%). The contact farmers reported 3 (10%) cowpea fields, all made up of unspecified improved varieties. There were 2 peanut fields; 1 (3%) containing A1052 and 1 (3%) made up of a combination of improved varieties. Finally, there were 5 (17%) fields of crop associations with unspecified improved varieties.

Acreage. Field circumference ranged from 2 to 110 ares. The most common response was 25 ares, with 30 percent of the 20 contact farmers responding their fields were this size.

Location and Who is Responsible. There were 27 responses recorded for this question, indicating that 63 percent of the combination fields in Season B were found in savannah areas and 37 percent were in the forest. Men were responsible for 59 percent of the fields, while women were responsible for 31 percent. Combined male-female responsibility was reported for 10 percent of the fields.

Harvest. As mentioned earlier, harvest information varies greatly among the crops and varieties found in the demonstration, multiplication, and combination fields. The data will be presented in disaggregated form in **Table X** for all fields in Season A and Season B. Please refer to the table for information on combination field harvest during Season B.

Commentary. Of the 22 responses to this question, 77 percent reported they felt the harvest from the Season B combination field was good, while 23 percent felt it was poor.

What the Contact Farmers do with Harvest

Each contact farmer was asked to explain what he/she did with the produce harvested from the demonstration, multiplication, and combination fields. **Table XI** on the following page describes the information we received from those contact farmers who responded. It should be noted that the measures used here are approximations. First, the contact farmers were working from memory, as we were asking for recall from previous seasons. Second, the survey team did not measure these quantities directly. Each enumerator asked the farmer to make his/her best estimate. Whenever possible, the farmer was asked to show the enumerator the cup, basket, or sack used when measuring the quantity, and then the enumerator made his/her best estimate as to the kilos involved. Finally, this information was not divided by season, but collected and categorized as demonstration, multiplication, and combination fields.

As Table XI illustrates, the contact farmers saved the majority of their harvest of demonstration, multiplication, or combination fields, although roughly a quarter indicated they consumed part or all of the harvest. One also observes that most of the harvests (just under half at 48%), whether sold, saved, or consumed by the contact farmer, were recorded at over 50 kilos. Twenty-six percent of those contact farmers who responded indicated they saved, sold, or consumed 1-10 kilos of their harvest.

In addition to being asked what they did with the harvest from the demonstration, multiplication, and combination fields, the contact farmers were asked whether or not they shared seeds from the harvest

Table XI.	Number of Responses	< 1 Kilo	1-10 Kilos	11-20 Kilos	21-30 Kilos	31-40 Kilos	41-50 Kilos	50+ Kilos
DEMONSTRATION FIELDS								
Crops Saved	72							
Manioc	5		2		1			2
Corn	11		7					4
Rice	5				1	1		3
Peanuts	34	1	8		2	2		21
Cowpeas	2							2
Soy	3		2			1		
Manioc/Peanut Association	1		1					
Other Crop Associations	11			4	1			6
Crops Sold	8							
Manioc	3		2					1
Corn	2							2
Rice	2							2
Peanuts	1							1
Crops Consumed	24							
Manioc	4			3				1
Corn	3		1					2
Rice	3		2	1				
Peanuts	12		10					2
Other Crop Associations	2							2
MULTIPLICATION FIELDS								
Crops Saved	65							
Manioc	3						1	2
Corn	5				1		1	3
Rice	15	1			1	1	1	11
Peanuts	12		1	2	1	2		6
Cowpeas	7			4	1			2
Soy	13		4	4	2		2	1
Rice/Manioc Association	4							4
Corn/Peanuts/Manioc Association	1							1
Other Crop Associations	5							5
Crops Sold	11							
Manioc	3							3
Corn	1							1
Rice	4							4
Peanuts	1							1
Other Crop Associations	2	1						1
Crops Consumed	22							
Manioc	1							1
Corn	1							1
Rice	7		2		1		1	3
Peanuts	6		2			1	2	1
Cowpeas	2		1		1			
Soy	1			1				
Other Crop Associations	4							4
COMBINATION FIELDS								
Crops Saved	38							
Corn	1							1
Rice	5							5
Peanuts	7		1	3	2	1		
Cowpeas	9	1	6					2
Soy	6		5		1			
Rice/Manioc Association	1							1
Other Crop Associations	9					1		8
Crops Sold	1							
Rice	1							1
Crops Consumed	13							
Rice	1						1	
Peanuts	2		2					
Cowpeas	7	1	6					
Other Crop Associations	3		1			1	1	

with other farmers. Sometimes the contact farmer distinguished other farmers to which he gave seeds as being the other members of his cooperative. In other words, some of the following data include seeds that were most likely distributed among cooperative members as well as seeds that were given out to "observer farmers." Of the 94 contact farmers who responded, 70 percent claimed to distribute seed to other beneficiaries. Twenty percent reported to save some for themselves and share with other farmers, while 10 percent kept seed only for themselves. Most seeds (75%) were distributed during Season A, while 18 percent were distributed during Season B, and 6 percent during both seasons.

Seventy-six farmers went into detail of the types of varieties distributed. Of those, 28 percent handed out manioc F100 cuttings and 24 percent claimed to distribute a combination of improved varieties. Thirteen percent distributed peanut A1052 and 12 percent gave out unnamed improved varieties. Ten percent distributed rice R66 and 5 percent gave out cowpeas H4. Three percent distributed corn Bandundu I and peanuts JL24, and 1 percent handed out corn Kasai I and a combination of local varieties of manioc and F100. Of the 73 contact farmers who responded, 44 percent distributed over 50 kilos of seeds, while 23 percent gave out between 1-10 kilos. Sixteen percent of the farmers distributed between 11-20 kilos; 14 percent between 21-30 kilos; and 3 percent gave out anywhere from 31-40 kilos. The average number of beneficiaries was 20.

As mentioned earlier, there was considerable confusion among the contact farmers (and even the survey team) of what constituted a demonstration field and how this differed from a multiplication or a combination field. The following information should illustrate this point further. In the questionnaire, each contact farmer was asked to give the number of demonstration or multiplication fields on which he/she worked. Then, they were to assist the enumerator in filling out a table that gave detailed information on each one of the fields. As the survey progressed, the supervisors noted that often the number of fields given first by the contact farmer contradicted the numbers described in the table. Although we asked the enumerators to clarify any inconsistencies they found, we still came up with contradictory information. For example, the contact farmers first listed the number of demonstration fields during Season A at 121. In the table, we found 118 described. For Season B, the contact farmers first listed 27 fields, whereas the table showed only 17. In the case of the multiplication fields, for Season A the contact farmers first said their were 44 fields, when the tables listed information on 85 fields. During Season B, the numbers were 53 and 49 respectively. For both seasons of the combination fields, the contact farmers first said there were 21 fields and then went on to describe 29. Although the differences between the numbers are not great, with the exception of the Season A multiplication fields, it does prove the point that the demonstration/multiplication field methodology is confusing to the contact farmer.

Despite any confusion, the contact farmers reported they wanted to continue with demonstration and multiplication fields (information was not asked in regard to combination fields), with 87 percent and 92 percent respectively indicating they wanted to continue with the fields. The most popular reasons were that they wanted to learn more about better techniques and seeds and draw conclusions from comparing them with local techniques and varieties, and that they wanted to increase their access to improved seed varieties and manioc cuttings.

GENERAL OPINIONS OF THE QUALITY OF NEW VARIETIES

As the following section will illustrate, most contact farmers are satisfied with the new varieties promoted through the PROCAR extension package. Each contact farmer was asked to state whether the quality of the varieties with which he/she was familiar were better than, equal to, or inferior to the

local varieties he/she was using. The results were as follows.

MANIOC F100

There were 127 contact farmers who drew comparisons between manioc F100 and local varieties. Of those who responded, 99 percent (69% of the 182 contact farmers surveyed) thought the quality was **better** than that of the local variety. Only .8 percent (.5% of the contact farmers surveyed) felt the quality was **equal to** that of the local varieties.

PEANUT JL24

There were 34 contact farmers who compared JL24 with local varieties. Of those who responded, 79 percent (15% of the contact farmers surveyed) felt JL24 was **better** than the local variety and 3 percent (.5% of the contact farmers surveyed) felt it was **equal** to the other varieties. Eighteen percent (3% of those surveyed) felt JL24 was **inferior**.

