An Orientation to Production Systems Research in Senegal

by

R. James Bingen

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SPECIAL NOTE FOR ISRA-MSU REPRINTS

In 1982 the faculty and staff of the Department of Agricultural Economics at Michigan State University (MSU) began the first phase of a planned 10 to 15 year project to collaborate with the Senegal Agricultural Research Institute (ISRA, Institut Sénégalais de Recherches Agricoles) in the reorganization and reorientation of its research programs. The Senegal Agricultural Research and Planning Project (Contract 685-0223-C-00-1064-00), has been financed by the U.S. Agency for International Development, Dakar, Senegal.

As part of this project MSU managed the Master's degree programs for 21 ISRA scientists at 10 U.S. universities in 10 different fields, including agricultural economics, agricultural engineering, soil science, animal science, rural sociology, biometrics and computer science. Ten MSU researchers, on long-term assignment with ISRA's Department of Production Systems Research (PSR, Département de Recherches sur les Systémes de Production et le Transfert de Technologies en Milieu Rural) or with the Macro-Economic Analysis Bureau (BAME, Bureau d'Analyses Macro-Economiques) have undertaken research in collaboration with ISRA scientists on the distribution of agricultural inputs, cereals marketing, food security, farm-level production strategies and agricultural research and extension. MSU faculty have also advised junior ISRA scientists on research in the areas of animal traction, livestock systems and farmer groups.

Additional MSU faculty members from the Department of Agricultural Economics, Sociology, Animal Science and the College of Veterinary Medicine have served as short-term consultants and professional advisors to several ISRA research programs.

The project has organized several short-term, in-country training programs in farming systems research, agronomic research at the farm-level and field-level livestock research. Special training and assistance has also been provided to expand the use of micro-computers in agricultural research, to improve English language skills, and to establish a documentation and publications program for PSR Department and BAME researchers.

Research publications from this collaborative project have been available only in French. Consequently, their distribution has been limited principally to West Africa.

In order to make relevant information available to a broader international audience, MSU and ISRA agreed in 1986 to publish selected reports as joint ISRA-MSU International Development Paper Reprints. These reports provide data and insights on critical issues in agricultural development which are common throughout Africa and the Third World. Most of the reprints in this series have been professionally edited for clarity; maps, figures and tables have been redrawn according to a standard format. All reprints are available in both French and English. A list of available reprints is provided at the end of this report. Readers interested in topics covered in the reports are encouraged to submit comments directly to the respective authors, or to Dr. R. James Bingen, Associate Director, Senegal Agricultural Research and Planning Project, Department of Agricultural Economics, Michigan State University, East Lansing, MI 48824-1039.

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AN ORIENTATION TO PRODUCTION SYSTEMS RESEARCH IN SENEGAL

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R. James Bingen

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AN ORIENTATION TO PRODUCTION SYSTEMS RESEARCH IN SENEGAL

TABLE OF CONTENTS

LIST OF FIGURES

ACKNOWLEDGMENTS

This Workshop endured a very long planning period during which time our debts to many accumulated almost beyond measure.

The Workshop was financed by the U.S. Agency for International Development/Dakar. CIRAD (International Center of Agronomic Research for Development) and LECSA (Laboratory for the Comparative Study of Agrarian Systems) made time available for some of their researchers to participate fully in the proceedings. Advice from the FSSP (Farming Systems Support Project - University of Florida) staff was indispensable in the planning stages and we gratefully acknowledge this Project's assistance in providing documents in French and English and in helping to translate this report into French. We especially want to thank John Lichte for helping to keep the Workshop together and, of course, to the FSSP for making him available to ISRA for this important training activity.

We must take full responsibility for any problems or difficulties encountered by workshop participants, but we sincerely hope that this activity has made an important and positive contribution to their professional growth and careers.

PREFACE

This report of the 1984 ISRA Workshop on Production Systems Research is presented in six parts. The Introduction provides the background to the Workshop, the preliminary planning, and the organizational and training questions discussed by the Production Systems Department senior staff in preparing for the Workshop. Part II summarizes the daily Workshop presentations and discussions. (The information provided in these presentations is current as of October, 1984).* Part III discusses some of the major planning and programming issues raised by the Workshop. Part IV presents the major conceptual questions raised during Workshop discussions and presentations; Part V identifies several lessons for planning and organizing similar workshops in Senegal and elsewhere in the West Africa region. Part VI concludes with a note on future workshops being planned as part of the short-term training program under the Senegal Agricultural Research and Planning Project (ISRA-Michigan State University-USAID). The appendices include resource documentation which should be useful for similar workshops.

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*For more recent information concerning the status and organization of the Production Systems Department see: Jacques Faye, James Bingen, Etienne Landais, "The Creation and Establishment of Production Systems Research in a National Agricultural Research Institute: The Senegal Experience." Paper presented at the West African Farming Systems Network Workshop (March 1986).

1. INTRODUCTION

1.1 Background

This Workshop was an integral part of the training program funded under the Senegal Agricultural Research and Planning Project. A brief review of this program, therefore, is useful for understanding the context in which the Workshop was conceived and designed.

Long-and short-term professional training is a key component of the Senegal Agricultural Research and Planning Project. Twenty-one ISRA (Institut Sénégalais de Recherches Agricoles) researchers will receive Master of Science degrees from approximately ten U.S. universities in several fields, including agricultural economics, rural sociology and animal science. Michigan State University coordinates and administers this long-term training program by assisting ISRA with candidate selection; identifying an appropriate university for each trainee; managing and backstopping each training grant; and, coordinating each long-term training program to conform with each trainee's research career in ISRA and with the project objectives.

In 1983 and 1984 MSU held two Summer Institutes on the MSU campus to introduce ISRA trainees at US universities to the methods and principles of Production Systems Research (PSR)[1] and to the use of programmable calculators and micro-computers in field research.[2] Since these Summer Institutes gave project trainees some background in

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[1]This is a direct translation from the French,"recherche sur les systemes de production," which has a different connotation from the English term, farming systems research, but which is accepted as an equivalent for day-to-day use.

[2]These institutes also provided an occasion for trainees to discuss and prepare their MSc. research proposals, to meet each other, and to meet and talk with the Director General of ISRA (1983 session) and with the Director of the PSR Department and BAME (1984 session).

PSR otherwise unavailable to their non-project trained ISRA colleagues, ISRA, MSU and USAID agreed in mid-1983 to organize a workshop on production systems research in Senegal in order to redress this training imbalance among Departmental researchers.

By mid-1984 the Central Systems Analysis Group of the PSR Department had defined the organizing principles for a workshop.[3] They were:

(1)To emphasize agricultural research and agricultural development in Senegal, and the Senegalese experience with production systems research. Illustrations from other West African research experiences would be used for comparative or illustrative purposes.

(2)To orient the Workshop principally to PSR Department researchers who did not have previous exposure to the methodology and issues of PSR, to other ISRA researchers who worked closely with the Department's PSR Teams, and to rural development agency staff who worked with the ISRA PSR Teams. Only individuals with research experience and/or current administrative responsibilities for a research program would be invited in order to encourage concrete rather than abstract discussions.

The number of participants would be limited (30-35) in order to facilitate small group discussions and to keep the logistic arrangements (workshop facilities and field trips) more manageable. Outside speaker-participants from CIRAD, ICRISAT and IITA would be invited to participate fully in the daily workshop planning and presentations.

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[3]The Department was aided in this process by discussions with staff from the Farming Systems Support Project (FSSP). FSSP had organized similar workshops in Ouagadougou and the Gambia. Some FSSP staff members, Susan Poats, John Caldwell and Steve Franzel, met with Jim Bingen and Eric Crawford (both with ISRA-MSU) for two days in late March, following a visit with the ISRA-Djibelor PSR Team.

(3)To provide an orientation to PSR and not a "how to" approach to field research. Questions of data collection and analysis, and issues specific to on-farm agronomic research and multidisciplinary livestock systems research would be the subjects of separate workshops during 1985 and 1986. Both crops and livestock research would be addressed, however, in the workshop discussions. Village visits by small (5-6 person) groups would be organized to introduce participants to off-station research procedures.

(4)To rely on PSR Department staff as the principal resource personnel. FSSP, however, would provide a program coordinator (someone with previous workshop experience) to coordinate and manage all the workshop sessions and to organize the village visits with assistance from the Djibélor PSR Team.