PEANUT P43

Thirty contact farmers responded to this question. Of these, 67 percent (11% of the contact farmers surveyed) reported that P43 was **better** than the local peanut variety. Thirty-three percent (5% of the surveyed population) indicated P43 was **inferior**.

PEANUT A1052

Seventy-one individuals compared A1052 with local varieties. Of those who responded, 86 (33% of those farmers surveyed) percent stated the quality of A1052 was **better** than that of the local varieties, while 13 percent (5% of the contact farmers interviewed) responded the quality was **inferior.** Two percent (.5% of the population surveyed) maintained A1052's quality was **equal to** that of the local varieties.

CORN BANDUNDU I

There were 37 contact farmers who gave information on the quality of Bandundu I. Of those who responded, 78 percent (16% of all contact farmers surveyed) felt the quality of Bandundu I was **better** than that of the local varieties. Eleven percent (2% of the contact farmers surveyed) felt it was **equal to** local varieties and another 11 percent felt Bandundu I was **inferior.**

CORN KASAI I

Twenty-one contact farmers made comparison between Kasai I and local varieties. Seventy-one percent (8% of total contact farmers) felt Kasai I was **better**, while 19 percent (2% of all contact farmers interviewed) felt it was **equal to** local varieties. Nine percent (1% of the population surveyed) felt Kasai I was **inferior** to local varieties.

CORN IKENNE

Only 3 contact farmers responded with information on Ikenne. All of them (3% of all contact farmers surveyed) indicated they thought Ikenne's quality was **better** than the local variety.

RICE R66

Thirty-nine people provided information on the quality of R66. Of those who responded, 90 percent (19% of the individuals surveyed) thought the quality of R66 was **better** than local varieties, while 8 (2% of those we surveyed) percent felt is was **the same.** Three percent (.5% of the farmers surveyed) reported R66's quality to be **inferior** to the local varieties.

COWPEA H4

Thirty-two contact farmers answered this question. Eighty-seven percent (15% of the contact farmers surveyed) replied that H4's quality was **better** than that of the local variety. Twelve percent (2% of those surveyed) felt it was **inferior.**

COWPEA H36

Thirteen people responded with information on the quality of cowpea H36. Of those who answered, 77 percent (5% of all those surveyed) said H36 was of **better** quality than the local varieties. Twenty-three percent (2% of the contact farmers surveyed) maintained its quality was **inferior.**

SOY JUPITER

There were 38 contact farmers who gave information on soy Jupiter. Seventy-four percent (15% of the contact farmers surveyed) indicated they felt Jupiter was of a **better** quality than the local variety. Twenty-four percent (5% of all contact farmers) claimed it was **inferior**, while 3 percent (.5 percent of those surveyed) reported they felt it was **equal to** local varieties.

For a detailed summary of the reasons why the contact farmers found the quality of the new varieties to be superior or inferior to the local varieties, the reader is referred to **Tables XII and XIII** on the following pages.

Table XII.

	Manioc F100			Peanut JL24			Peanut P43			Peanut A1052			Peanut A1052			Corn Bambindu 1			Corn Kasai 1		
	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers
Color is more acceptable	53	11	29	11	8	6	5	6	3	24	10	13	21	10	11	11	10	8	8	9	4
Adapts well to poor soil	13	9	21	9	7	5	7	8	4	23	9	13	23	9	13	12	8	6	6	7	3
Fermentation takes less time	23	5	13	1	.7	.5	1	1	.5	2	.8	1	2	.8	1	**	**	**	**	**	**
Shorter growing cycle	30	6	16	10	7	5	7	8	4	19	8	10	19	8	10	12	8	6	7	8	4
Conserves well after harvest	14	3	2	14	10	8	9	10	5	18	7	9	18	7	9	9	6	5	6	7	3
Tastes better	105	22	58	19	14	10	13	15	7	44	18	24	44	18	24	20	14	11	11	13	6
Gives better harvest	93	20	51	21	16	11	15	17	8	49	20	27	49	20	27	22	16	12	14	17	8
Cultivation requires less time	19	4	10	6	4	3	3	3	2	9	4	5	9	4	5	7	5	4	5	6	3
Easier to pound	22	5	12	8	6	4	5	6	3	7	3	4	7	3	4	10	7	5	5	6	3
More resistent to plant sickness/insects	25	5	14	11	8	6	6	7	3	11	5	6	11	5	6	8	6	4	5	6	3
Processing takes less time	13	3	8	9	7	5	6	7	3	12	5	6	12	5	6	7	5	4	5	6	3
Easier to sell	17	4	9	9	7	5	5	6	3	9	4	5	9	4	5	8	6	4	5	6	3
Planting little gives large harvest	6	1	3	6	4	5	4	5	2	11	5	6	11	5	6	8	6	4	5	6	3
Other	11	2	6	**	**	**	**	**		3	1	2	3	1	2	4	3	2	2	2	1

	Corn Ikenne			Rice R66			Cowpeas H4			Cowpeas H36			Cowpeas H36			Soy Jupiter		
	No.	% Who Answered	% Total Farmers	No.	% Who Answere	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers
Color is more acceptable	1	17	.5	21	11	11	7	6	4	4	6	2	4	6	2	7	9	4
Adapts well to poor soil	1	17	.5	18	10	10	9	8	5	5	8	3	5	8	3	7	9	4
Fermentation takes less time	**	**	**	**	**	**	3	3	2	1	2	.5	1	2	.5	**	**	**
Shorter growing cycle	1	17	.5	13	7	7	7	6	4	4	7	2	4	7	2	5	6	3
Conserves well after harvest	**	**	**	13	7	7	5	4	3	4	7	2	3	4	7	2	4	5
Tastes better	1	17	.5	26	14	14	21	19	11	8	13	4	11	8	13	4	16	20
Gives better harvest	2	33	1	26	14	14	22	20	12	10	16	5	12	10	16	5	21	30
Cultivation requires less time	**	**	**	9	5	5	5	4	3	4	7	2	3	4	7	2	3	4
Easier to pound	**	**	**	12	6	6	6	5	3	4	7	2	3	4	7	2	2	2
More resistent to plant sickness/insects	**	**	**	7	4	4	6	5	3	4	7	2	3	4	7	2	2	2
Processing takes less time	**	**	**	10	5	5	5	4	3	4	7	2	3	4	7	2	3	4
Easier to sell	**	**	**	11	6	6	4	4	2	4	7	2	2	4	7	2	1	1
Planting little gives large harvest	**	**	**	15	8	8	6	5	3	4	7	2	3	4	7	2	5	6
Other	**	**	**	6	3	3	5	4	3	1	2	.5	3	1	2	.5	2	2

Table XIII.

	Manioc F100			Peanut J124			Peanut P43			Peanut A1052			Corn Bandundu I			Corn Kasai I		
	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers
Color is not acceptable	**	**	**	**	**	**	3	8	2	2	5	1	1	4	.5	1	4	.5
Has less taste	**	**	**	**	**	**	3	8	2	1	3	.5	**	**	**	1	4	.5
Difficulty in preparing prefered dishes	**	**	**	**	**	**	3	8	2	1	3	.5	**	**	**	1	4	.5
Poor harvest	**	**	**	5	42	3	9	24	5	10	27	5	3	11	2	**	**	**
Cultivation requires more time	20	87	11	5	42	3	7	18	4	15	40	8	15	58	8	9	41	5
Processing takes more time	1	4	.5	**	**	**	3	8	2	2	5	1	**	**	**	1	4	.5
Spoils in the soil	1	4	.5	**	**	**	3	8	2	2	5	1	**	**	**	1	4	.5
Difficult to sell	**	**	**	**	**	**	3	8	2	1	3	.5	2	8	1	2	9	1
Other	1	1	.5	2	17	1	1	10	2	3	8	2	5	19	3	6	27	3

	Corn Ikenne			Rice R66			Cowpeas H4			Cowpeas H36			Soy Jupiter		
	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers	No.	% Who Answered	% Total Farmers
Color is not acceptable	**	**	**	**	**	**	1	6	.5	**	**	**	3	7	2
Has less taste	**	**	**	**	**	**	1	6	.5	**	**	**	4	10	2
Difficulty in preparing prefered dishes	**	**	**	**	**	**	1	6	.5	**	**	**	3	7	2
Poor harvest	**	**	**	**	**	**	3	17	2	2	100	1	8	19	4
Cultivation requires more time	**	**	**	5	62	3	4	22	2	**	**	**	9	22	5
Processing takes more time	**	**	**	**	**	**	2	11	1	**	**	**	4	10	2
Spoils in the soil	**	**	**	1	12	.5	2	11	1	**	**	**	5	12	3
Difficult to sell	**	**	**	1	12	.5	2	11	1	**	**	**	3	7	2
Other	2	100	1	1	12	.5	2	11	1	**	**	**	2	5	1

Part IV: Conclusions

The key objective of this survey was to assess whether or not the messages presented in PROCAR's extension package are getting across to the contact farmer. In drawing conclusions, it is important to look at three principal aspects when judging the effectiveness of the extension program: 1) the contact farmers' awareness of the messages being transmitted by PROCAR's extension package; 2) the farmers' willingness to accept or adopt these messages; and 3) possible reasons for adoption or non-adoption. The following section will address these three principal aspects as they relate to adoption rates of new techniques and improved varieties. We will also evaluate the contact farmers' desire to continue to participate in working with the demonstration, multiplication, and combination fields.

New Techniques

Although awareness of new techniques varies from crop to crop (the reader is referred to the section on adoption rates by crop for specific averages), overall averages by technique without distinguishing among crops show that just under one-quarter of the contact farmers surveyed indicated they had been exposed to the new techniques. Of those who had been exposed, approximately 33 percent had adopted the new techniques. Most striking overall averages for adoption were those for tilling or hoeing (41%), respecting the length of manioc cuttings (54%), and respecting the number of seeds per pocket (42%).

Actual exposure to the new techniques after two years and 3 1/2 seasons tends to be low at approximately 21 percent and adoption rates of 33 percent are moderate. When one takes the analysis one step further to look at overall adoption rates (that is, of the 182 contact farmers surveyed, not just of those who indicated they were familiar with the techniques), we find the aggregated percentage decreases even further to a low 6 percent.

The question now becomes: why are the adoption rates of new techniques low? Why is the contact farmer not applying the techniques in his/her own fields? As stated above, the contact farmers' most common response of why they did not adopt was that the new techniques took too much time -- an indication that perhaps some of the new techniques promoted in the extension may not be appropriate for the labor and/or time constraints of the contact farmers. Another frequent response was that the contact farmers were waiting for improved seeds and manioc cuttings before trying the new techniques. Since the PROCAR extension package does not require that new techniques be used exclusively with new varieties, this is a strong indication that somewhere along the line the message has been reinterpreted or changed, resulting in fewer farmers who are trying the new techniques in their personal fields.

New Varieties

As mentioned in the section on rates of adopting new varieties, the data we collected focuses on the adoption rates of the varieties by percentage of fields rather than by percentage of individual farmers. For this reason, it is difficult to figure actual exposure to the varieties. However, the questionnaire did ask individuals for their opinions on the quality of each new variety promoted by PROCAR. Assuming that the ability to comment on the attributes of the varieties indicates exposure, we will use these figures to demonstrate the contact farmers' familiarity with the varieties promoted through PROCAR's extension package.

Similar to the contact farmers' general exposure to the new techniques, the average overall exposure of the 182 contact farmers surveyed to new varieties is just under one-quarter, at 22 percent. However, most contact farmers are still using local varieties in their private fields. Of those individuals who indicated they were exposed to the new varieties, only 14 percent had actually planted them in their own fields. Most commonly adopted varieties were R66 (29%), a combination of local and improved varieties (23%), unnamed improved varieties (18%), and a combination of improved varieties (15%). When we take the analysis even further and look at adoption rates as they relate to the total number of contact farmers surveyed, the overall adoption rate drops to 1 percent.

An interesting point is that despite these extremely low overall adoption rates, the contact farmers reacted positively when asked their opinions of the quality of the new varieties. On average, 82 percent of the contact farmers who responded felt that the improved varieties were superior in quality to local varieties.

This would lead us to conclude that contact farmers are in fact satisfied with the new varieties and that perhaps the reason they are not planting them in their private fields is due to the lag time between growing the seeds in multiplication fields and the actual distribution of the seeds to the contact farmers for planting. As mentioned earlier, the PROCAR extension system follows a three-tier methodology, passing from demonstration to multiplication and finally to distribution of seeds. Since this survey was conducted after only 3-1/2 growing seasons, it would seem logical that we hit most of the IMOs in their multiplication stage. In other words, distribution of seeds of new varieties is, at present, limited.

Continued Interest in PROCAR's Extension System

An ample 97 percent of the contact farmers surveyed indicated they wanted to continue working with their extension agent. Similarly, a substantial number of farmers wanted to continue working on demonstration and multiplication fields, with 87 and 92 percent respectively responding positively. These high percentages lead us to conclude that there is a strong desire on the part of the contact farmer to continue working with PROCAR's extension package. However, this high level of interest is contradicted by low rates of adoption for both new techniques and improved varieties. This would lead us to deduce that for some reason, the messages in the extension package are not getting across as effectively as they could be, or that the messages transmitted are not appropriately adapted to the specific constraints faced by the contact farmers or to the farming systems they practice.

Where Can PROCAR Go from Here

While the author of this report is not an agronomist or an extension specialist, it is clear even to the uninitiated that an in-depth reassessment of the messages PROCAR is extending needs to be conducted by the project's Production and Outreach Division. It is time for PROCAR to step back and re-evaluate its extension package.

PROCAR should rethink how it is going about transmitting its extension messages. PROCAR's mandate is to work through IMOs, and this will most likely not change in the future. If this is the case, then PROCAR needs to determine how it can more effectively work through these IMOs to ensure the messages its extension package contains pass more easily and more directly to the contact farmer. PROCAR's agronomists and extension specialists need to contemplate how to refocus, simplify, and clarify the extension messages to more appropriately address the techniques and varieties the contact farmers accept more easily or in which they show more interest. Once these modifications are made in the extension package, an intensified training program for PROCAR agents and at both the

IMO and extension agent levels should take place to ensure that the refurbished extension messages are fully understood by all agents involved in PROCAR's extension system and that the messages found with the package will be transmitted more effectively to the contact farmer. Finally, since it is evident that contact farmers are interested in the new varieties the project is promoting but may lack access to seeds, PROCAR would do well to intensify its efforts to facilitate the distribution of seeds to the contact farmers, whether directly or through the various IMOs.

Regardless of the process chosen by PROCAR for the amelioration of its extension program, it is clear that changes need to occur in order to increase adoption rates as well as the overall impact of the project.

Part V: Recommendations for Future Studies

The Zaire Area Food and Market Development Project is a ten year project that will reach its conclusion in 1995. This survey has acted a sort of "mid-term assessment" to measure the progress the project has made up to this point in regard to its agricultural extension system. As we have already concluded, readjustments and changes need to be made in the extension system and implicit in this is the need for further studies to measure impact.

This survey should be considered a baseline from which PROCAR can measure how effective the revised extension system is working. Annex C will briefly go over lessons learned from this survey and make suggestions for future surveys and analyses concerning PROCAR's extension package. One point is key, however. Due to the long-term nature of the PROCAR project, it is important that evaluators remember that it is a development effort that will evolve over time. Agricultural development, especially when linked so closely to institutional development, is a lengthy endeavor. The results of this survey show very low rates of adoption. However, before we judge too harshly, we must remember the arduous process. With serious changes and readjustments made to the PROCAR extension package, the project may be able to make a giant leap forward on the path to rural development in Zaire. One thing is to be sure, the next survey will be even more telling as to the success of the PROCAR methodology.