(5)To hold the workshop for approximately one week, from 8 to 13 October at a non-ISRA facility, preferably near Ziguinchor. This time would be just before the harvest period and it would permit a review of the "Djibélor experience" through visits to the villages studied by the Djibélor PSR Team.[4]

(6)To use group discussions, instead of lectures or classroom-type presentations, as the principal format of the workshop in order to encourage more open discussion. Specific, detailed discussion instructions to the groups and time limits on group presentations would be provided.

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[4]FSSP had recommended a 7-day workshop, including a one or two day break on the weekend. The PSR Department recognized the advantages of having a longer workshop but felt that the disadvantages of trying to regroup people and continue after a weekend outweighed what could be gained from a few extra days.

(7)Each ISRA PSR Team would summarize its research program to provide concrete illustrative cases for workshop discussion. Selected articles (translated into French when necessary) would be provided to all participants. (See Appendix 1).

The workshop themes were (See Appendix 1 for the daily program by theme.):

-Introduction to Systems Research: The Senegal Experience from the Experimental Units to the Agricultural Research Project.
-Systems Research: Objectives, Principles and Methods.

-Pre-Diagnosis: Bibliographic Reviews; Exploratory Surveys; Zoning and Typologies;Research Problem Formulation.
-Village Visits and Presentations.

-The Research-Extension Relationship.

The detailed logistic and organizational matters were completed from July through September. The Nema-Kadior Hotel outside of Ziguinchor was chosen as the workshop site and a budget proposal was submitted to USAID/Dakar to support direct workshop costs (lodging, conference facilities and transportation), equipment purchases (slide projector and screen, overhead projector, flip charts) and supplies. FSSP nominated John Lichte to serve as the workshop coordinator. He arrived one week prior to the workshop to help prepare the detailed workshop program, to assure last minute arrangements at the conference site and to make final preparations for the village visits in collaboration with the Djibélor Team.

Given the need to address a significant number of themes and the decision to limit the workshop to one week, the workshop started Sunday evening. This permitted workshop coordinators to deal with most administrative and organizational questions, plus introduce the overall objectives of the workshop and begin discussion of the workshop's central themes directly on Monday.

2. DAILY PROGRAM REVIEW

2.1 Sunday, 7 October 1984

On Sunday afternoon workshop coordinators from the PSR Department and some outside speaker-discussants met at the Nema-Kadior Hotel to review the week's proposed program, to discuss the workshop's daily objectives and to address last-minute organization and logistics questions. This was an important and useful working session since it permitted the coordinators to reconfirm and, in some cases, modify specific objectives, agree on expected results and deal with many miscellaneous matters. It was agreed that daily objectives would be posted on a flip chart and reviewed with workshop participants at the opening of each day's session. Finally, an informal steering group was formed which included the FSSP Coordinator, some members of the PSR Department Central Systems Analysis Group, and some outside discussants. This group would hold daily review meetings.[5]

A secretarial office, including a typewriter and photocopy machine, was set-up in a vacant hotel office space. Copies of the suggested readings and other workshop materials, including a packet with name tag, pen and pencil, notepad and workshop program, were prepared for each participant.

The Sunday evening opening session dealt with operational and organizational matters. The participants introduced themselves (by name, discipline, position and research or professional experience). The basic ideas of experiential learning underlying the workshop

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[5]The CSAG representatives included Jim Bingen, Eric Crawford, Jacques Faye and Etienne Landais. The invited discussants who attended regularly were Philippe Jouve and Philippe Lhoste.

program, plus the principal goal and overall objectives of the workshop were presented by Jim Bingen, John Lichte and Jacques Faye.

The workshop goal:

To provide an introduction and orientation to production systems research (l'approche systèmique) as currently practiced in Senegal.

The four principal objectives (as defined by the PSR Department) were:

1. To provide an understanding of the basic issues and methods of production systems research.
2. To underline the importance and significance of starting from the farmer's perspective in PSR, including the research implications of this assumption.
3. To discuss relationships between Research and Extension.
4. To review several aspects of multidisciplinary research, especially the issues and implications of working relationships among researchers from different disciplines, and between researcher and extension personnel.

Workshop groundrules included: active and regular participation in all sessions of the workshop; punctuality, and professional comportment.

2.2 Monday, 8 October 1984

Monday's objectives were:

1. To introduce the principal ideas and concepts of production systems research.
2. To review the history of agricultural research in Senegal.
3. To summarize the research programs of ISRA's three Production Systems Teams at Djibélor, Kaolack and St. Louis.