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ANNEX A: THE QUESTIONNAIRES

Contact Farmer Questionnaire

Observer Farmer Questionnaire

QUESTIONNAIRE: CULTIVATEUR DE CONTACT

Questionnaire No. [ ]

NOM DE L'ENQUETEUR _____ DATE _____

NOM DU CULTIVATEUR _____

SEXE _____ AGE _____

NOM DU VULGARISATEUR _____

NOM DE COOPERATIVE OU ONG _____

VILLAGE _____ COLLECTIVITE _____

I. SYSTEME AGRICOLE GENERAL

1. Combien de personnes de votre ménage travaillent regulierement dans les champs?

2. Combien de champs avez vous? VOIR TABLE 1

Champs/ Cultures	Super ficie	Variet.	D'ou Avez Vous Obtenu les Semences/Boutures	Si Cultiv. en Assoc. Donnez les Raisons	Qui a Choisi les Cul tures Il Faut Faire	S/F	Type (PRAAL Collectif)	Periode Jachere	Responsible pour le Plusparl du Travail: 0=Femme, 1=Homme
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)

Champs/ Cultures	Super-ficie	Variet.	D'ou Avez-Vous Obtenu les Semences/Boutures	Si Cultiv. en Assoc. Donnez les Raisons	Qui a Choisi les Cultures Il Faut Faire	S/F	Type (PRAAL Collectif)	Periode Jachere	Responsible pour le Pluspart du Travail: 0=Femme, 1=Homme
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1), enfouissement herbes (0, 1), billonnage (0, 1); la plantation (0, 1), semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1), enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1), semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)

Questionnaire No. [ ]

3. Quelles sont les variétés que vous cultiviez pendant les six saisons ecoules (trois ans) que vous ne cultivez plus actuellement?

cultures	variétés	raisons
manioc		
maïs		
arachides		
courge		
millet		
riz		
autre		
autre		
autre		

4. Utilisez-vous de la main d'oeuvre non familiale pour vos travaux agricoles?

OUI	NON

oui = 0
non = 1

Questionnaire No. _____

(4. cont.) Utilisez-vous de la main-d'oeuvre non-familiale pour vos travaux agricoles?

a) Heguliere A B

b) Occassioneile A B

1 - 2 - 0
3 - 4 - 1
5+ = 2

Quelles activites	Sexe homme	Sexe femme	Age	Saison A ou B
abattage des arbres				
battage				
defrichage				
dessouchage				
enfouissement herbes				
billonage				
la plantation/semis				
houage/labour				
sarclage/entretien				

1 = ENFANT (5-10)
2 = JEUNE (11-17)
3 = ADULTE (18+)
Utilisez le numero

SAISON A 1989-90
SAISON B 1990

c) Si vous les payez, vous le faites comment?

Argent (combien)	Nature (quoi)	Par Jour	Par Mois	Par saison

5. Travaillez-vous sur les champs d'autres paysans en echange?

OUI	NON

oui = 0
non = 1

6. Vendez-vous vos produits a la cooperative ou a l'ONG?

OUI	NON

oui = 0
non = 1

si oui, indiquez lequel: 1) CAL 2) DPP 3) PADR 4) Ekubi

Questionnaire No. [ ]

7. Quels sont les grands problèmes que vous rencontrez dans vos champs? (mettez en ordre d'importance)

1) [ ]

2) [ ]

3) [ ]

4) [ ]

5) [ ]

Enquêteur doit marquer la reponse du cultivateur sans lui dire les choix ici dessous. Apres que l'enquete soit termine, il/elle doit choisir le numero qui correspond a la reponse du cultivateur

(1) maladie des plantes (2) voi (3) sorcelleries (4) emplacement du champ (5) insectes (6) mauvaises herbes (7) les betes detruisent les plantes (8) manque de terre (9) manque de main d'oeuvre (10) sols pauvres (11) manques de bonnes semences/boutures (12) autre

8. Qui vous aide le plus a resoudre ces problèmes?

monagris		= 0
chef de terre		= 1
vulgarisateur		= 2
femme/mari		= 3
membre du clan		= 4
chef/notable		= 5
voisin(e)s		= 6
autre		= 7

On cherche une reponse a cette question

Questionnaire No. [ ]

9. Qu'est-ce qui contribue a l'augmentation de votre production agricole? (mettez en ordre d'importance)

	A	B
1.		
2.		
3.		
4.		
5.		

(A = reponse individuel, B = reponses combines - - avec les importances egales)

Enquêteur doit marquer la reponse du cultivateur sans lui dire les choix ici dessous. Apres que l'enquete soit termine, il/elle doit choisir le numero qui correspond a la reponse du cultivateur

(1) faire de nouveaux champs (2) fumure (3) agrandir la superficie (4) meilleur outillage (5) plus de main d'oeuvre (6) engrais (7) meilleurs semences et boutures (8) ne pas bruler les champs/faire houge (9) trouver de la terre en foret (10) planter en ligne (11) nouvelles techniques cultural (12) sarclage (13) autre

II. RELATIONS AVEC VULGARISATEUR

10 Combien de fois par mois pendant les dernieres saisons A & B le vulgarisateur vient il?

SAISON A	SAISON B

0 fois = 0
1 fois = 1
2 fois = 2
3 fois = 3
3+ fois = 4

11. Quand est-ce que la derniere fois que le vulgarisateur est venu pour travailleur avec vous? [ ]

12. Qu'est ce que l'agent fait pendant ses visites?

Questionnaire No. [ ]

a) Il vous donne quel type de conseil?

b) Est-ce que l'agent visite vos champs de demonstrations?

OUI	NON	
		oui = 0 non – 1

13. L'agent passe combien de temps avec vous?

	toute la journee	= 0
	le matin	– 1
	l'apres midi	– 2
	1–2 heures	= 3
	autre	= 4

14. Est-ce qu'il y a d'autres cultivateurs de votre village qui ont participe aux activites de demonstration?

OUI	NON	
		oui = 0 non – 1

Si oui, il y avait combiens à sa derniere demonstration?

	1–5	= 0
	6–10	= 1
	11–15	– 2
	15+	= 3

15. Avez-vous informe d'autres cultivateurs des visites du vulgarisateur?

OUI	NON	
		oui = 0 non – 1

16. Est-ce que vous discutez les recommendations du vulgarisateur avec les autres cultivateurs?

	toujours	= 0
	parfois	– 1
	jamais	– 2

Si non, pourquoi?

Questionnaire No. [ ]

17. L'agent a-t-il distribué des semences améliorées?

OUI	NON

oui = 0
non = 1

18. L'agent a-t-il distribué des outils?

OUI	NON

oui = 0
non = 1

19. Quelles sont les nouvelles techniques que vous connaissez? VOIR TABLE 2

20. Voulez-vous que le vulgarisateur vous visite:

	avec plus frequence
	avec moins frequence
	pas de changement

= 0
= 1
= 2

21. Voulez-vous continuer à faire les champs de:

	OUI	NON
demonstration		
multiplication		

oui = 0
non = 1

oui = 2
non = 3

Pourquoi?

22. Voulez-vous continuer à travailler avec un vulgarisateur?

OUI	NON

oui = 0
non = 1

Pourquoi?

TABLEAU 2 Questionnaire No._____

CULTURE	NOUVELLE TECHNIQUE RECOMMENDEE	APPLIQUEZ-VOUS LES TECHNIQUES		TEMPS NECESSAIRE PAR RAPPORT TECH. LOCALE			APPLIQUEZ VOUS AVANT DE TRAVAILLER AVEC LE VULGARISATEUR		LES EFFETS SUR LA PRODUCTION		
		OUI	NON	MOINS	EGALE	PLUS	OUI	NON	MOINS	EGALE	PLUS

Questionnaire No. [ ]

23. Est-ce qu'il y a un ou plusieurs sujet(s) que vous voulez que le vulgarisateur vous apprenne avec plus de profondeur? Le/lesquel(s)?

24. Qu'est-ce que vous attendez du vulgarisateur (qu'est-ce qu'il peut faire plus pour vous)?

III. *Champs de Démonstration/Multiplication*

	SAISON A	SAISON B
25. Sur combien de champs de démonstration travaillez-vous?		
a) sur combien de champs de multiplication?		

[Enqueteur doit indiquer que ces champs sont a part de PHAAL]

26. Quelles sont les cultures qui se trouvent dans les champs de demonstrations et de multiplications? VOIR TABLE 3

27. Qu'est-ce que vous faites avec les produits de champs de demonstrations et de multiplications? VOIR TABLE 4

TABLEAU 3 Questionnaire No._____

CULTURE	VARIETES	SAISON		CD	CM	SUPERFICIE	F OU S	RESP.		RECOLTE OBTENU (UNITES)	COMMENTAIRES
		A	B					HM	FM		
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais
											Bien, Moyen, Mauvais

TABLEAU 4 Questionnaire No._____

Culture	CD	CM	Manger Combien (Unites)	Vendre Combien (Unites)	Echanger Combien (Unites)	Garder Pour la Pro chaine Saison (Unites)	Autre

Questionnaire No. [ ]

a) S'il y a eu des semences et boutures gardes pour la prochaine saison, qui en ont ete les beneficiaires?

[ ]	vous-meme	= 0
[ ]	distribue aux autres	= 1
[ ]	les deux solutions	= 2

b) Si vous avez distribue les semences ou les boutures aux autres, precisez le nombre de beneficiaires dans le tableaux a cote:

CULTURE	VARIETE	SAISON	QUANTITE DISTRIBUE	NOMBRE DE BENEFICIAIRES

28. Que pensez-vous de la qualité de varietes ameliorees par rapports aux varietes locales? VOIR TABLE 5

IV. INFORMATION GENERALE

29. Qui mange chez vous?

AGE	SEXE	AGE	SEXE

homme = 0
femme = 1

0 5 = 2
6-15 = 3
16-55 = 4
55+ = 5

TABLE 5 Questionnaire No. _____

	MANIOC	ARACHIDE			MAIS			RIZ	NIEBE		SOJA
QUALITE	F100	JI 24	P43	A1052	BNI	KSI	IKENNE	R66	H4	H36	JUPITER
Meilleur											
Egale											
Inferiere											
Si Meilleur											
La couleur est plus acceptable											
S'adaptes bien aux sols pauvres											
Fermentation prends moins de temps											
Cycle cultural plus court											
Se conserve bien apres la recolte											
Le repas fait a partir de la nouvelle variete goute plus											
Rendomont meilleur											
Ca prend moins de travail pour cultiver											
Pillage facile											
Plus resistant aux maladies et insectes											
La transformation prend moin de temps											
Se vend plus facilement											
Meme quand on plante un peu, on cultive beaucoup											
Si Inferieur											
La couleur n'est pas aussi acceptable											
Le repas fait a partir de la nouvelle variete goute moins											
Elle ne convient pas pour la preparation de vos plats preferes											
Rendement inferieur											
Ca prend plus de travail pour cultiver											
La transformation prend plus de temps											
Cela pourrit dans le sol											
Se vend difficilement											

Questionnaire No. [ ]

30. Avez-vous fait des études? OUI [ ] NON [ ] — oui = 0, non = 1

a) Si oui, de quelle classe êtes-vous sorti? PRIMAIRE [ ] = 0 SECONDAIRE [ ] = 1 AUTRE [ ] = 2

31. Avez-vous une ferme? OUI [ ] NON [ ] — oui = 0, non = 1

Si oui,

a) Combien de hectares? [ ]

b) En forêt ? OUI [ ] NON [ ] — oui = 0, non = 1

c) En brousse? [ ] [ ]

d) Si vous louez la terre, qu'est ce que vous donnez comme loyer?

f) Que produisez vous sur cette terme? cultures [ ] = 0 élevage [ ] = 1 poisson [ ] = 2 jardinage [ ] = 3

[Enqueteur peut marquer plusieur]

QUESTIONNAIRE: CULTIVATEUR ORDINAIRE

Questionnaire No. [ ]

NOM DE L'ENQUETEUR _____ DATE _____

NOM DU CULTIVATEUR ORDINAIRE _____

SEXE _____ AGE _____

VILLAGE _____ COLLECTIVITE _____

I. SYSTEME AGRICOLE GENERAL

1. Combien de personnes de votre ménage travaillent regulierement dans les champs?

2. Combien de champs avez vous? VOIR TABLE 1

TABLEAU 1 Questionnaire No._____

Champs/ Cultures	Super-ficie	Variet.	D'ou Avez-Vous Obtenu les Semences/Boutures	Si Cultiv. en Assoc. Donnez les Raisons	Qui a Choisi les Cultures Il Faut Faire	S/F	Type (PRAAL Collectif)	Periode Jachere	Responsible pour le Pluspart du Travail: 0-Femme, 1-Homme
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)

TABLEAU 1 Questionnaire No._____

Champs/ Cultures	Super-ficie	Variet.	D'ou Avez-Vous Obtenu les Semences/Boutures	Si Cultiv. en Assoc. Donnez les Raisons	Qui a Choisi les Cultures Il Faut Faire	S/F	Type (PRAAL Collectif)	Periode Jachere	Responsible pour le Pluspart du Travail: 0-Femme, 1-Homme
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)
									abattage des arbres (0, 1) battage (0, 1); defrichage (0, 1); desouchage (0, 1); enfouissement herbes (0, 1); billonnage (0, 1); la plantation (0, 1); semis (0, 1) houage (0, 1); labour (0, 1); sarclage (0, 1); entretien (0, 1)

Questionnaire No. [ ]

3. Quelles sont les variétés que vous cultiviez pendant les six saisons ecoules (trois ans) que vous ne cultivez plus actuellement?

cultures	variétés	raisons
manioc		
maïs		
arachides		
courge		
millet		
riz		
autre		
autre		
autre		

4. Utilisez-vous de la main d'oeuvre non-familiale pour vos travaux agricoles?

OUI	NON

oui = 0
non = 1

Questionnaire No. [ ]

(4. cont.) Utilisez-vous de la main-d'oeuvre non-familiale pour vos travaux agricoles?

a) Reguliere A _____ B _____

b) Occassionelle A _____ B _____

1 – 2 = 0
3 – 4 = 1
5+ = 2

Quelles activites	Sexe homme	Sexe femme	Age	Saison A ou B	
abattage des arbres					
battage					1 = ENFANT (5–10)
defrichage					2 = JEUNF (11–17)
dessouchage					3 = ADULTE (18+)
enfouissement herbes					Utilisez le numero
billonage					
la plantation/semis					
houage/labour					SAISON A 1989–90
sarclage/entretien					SAISON B 1990

c) Si vous les payez, vous le faites comment?

Argent (combien)	Nature (quoi)	Par Jour	Par Mois	Par saison

5. Travaillez-vous sur les champs d'autres paysans en echange?

OUI	NON

oui = 0
non = 1

6. Vendez-vous vos produits a la cooperative ou a l'ONG?

OUI	NON

oui = 0
non = 1

si oui, indiquez lequel: 1) CAL 2) DPP 3) PADR 4) Ekubi

Questionnaire No. [ ]

7. Quels sont les grands problèmes que vous rencontrez dans vos champs? (mettez en ordre d'importance)

1) [ ]

2) [ ]

3) [ ]

4) [ ]

5) [ ]

Enquêteur doit marquer la reponse du cultivateur sans lui dire les choix ici dessous. Apres que l'enquete soit termine, il/elle doit choisir le numero qui correspond a la reponse du cultivateur

(1) maladie des plantes (2) vol (3) sorcelleries (4) emplacement du champ (5) insectes (6) mauvaises herbes (7) les betes detruisent les plantes (8) manque de terre (9) manque de main d'oeuvre (10) sols pauvres (11) manques de bonnes semences/boutures (12) autre

8. Qui vous aide le plus a resoudre ces problèmes?

monagris	[ ]	= 0
chef de terre	[ ]	= 1
vulgarisateur	[ ]	= 2
femme/mari	[ ]	= 3
membre du clan	[ ]	= 4
chef/notable	[ ]	= 5
voisin(e)s	[ ]	= 6
autre	[ ]	= 7

Un cherche une reponse a cette question

Questionnaire No. [ ]

9. Qu'est-ce qui contribue a l'augmentation de votre production agricole (mettez en ordre d'importance)

	A	B
1.		
2.		
3.		
4.		
5.		

(A = reponse individuel, B = reponses combines -- avec les importances egales)

Enquêteur doit marquer la reponse du cultivateur sans lui dire les choix ici dessous. Apres que l'enquete soit termine, il/elle doit choisir le numero qui correspond a la reponse du cultivateur

(1) faire de nouveaux champs (2) fumure (3) agrandir la superficie (4) meilleur outillage (5) plus de main d'oeuvre (6) engrais (7) meilleurs semences et boutures (8) ne pas bruler les champs/ faire houage (9) trouver de la terre en foret (10) planter en ligne (11) nouvelles techniques culturales (12) sarclage (13) autre

II. CULTIVATEUR ORDINAIRE

	OUI	NON	
10. Est-ce que vous êtes au courant du champ de demonstration ou de multiplication qui se trouve dans votre village?			oui = 0 non = 1
11. L'avez-vous déjà visité?			oui = 0 non = 1

Questionnaire No. [ ]

12. Est-ce que vous avez participé vous-même aux travaux sur les champs (la préparation du terrain, la semence, la recolte, etc.)?

OUI	NON
[ ]	[ ]

oui = 0
non = 1

Si non, pourquoi?