These objectives would be met through lecture presentations that would also set the framework for group discussions throughout the week.

A review of key ideas and concepts in PSR was presented by Etienne Landais and Eric Crawford from the Production Systems Department and by Philippe Jouve, CIRAD. Jacques Faye, Director of the Production Systems

Department, Ndiaga Mbaye, Director of the Animal Production and Health Department. Mamadou Sonko, ISRA Scientific Director (formerly) reviewed the history of agricultural research in Senegal. The PSR Team presentations for St. Louis, Kaolack and Djibélor were made respectively by Jean-Francois Tourrand, Animal Scientist, Abdoulaye Thiam, Agronomist, and Samba Sall, Economist.

The following summarizes the key points for each of these presentations.

2.2.1 A Preliminary Introduction to Systems Research

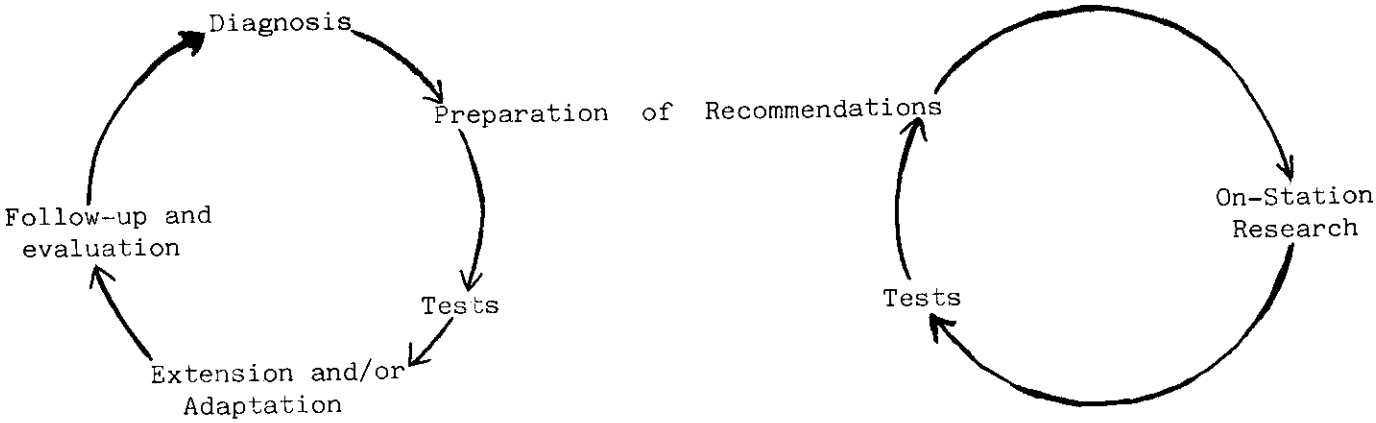
Production systems research begins from an identification of farmers' constraints and choices in order to help distinguish among different types of production systems. Researchers must remember as well, that many farmers seek to minimize risk, not maximize profits. As such, farmer concerns and objectives may often appear to conflict with those of both research and extension agencies.

To assure adaptive and flexible agricultural development programs that respond to the farmers' immediate problems, fairly homogeneous groups of farmers or production systems can be delimited in terms of shared or similar cultivation practices. This helps to identify specific improvements in the technology adapted to the farmers' situation and to involve farmers directly in the diagnosis, testing and evaluation of the new or improved technology.

A constructive relationship between Research and Agricultural Development agencies, and between systems and subject-matter or component researchers, is important to the overall success of PSR. While systems research proposes a new, farmer-oriented approach to agricultural research, it depends upon disciplinary and component

research programs to generate new technology. PSR relies heavily on existing research results, accumulated experience and on-going programs for critical baseline information. The contrast with "traditional" or predominantly on-station research resides in the role of the farmer. Traditionally, research rarely accounted for the farmer's perspective. Research was undertaken on-station and the results or recommendations were passed in top-down fashion with little or no attention to the farmer's specific ecological or economic conditions. Systems research takes a much more interactive approach (See Figure 1.) and relies on the farmer as a partner in the research-development process.

Figure 1. Production Systems Research Interactions



The systems research programs defined by the ISRA PSR Department draw heavily from both Francophone and Anglophone approaches to production systems research.