[enquêteur doit marquer la reponse du cultivateur sans lui dire les choix ici dessous. Apres que l'enquete soit terminé, il/elle doit choisir le numero qui correspond a la reponse du paysan]

(1) pas interessé (2) pas assez de temps
(3) ne pas savoir l'endroit ou l'heure
(4) autre

13. Connaissez-vous le vulgarisateur qui vient au village?

OUI	NON
[ ]	[ ]

oui = 0
non = 1

14. Comment savez vous quand le vulgarisateur vient au village?

[ ] = chef du village (0)
[ ] = cultivateur de contact (1)
[ ] = autre paysan (2)
[ ] = autre (3)

15. Savez-vous où le vulgarisateur fait ses demonstrations des nouvelles techniques ou varietes?

OUI	NON
[ ]	[ ]

oui = 0
non = 1

Questionnaire No. [ ]

16. Avez-vous ou quelqu'un dans votre ménage participe a une visite faite par le vulgarisateurs dans les quatres dernieres semaines?

OUI	NON

oui = 0
non = 1

a) Si non, pourquoi?

[enquêteur doit marquer la reponse du cultivateur sans lui dire les choix ici dessous. Apres que l'enquete soit terminé, il/elle doit choisir le numero qui correspond a la reponse du cultivateur]

(1) pas interesé (2) c'était trop loin
(3) ne pas savoir l'endroit ou l'heure
(4) ne pas avoir assez de temps
(5) ne pas etre invites (6) autre

b) Si oui, qui a participé?

	vous-meme
	mari/femme
	tous les deux
	autre

= 0
= 1
= 2
= 3

17. Est-ce que le cultivateur de contact discute les récommendations du vulgarisateur avec vous?

OUI	NON

oui = 0
non = 1

18. Quelles sont les variétés améliorées que vous connaissez? VOIR TABLE 2

19. Quelles sont les techniques améliorées que vous connaissez? VOIR TABLE 3

TABLEAU 2 Questionnaire No._____

Cultures	Varietes	Comment avez-vous appris de ces varietes	Plantez dans champs privee		D'ou avez-vous ob tenu les semences	Quels sont les effets sur la production
			OUI	NON		

TABLEAU 3 Questionnaire No. _____

NOUVELLES TECHNIQUES VOUS CONNAISSEZ	CULTURE	COMMENT AVEZ-VOUS PRIS CONNAISSANCE DE CES TECHNIQUES	APPLIQUEZ-VOUS LES TECHNIQUES		TEMPS NECESSAIRE PAR RAPPORT TECH. LOCALE			LES EFFETS SUR LA PRODUCTION			SI NON, POURQUOI?
			OUI	NON	MOINS	EGALE	PLUS	MOINS	EGALE	PLUS	

Questionnaire No. [ ]

III. INFORMATION GENERALE

20. Qui mange chez vous?

AGE	SEXE

AGE	SEXE

homme = 0
femme = 1

0–5 = 2
6–15 = 3
16–55 = 4
55+ = 5

21. Avez-vous fait des études?

OUI	NON

oui = 0
non = 1

a) Si oui, de quelle classe êtes-vous sorti?

PRIMAIRE [ ] = 0 SECONDAIRE [ ] = 1

AUTRE [ ] = 2

22. Avez-vous une ferme?

OUI	NON

oui = 0
non = 1

Si oui,

a) Combien de hectares? [ ]

b) En forêt ?

OUI	NON

c) En brousse?

oui = 0
non = 1

d) Si vous louez la terre, qu'est-ce que vous donnez comme loyer?

f) Que produisez-vous sur cette ferme?

cultures [ ] = 0 elevage [ ] = 1 poisson [ ] = 2 jardinage [ ] = 3

[Enqueteur peut marquer plusieur]

ANNEX B

The "Observer Farmer"
Adoption Rates of Those Farmers
Who Do Not Work Directly with PROCAR

The "Observer Farmer" Adoption Rates of Those Farmers Who Do Not Work Directly with PROCAR

As mentioned in the main body of this report, the Research and Information Division (DRI) decided to run an informal side-survey to assess the secondary effects of PROCAR's extension system. Unfortunately, although the observer farmer questionnaire gathered information on general farming systems like those found in the contact farmer survey, we were only able to analyze one key section of the questionnaire due to a shortage of time. This annex will cover the analysis conducted on part II of the observer farmer questionnaire, which was outlined in the main body of the report.

This annex is divided into four parts. **Part I** reviews basic information on how familiar the observer farmer is with the extension agent's work at the village level. **Part II** assesses the observer farmer's adoption rates of new techniques, and **Part III** presents our findings on the adoption rates of the observer farmer of the improved varieties promoted by PROCAR's extension package. **Part IV** comprises general conclusions.

Before beginning, we will briefly review the side-survey methodology, which is explained in more detail in the main body of the report. The "observer farmer" is a farmer who lives and cultivates in the same village as the contact farmers with whom PROCAR works. These farmers do not work directly or consistently with the extension worker and do not take part in the demonstration, multiplication, or combination fields. This survey sought to measure, on an informal level, the amount of contact the observer farmer had with the extension worker or the contact farmers and to see to what degree (if at all) they were picking up some of new techniques and varieties promoted by PROCAR. In each of the villages in which we surveyed contact farmers, we randomly chose half the amount of observer farmers to interview. For example, after randomly choosing 5 contact farmers in a village, we would ask the village chief to choose another number with which we would chose 2 contact farmers from the village cahier. In total, we surveyed 96 observer farmers, just over half of the number of contact farmers surveyed.

Part I: The Observer Farmer's Contact with the Extension Worker and PROCAR's Extension System

The majority of observer farmers are aware of the extension agent's activities in the village. Of the 96 observer farmers we surveyed, 97 percent indicated they knew of the demonstration, multiplication, or combination field found in their village. Only 3 percent were unaware that their village contained such a field. Although fewer observer farmers actually visited the demonstration, multiplication, or combination fields than those who knew of the fields' existence, a significant 78 percent claimed to have visited the fields themselves. Twenty-two percent indicated they had never visited the fields. There were some observer farmers who actually participated in some of the work on the demonstration, multiplication, or combination fields. Of the 92 observer farmers who responded to this question, 53 percent reported having assisted the contact farmers in working on the fields, while 47 percent maintained they did not.

Similar to our findings with the demonstration, multiplication, and combination fields, a majority of the observer farmers, 96 percent, knew the extension agent who worked in their village. Four percent

reported they did not know the extension agent. When asked how they knew when the extension worker was going to visit their village, 43 percent of the farmers indicated the village chief informed them. Thirty percent reported one of the contact farmers told them and 7 percent claimed they were told by another observer farmer. Nineteen percent indicated they found out by other means, which included such things as hearing the sound of the extension agent's motorcycle approaching the village (most likely in the case of a Peace Corps Volunteer). Seventy-five percent of the observer farmers knew where the extension agent usually met with the contact farmers to conduct demonstrations of new techniques or to explain improved varieties. Twenty-five percent of the farmers did not know where these demonstrations took place.

When asked whether they or a member of their family participated in these demonstrations or in visits by the extension agent from time to time, of the 94 farmers who responded, 70 percent of the observer farmers reported they or a member of their family have participated, while 30 percent indicated no one had. Of the 66 observer farmers who responded when asked to indicate who participated, 36 percent reported they themselves had taken part in the visit(s) or demonstration(s), while 33 percent said their husband or wife took part. Fifteen percent indicated they had participated along with their spouse and 15 percent replied "other," usually meaning another family member. Finally, there was a strong indication that the contact farmer is sharing the extension package information at the village level. Eighty-one percent of the observer farmers indicated that the contact farmer discussed the extension agent's recommendations with them, while 19 percent indicated the contact farmer had not.

Part II: Adoption Rates of New Techniques

In this section, the data will be presented in the table found on the following page, in a format similar to the table used for the contact farmer analysis in the main body of the report. The data are disaggregated by crop and by technique (for which the observer farmer responded) to demonstrate true adoption rates. The overall adoption rate for the observer farmers who responded to the question was fair at 25 percent, just under the 33 percent for the contact farmer. However, when we take the analysis a step further to assess the total rate of adoption of the 96 observer farmers surveyed, we find that the percentage drops to a mere 3 percent.