The "Francophone approach" tends to start at a level that is more global than the household production system. Research is concentrated on an agrarian system, or on questions involving the long-term transformation of social systems, or the conservation of natural resources. The approach adopts a broad concept of multidiscplinarity to include geographers, agronomists, agricultural engineers, hydrologists, socio-economists, animal scientists and soil scientists). Field investigations that start from some larger theoretical perspective, or 'theory' of the functioning of production systems, are preferred as is long-term functional and evolutionary (diachronic) data analysis.

Different French research institutes emphasize different aspects of this approach. ORSTOM (Office of Overseas Scientific and Technical Research) research programs usually concentrate on basic research with only secondary interest in responding to farm-level problems. CIRAD (International Center for Agronomic Research and Development), on the other hand, is oriented toward pragmatic, problem-solving research that can help in formulating and introducing improved technology. Similarly, INRA (The National Agronomic Research Institute) researchers, while devoting attention exclusively to agronomic research, are concerned with addressing farmers' problems.

The Anglophone approach, in contrast, is more operational and empirically oriented. It emphasizes concrete problem-solving with attention focussed principally on the transfer of technology at the level of the farm and especially the cropping system. It tends to foregoe a concern at the level of the agrarian system in favor of the multidisciplinary assessment of specific, immediate technical issues. Research programs

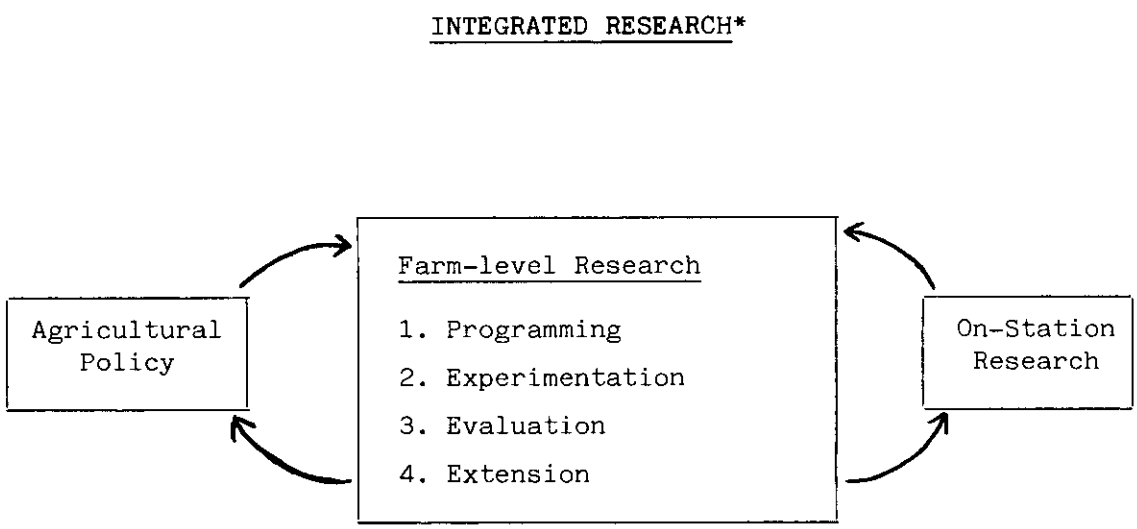
emphasize the timely development of improved technology to extend to farmers, the improvement of the Research-Extension dialogue and the encouragement of feedback from farmers' fields. Research is conceived as a continuing process involving on-farm studies of production systems, testing in farmers' fields, evaluating proposed technologies, and more on-farm studies and testing. This approach emphasizes farmer involvement in the research process and especially in evaluating recommended technologies.

Differences in research methods and procedures can be distinguished among those following this Anglophone approach. CIMMYT (East Africa) relies heavily on rapid reconaissance surveys within identified zones, followed by short verification surveys, when necessary that lead directly to agronomic testing. This approach is feasible for experienced researchers working in areas with adequate and available baseline data. CIMMYT research, however, is commonly limited to specific crops and crop improvements. Other institutes or programs adapt cost--route analysis and intensive data collection efforts to multidisciplinary teams for on-farm research.