As the table demonstrates, and similar to the contact farmers, a small percentage of the observer farmers indicated being exposed to the new techniques promoted in PROCAR's extension package. This finding is particularly striking as it contrasts so sharply with the information listed in the section above in which 78 percent of the observer farmers reported they had visited the demonstration, multiplication, and combination fields. This low rate of exposure is especially surprising when one considers that 53 percent of the observer farmers surveyed indicated they'd actually assisted in working on those fields. In addition, 81 percent of the observer farmers asserted the contact farmer had discussed the extension agent's recommendations with them.

Clearly, these findings are inconsistent. If so many observer farmers indicate familiarity and even first-hand experience with the multiplication, demonstration, or combination fields, then why did so few of them report exposure to the new techniques? This could be a key area of research in the next survey to determine what types of information the contact farmer is discussing with the observer farmer (for instance, whether he/she actually discusses the PROCAR technical package or simply talks about improved seed varieties). Another question could be to determine whether or not a "visit" to the demonstration, multiplication, or combination field is enough to truly expose observer farmers to the

new techniques. This could indicate that the fields do not clearly show how the new technique should be used in the observer farmer's personal field. Perhaps a more effective method of transferring this knowledge to the observer farmers would be to encourage them to take part in certain activities, such as planting. These issues are speculative, but merit further attention should there be a follow-on survey.

Further investigation of the table shows that the highest rates of exposure to and adoption of new techniques tend to be with manioc, similar to the findings in the contact farmer survey. Peanuts and corn have the next highest rates of exposure, although the actual rates of adoption are decidedly low. Adoption rates for the use of new techniques with soy were zero, which may be due to the fact that soy was introduced at a later stage than the rest of the crops promoted in the PROCAR extension package.

Without taking crops into account, an average of 25 percent of the observer farmers who responded indicated exposure to planting manioc in an oblique rather than flat position, while 21 percent reported familiarity with planting in lines. Respecting the number of seeds per pocket was the least well-known technique, with an average of 3 percent of the observer farmers reporting exposure. Conversely, although fewer farmers indicated familiarity with the technique of planting a certain number of seeds per pocket, of those who were familiar, 32 percent reported adopting it. Two other techniques that were most readily adopted by those observer farmers who were exposed were the use of the correct size of manioc cutting, with an average of 42 percent of the farmers adopting, and tilling the soil, with an average 40 percent adoption rate.

As we did with the contact farmer survey, when an observer farmer indicated that he had adopted a new technique, we then asked him how much time the new technique took in relation to the local technique. The information on adoption rates of techniques was collected by way of a table in the observer farmer questionnaire. If a farmer listed a technique as one he/she recognized but did not use in his/her own fields, the enumerator was instructed to leave the rest of the table blank and go to the question of why the individual chose not to adopt the technique. The logic behind this was that if the farmer did not use the technique, then he/she was probably not in the best position to say how long it took or what its effects were on production. Therefore, for the cases in which a farmer may be familiar with a technique but not adopt it, the information for the amount of time the technique takes or its effects on production was not available.

Generally, the observer farmers who adopted the new techniques felt they took longer than local techniques. On average, 41 percent of those who responded indicated the new techniques took more time, while 32 percent reported they took less time. An average of 27 percent found the labor time spent on local and improved techniques to be equal. Similar to our findings with the contact farmers, the majority of observer farmers who had adopted reported the new techniques helped produce more than the local techniques.

Part III: Adoption Rates of New Varieties

Overall adoption rates for the new varieties were moderate, with 19 percent of the observer farmers indicating they planted improved varieties in their private fields and 81 percent reporting they did not. However, to get a true sense of adoption rates, the data will be broken down by crop and variety in the following section.

Manioc. Sixty-three observer farmers (65% of the 96 observer farmers surveyed) responded to the question of whether or not they use improved manioc varieties in their fields. Of those who responded, 29 percent (19% of the observer farmers surveyed) indicated they use manioc F100 in their private fields, while 71 (47% of those surveyed) percent do not.

The observer farmer was then asked to rate the harvest they received with the F100 as good, average, or poor. Of the 18 individuals who responded to this question, 71 percent (12% of the observer farmers surveyed) felt their harvest was **good**, while 29 percent (5% of the farmers interviewed) had not yet harvest.

Corn. Twenty-two observer farmers (23%) responded to this question. Twelve farmers responded specifically on Bandundu I. Of these, 17 percent (2% of all observer farmers surveyed) indicated they had planted this variety in their own fields, while 83 (10% of all observer farmers) percent said they had not. Three farmers reported information on Kasai I, all (3% of the observer farmers surveyed) saying they did not plant this variety in their private fields. Five farmers responded with information about combining Bandundi I and Kasai I in their own fields. Of these, 20 (1% of all observer farmers surveyed) percent adopted the variety and 80 (4% of population surveyed) percent had not. Two farmers' answers focused on a combination of all improved varieties of corn (Bandundu I, Kasai I, and Ikenne), with 50 percent (1% of the observer farmers surveyed) planting the new varieties in their fields and 50 percent (1% of observer farmers) not doing so.

When asked to rate the harvest of **Bandundu I** as good, average, or poor, the two observer farmers (2% of all those we surveyed) who had adopted this variety indicated it gave a **good** harvest. The observer farmer who recorded planting a combination of **Bandundu I and Kasai I** gave the response of "**other**" when asked to rate the results of the harvest. When we looked through the questionnaires, we found this farmer felt that Kasai I and Bandundu I "didn't take long in the soil, but was difficult to pound (or process)." The observer farmer who adopted a combination of all improved varieties (**Bandundu I, Kasai I, and Ikenne**) judged his/her harvest as **good**. The previous two farmers each represented 1 percent of the observer farmers surveyed.

Rice. There were 14 observer farmers (14% of the observer farmers surveyed) who responded to this question in regard to R66. Of these, 14 percent (2% of the observer farmers surveyed) indicated they planted R66 in their private fields, while 86 percent (12% of those observer farmers interviewed) reported they did not.

When the two observer farmers (2% of the population surveyed) were asked to rate the harvest of **R66** as good, average, or poor, both of the farmers indicated their harvests were **good**.

Peanuts. There were 23 observer farmers who responded regarding improved peanuts varieties. Of these, 15 (16% of the observer farmers surveyed) reported on A1052. Six percent (1% of all observer farmers) indicated they planted A1052 in their private fields whereas 94 percent said they did not. None of the 8 farmers (8% of the observer farmers interviewed) who responded regarding combined improved varieties of peanuts indicated they planted them in their private fields.

The observer farmer who had adopted the variety A1052 in his/her own field indicated the harvest was **good**. This farmer represents 1 percent of all the observer farmers we surveyed.

Cowpeas. Nine observer farmers responded with information on improved varieties of cowpeas. Seven farmers (7% of the observer farmers surveyed) answered specifically concerning H4. Of these,

29 percent (2% of all observer farmers) indicated they planted the variety in their own fields while 71 percent (5% of the observer farmers interviewed) did not. Two people focused their response on combined varieties of improved cowpeas, with 50 percent (1% of overall farmers interviewed) planting them in their fields and 50 percent (also 1%) saying they did not.

When asked to rate the harvest received with the cowpeas as good, average, or better, the observer farmer (1% of those surveyed) who reported using a combination of improved cowpeas varieties (**H4 and H36**) in his/her field judged the harvest as **good.** The two observer farmers (2% of those surveyed) who reported adopting H4 did not comment on the variety's effect on production.

Soy. Eleven farmers (11% of the observer farmers surveyed) reported information on Jupiter. All of the 11 farmers indicated they did not plant Jupiter in their private fields.

The majority of observer farmers heard of the new varieties from someone who was connected with the PROCAR extension package; 47 percent reported learning from the extension agent and 27 percent from a contact farmer. Thirteen percent had seen the new varieties in the demonstration or multiplication fields. Family members informed 5 percent of the observer farmers about the new varieties and 2 percent heard about them from other village members. Seven percent found out about the new varieties from other sources.

Similarly, when asked where they received the seeds for the new varieties, most observer farmers indicated they were given seeds by the extension agent, a contact farmer, or one of the IMOs with which PROCAR works. Thirty-five percent of the observer farmers reported they received seeds from the extension worker, while 13 percent indicated they got them from a contact farmer. Thirteen percent said they received the seeds from Ekubi and 6 percent were given seeds by the government extension agent. Three percent reported they received seeds for new varieties from the following sources: PROCAR, DPP, Programme Nationale du Riz (PNR), a clan member, and a "white person." Thirteen percent received seeds for new varieties from "other" sources.