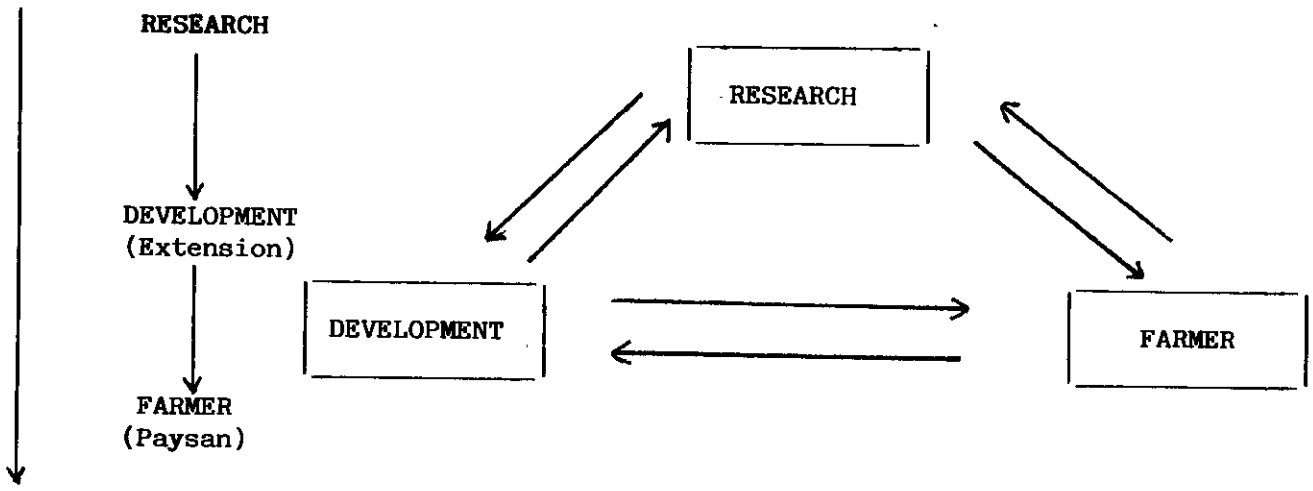
2.2.2 The Systems Approach of the ISRA Production Systems Department

The PSR work in the Department of Production Systems Research follows a standard process of diagnosis, testing and transfer, and integrates aspects of both the Francophone and Anglophone approaches. The principal steps in the Department's approach are illustrated in Figure 2:

Figure 2. The Production Systems Research Process



* Attributed to CIMMYT



The ISRA PSR program is sensitive to the immediate and concrete needs of both the farmers and the agricultural development agencies. It also attempts to track long-term rural change while being responsive to crop- and farm-specific problems.

2.2.3 Overview of Agricultural Research in Senegal

The history of Senegalese agricultural research can be divided into four major periods: The Groundnut Era(1921-1940); Sahelian Regional Expansion, including the introduction of animal traction(1938-1950); Research Program Diversification, beyond groundnuts to include animal science and veterinary research programs (1950-1960); Post-Independence and National Research Programs (1960-1970), including the start of applied research at the Unités Experimentales.

Historically, research programs have been undertaken on-station, with an attempt to test results under controlled conditions with interested farmers (paysans correspondants) at small research sites called PAPEMS, or Multilocal Trials Substations. Many specific technologies were developed through this process. Not until the late 1960s and early 1970s were research programs designed to develop complete technical packages.

Livestock research programs emphasized animal health, diagnostic methods and the improvement of vaccination techniques until the 1950s. The creation of the Livestock Research Center at Dahra and the National Veterinary Laboratory at Hann in 1954 represented the first efforts at broadening livestock research beyond its preoccupation with veterinary medicene. A breeding program with the Zebu Gobra began at Dahra and

as oxen replaced workhorses, even a racehorse breeding program was started. The Kolda Livestock Research Center was opened in 1970 to carry-out breeding programs on N'Dama cattle and Djallonké sheep. More recently, cattle and range management programs have been started.

2.2.3.1 The Unités Experimentales

The Unités program is frequently cited as the forerunner of production systems research in Francophone West Africa. The program was based, however, on a top-down approach to agricultural research and development. Researchers, convinced of the value of their recommendations, designed the Unités program to learn why farmers were not adopting new technology, and to demonstrate the value and use of this technology. They did not define the program as a means to respond to farmers' problems.