PART IV: CONCLUSIONS

The key point in the observer farmer survey is that although adoption rates of the new techniques and improved varieties proved to be low, some of the messages in the PROCAR extension package is filtering through to farmers who are not directly involved in the project. The question is, as it was with the contact farmers, are those messages clear enough or appropriate?

Generally, the data gathered during the observer farmer side-survey parallel the data we gathered from the contact farmer survey. Rates of adoption for both new techniques and improved varieties are low. The striking point, however, is the base rate of exposure to the PROCAR extension package reported by the observer farmers. Although this follows suite with the contact farmer survey, the data pose a puzzling picture here as they contradict the fact that 78 percent of the observer farmers have actually visited the demonstration, multiplication, or combination fields before and as many as 35 percent of them reported receiving seeds from the extension worker himself. If so many observer farmers indicate familiarity with the extension worker or with the demonstration, multiplication, and combination fields, then why are their reported rates of exposure so low? Where is the missing link? If so many farmers report contact with extension agents, contact farmers, or demonstration fields yet still indicate low rates of exposure to actual techniques or varieties, than somehow the message is not

getting across. Once again, as was the case with the contact farmer, PROCAR needs to reassess how it is going about transmitting its extension message.

Surely PROCAR should concentrate its efforts on working more efficiently with the contact farmer and to focus the message of its extension package so it addresses more appropriately the needs and constraints of the project's target population. PROCAR should definitely not try to spread itself too thin. Yet at the same time, in making its message more clear for the contact farmer, PROCAR would do well to follow-up on this survey to see if the "revised" extension package/message has an effect on the observer farmer population. It will be an interesting point of future research to investigate how the refocusing of its extension program vis-a-vis the contact farmer effects the adoption rates of the observer farmers.

ANNEX C

Gender Issues and Lessons Learned

GENDER ISSUES

As previously mentioned in the body of this report, women do the bulk of agricultural labor in Zaire. Men cut and burn shrubs and trees for fields in forest regions and even assist in clearing the debris from the fields. However, the tilling, planting, tending, weeding, and harvesting are mostly performed by women.

The key issue here is that PROCAR's extension package comprises new techniques and improved varieties -- practices that focus on women's activities. Since women do the planting, it would seem logical that 1) they should be the target beneficiaries; or 2) that any agricultural extension program should take their specific constraints/needs into account when planning its operation.

Unfortunately, this was not what we found when we conducted the survey. PROCAR's mandate is to work with local intermediate management organizations (IMOs) or cooperatives. More often than not, the cooperatives are made up of male members. Even the IMOs focus on village groups in which the male to female ratio is significant. This practice could prove to be ineffective. For example, if the "real" farmers, or the women who tend to do most of the work, are not included in the extension program. Even if the extension agent does work with them, they are still not members of the cooperative or village group and therefore do not necessarily have the same opportunity to input ideas or to have a say in what the extension program is teaching.

We found that often the men who are the project beneficiaries were not fully benefitting from the PROCAR extension system. For example, in one instance, the contact farmer could not answer questions about his fields and had to keep referring to his wife who had obviously been responsible for its upkeep and planting. It was she who tended the field and it was she who chose to adopt or not to adopt the new techniques while doing her work. She, in effect, was the contact farmer, not her husband.

So, in our survey, many women were not target beneficiaries but because they did most of the work in the fields, ended up being exposed to the new techniques and improved varieties. However, at the same time, as non-members, they are not reaping full benefits of the cooperative, farmers'association, or even PROCAR.

The principal question becomes, Is PROCAR's present methodology, in which they end up working with more men than women, the most effective means in which to extend new techniques and improved varieties given the division of labor in Zaire's agricultural sector? Is it really possible to have high rates of adoption when the group with whom PROCAR is working is not necessarily made up of the individuals who end up doing the work?

These are difficult yet important questions to ask -- and the response does not necessarily lie with PROCAR. Since USAID created the mandate of working with IMOs and cooperatives in the first place, the organization would do well to rethink how to more appropriately work with farmers in Bandundu to increase production. By targeting the real farmers and using extension practices that take into account their particular labor and time constraints, adoption rates may increase over time.

LESSONS LEARNED

As with any survey, especially those run for the first time, we learned lessons and found short-cuts that could facilitate the conduct of a survey similar to this one in the future. The following points could be helpful considerations for whomever conducts a follow-on survey.

- **How to ask about adoption rates.** Although we have data on adoption rates, just because a farmer is using a particular variety or technique in his/her field does not mean he/she has actually adopted it. For example, a good way to avoid any confusion in the future would be to have a chronology of questions such as the following: first ask the farmer if he/she has tried a specific new technique. If not, why not? If the farmer has tried the technique, does he/she plan to continue its use in the future? Why or why not? This allows the enumerator to distinguish patterns of whether or not the farmer is adopting and also gives specific reasons why or why not.

- **Coding.** If possible, the whole questionnaire should be precoded -- especially with regard to tables, which are a pain to do afterward.

  Coding should be aggregated whenever possible -- plan it out beforehand. Information that is too detailed (for example, information per field) will be useless if one cannot use it to make assumptions about a larger population. We ran into several coding problems because we collected information **per field**. This became problematic as we had numerous responses per individual and had not coded it in such a way that each one of these numerous responses attached directly to an ID number. We ended up having to recode the information in LOTUS (whose format allowed us to view and arrange the data more easily) so we could estimate overall adoption rates of varieties and techniques.

  We used Dbase to tabulate our data, but found it to be problematic when we needed to aggregate and recode data. I would suggest using LOTUS to code the data as it is a clear and easy package and translates easily for use in SPSS.

- **Defining your target group and making sure you are talking to the right people.** One of the problems we ran into was the difficulty of clearly delineating who was a "contact farmer" and who was not.

  As mentioned earlier in the body of this report, after consulting with the extension agent, we were able to create a list of how many contact farmers whom we were working with in each village. However, when we actually arrived in the villages, we sometimes found that the number given to us by the extension worker did not actually match the number given by the village chief. Often the number in the village was greater because the chief included the names of everyone who had worked in the demonstration, multiplication, or combination fields (including men who had participated only in clearing the fields and not in the actual planting, tending, or harvesting of the crop). Sometimes we arrived in villages expecting a group of 25 contact farmers and found the village chief claiming that the entire village consisted of contact farmers.

As mentioned earlier, the survey team specifically defined contact farmers as those individuals who worked regularly and consistently on the demonstration, multiplication, or combination fields. The issue became how to clarify on - the-spot who really worked in the fields and who said they did because they wanted to take part in the survey. There were numerous occasions in which we had to go through the list given by the chief or the cooperative president and check one by one if individuals were actually contact farmers. After explaining our definition of contact farmer and going through some thorough questioning, we were usually able to arrive at a number close to that given by the extension agent.

The key point here is that these situations were often accompanied by individuals, usually male, who wanted to use their influence to take part in the survey. Even if they knew the men were not being straight with us, the women in the village who worked on the fields would say nothing. To get to the heart of the information and find out from both sides what the real story was, the survey team would, in these cases, pull individual women aside and ask them to point out who worked on the fields and those who did not. What we often found out was that the men who claimed to be contact farmers had indeed assisted with clearing the fields. However, the involvement and assistance stopped there. In these cases, they were dropped from the list.

- **Logistics.** Never plan to leave on a Monday morning -- somehow things just never get off the ground. You need at least one day beforehand to tie up last-minute logistical problems. Make sure all the feille de route (or travel papers), and so on, are taken care of as well as per diem. Make sure there is adequate fuel (mazout) and have all the food you cannot find en brousse bought at least a day before you plan to leave. If possible, have the vehicles packed the night before.

  Hire a cook (or cooks, depending on how many enumerators you have). He/she will be indispensable, especially on those nights when everyone is exhausted and can barely eat let alone cook the food. He/she will be responsible for cleaning up too -- in a timely manner, so you can hit the road early.

  Make sure to bring several containers for water -- and even a barrel or two to hold extra water. This was quite a problem for us as we were not always near potable water and often had to take water from the river.

- **General Issues.** The importance of nightly team meetings cannot be overemphasized. They should be quick and to the point, focusing on any problems/observations/issues that occurred during the day. Unnecessary problems with the data can be avoided if one continually ensures that the enumerators are on the right track in how they are asking questions and recording information. In addition, they often have insights of how a question could be asked more appropriately, and so on. However, to avoid any problems, these meetings should be held preferably before dinner or immediately afterward when everyone is still awake.