The relationship between the Unités research and on-station programs was very weak. Socio-economists tended to dominate in the Unités, leaving technical, on-station research in the hands of component or disciplinary researchers. The links between research and extension were also weak, even though the Unités program arose in response to difficulties confronted by extension programs. Researchers were taken as "fire--fighters" in agricultural extension and not as partners in a development effort. Farmer participation in the Unités research program, too, was minimal; those who worked with Unités researchers were usually early innovators, who were also the wealthier and larger farmers.

Two important lessons learned from the Unités program are: (1)the need to adopt component research methods to the diagnosis and understanding of the production system and its constraints; and, (2)the need to involve extension personnel in the systems research process from the beginning.

2.2.3.2 The Agricultural Research Project

A General Directorate for Scientific and Technical Research (DGRST) was established within the Ministry of Higher Education in 1972 to coordinate all public scientific research. ISRA was not established until three years later in 1975, and it nationalized most of the agricultural research that had been managed by IRAT (Institut de Recherche en Agronomie Tropicale) and other French research institutes since independance in 1960.

A State Secretariat for Scientific and Technical Research (SERST) with ministerial status replaced the DGRST in 1977/78 and shortly thereafter, prepared a Five Year (1979-1984) National Indicative Plan for Agricultural Research. Using this Plan, the Government of Senegal invited the International Agricultural Development Service (IADS), with support from the World Bank, to prepare a major program to achieve the Plan's objectives.

In its broadest outlines, the Agricultural Research Project,which arose from the IADS consultant mission, proposed the following changes in ISRA's research and administration: (1)priority attention to multi-disciplinary research on millet, sorghum, maize, rice, groundnuts and cowpeas; (2)the creation of a multi-disciplinary production systems research department and a macro-economic or agricultural policy analysis unit (BAME), separate from the crops and from the animal health and livestock production research departments; (3)strengthening the headquarters capacity to plan, coordinate and execute research programs through a central planning and evaluation unit; (4)the establishment of scientific research departments,instead of the regional centers, as the principal scientific and research program planning and implementation

units; and,(5)the creation of an international scientific and technical committee to advise on research programs. More formal relationships between ISRA and the regional development agencies, plus closer operational relationships between subject-matter, commodity and systems researchers were encouraged.

2.2.4 Production Systems Research Programs

2.2.4.1 Senegal River (St.Louis)

The Senegal River Team is comprised of two agronomists (one of whom is a researcher-trainee)[6], an animal scientist, an economist, a sociologist (also a researcher-trainee) and an agricultural engineer. A hydrologist is affiliated on a part-time basis with the team. The research program began in mid-1984 with a bibliographic review, team discussions of approach and methodology, plus preliminary contacts with SAED, the regional development agency. Since the Team expatriate agronomist had worked in the region prior to the creation of the Team, an extensive body of agronomic data had been collected. A village census in the Delta was required, however, to obtain background socio-economic data.

Joint ISRA-SAED agronomic trails (farmer identified-researcher managed) were run during 1984 to help train SAED field agents and to build better Research-Extension links. A census of the cattle in the Senegal River Delta, using aerial photography was also started. In contrast to the other PSR Teams, the St. Louis Team has worked with a regional development agency that has very clear preferences for agricultural research. Consequently, a major task confronting the Team

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[6]All the researcher-trainees noted in this report have completed their training period and are now classified as ISRA researchers.

involves reconciling its research priorities with those identified by SAED.

2.2.4.2 Sine-Saloum (Kaolack)

The Sine Saloum Team is composed of two agronomists (one of whom is a researcher-trainee), an animal scientist, an economist, and a sociologist. It has the least field experience as a Team, yet benefits from working in an area where ISRA has the longest experience with off-station research. Given the government's agricultural policy to decentralize decision-making to local and cooperative organizations at the level of the Communauté Rurale, the Team identified one Communauté Rurale (Kaymor) as their research area. This has helped to reduce logistic problems and has served as a base for linking research and development activities.

2.2.4.3 Lower Casamance (Djibélor)

The Lower Casamance Team includes two agronomists (one of whom is classified as a research assistant), two economists, an animal scientist (researcher-trainee) and a sociologist (researcher-trainee). An agricultural machinery specialist (researcher-trainee) will join the Team in December.

The Team began its research program in five agricultural zones (recommendation domains) of the Lower Casamance during early 1982. In addition to a series of agronomic tests and trials both on-station and with farmers, a socio-economic survey is underway; specialized studies on migration, land tenure and animal traction have also been started.

A Research-Extension protocol between ISRA and SOMIVAC, the Casamance Regional Development Agency, was signed in 1983 and joint

ISRA-SOMIVAC subject matter teams annually review and plan technical aspects of the research-extension program.

The three PSR Team presentations highlighted the following points:

(1)The necessity to adapt specific research programs to specific situations, including the need to understand an area's historical context and the local role of the regional development agency.

(2)The importance of formulating research hypotheses on the basis of pre-diagnostic work at the farm level.

(3)The difficulties involved in launching three separate production systems teams.

2.3 Tuesday, 9 October 1984

Tuesday's objectives were:

1. To introduce PSR concepts and methods,including the question of levels of analysis;
2. To examine the differences between PSR and other approaches to research and extension;
3. To review the specific techniques and concepts of exploratory surveys, recommendation domains, zoning and typologies;
4. To discuss information priorities at different steps or stages in the PSR process.

The format for the day was a combination of presentations and small group discussions. These are summarized below.

Presentations were made by Philippe Jouve (CIRAD) on PSR concepts and methods; Etienne Landais (PSR Department) on some of the methodological concepts of PSR; and John Lichte (FSSP Coordinator) on the concept of recommendation domains. Philippe Lhoste (LECSA, Laboratory for the Comparative Study of Agrarian Systems) and Khassoum Dièye (Livestock Production and Animal Health Department) and Etienne Landais made a brief presentation on livestock systems concepts. Philippe

Lhoste and Jean-Pierre Orsini presented an evening seminar on their livestock survey work in the Sine-Saloum.

2.3.1 PSR Concepts and Methods

A common terminology and a meaningful theoretical framework for data analysis and interpretation are critical to a successful PSR program. Some of the principal considerations involved in systems research include: identifying the system in terms of its structure and its function(s) both in space and over time; using a model to understand relationships between elements within a system and between the system and its environment; and, using an analytical method that captures a system's diversity and is sensitive to the evolution of a system over time (i.e, as the analyse diachronique).

With respect to agricultural production systems, it is useful to think in terms of a hierarchy from the plant, to the plot (usually identified by specific crops and/or cultivation methods,(itinéraires techniques), to the cropping system (le système de culture),i.e., several plots with similar management, which can be defined either at the household level or at the level of the village (terroir).

Other important concepts include (See Figure 3.): the production system (le système de production), which is part of the farming system (le système d'exploitation), and the agrarian system (le système agraire) usually defined on a regional level.

Figure 3. PSR Concepts and Levels of Analysis

Analytic Level	Observation Unit	Analytic Object	Result	Recommend. Domain
Agrar.System	Region	Vill.Ag.System	Zoning	Recs.for Ext.
Production System	Inter-Village	Farm	Typol.	Management Techniques
Cropping System	Morphopedo-logical Unit	Crop	Typol.	Technical Recommends.

The use of such a conceptual framework implies that a diagnosis at these different levels must account for different crops in different rotations at different times, receiving distinctly different inputs and being cultivated by different methods. Such a diagnosis must also be sensitive to the relationships between cultivation techniques, production results and management factors.

2.3.2 Group Discussion

Following the introduction to some systems research concepts, the participants were divided into six inter-disciplinary groups, each with a representative from a different research department, center and development agency. This first exercise required each group to compare systems research to more standard agricultural research and extension approaches. The groups received the following task:

> Discuss the differences between the systems approach on the one hand, and traditional research and extension on the other hand for the next hour. Make a list of important points on a flip-chart. Choose a member of the group to present these ideas to the plenary session. Each group will have 10 minutes for their presentation. All presentations will be discussed together after all of the group presentations.

The group reports illustrated several different perspectives on the major methodological and policy-making issues. Each report noted the difference between the top-down, "traditional" approach and the interactive nature of PSR. Several reports also discussed: methodological differences (on-station versus off-station, disciplinary versus multidisciplinary); the research process, including a diagnostic process beginning at the farm level versus a process of identifying research themes and questions from development planning priorities; and the importance of "political" priorities in systems research.

The floor discussion focussed on the relationship between systems research and agricultural policy. It was agreed that systems research objectives (increasing agricultural production per se versus improving the productivity of a farming system) needed to be oriented to agricultural policy, but that its practical and concrete policy suggestions in the short- and medium-term were usually limited.

2.3.3 Zoning, Typologies and Recommendation Domains

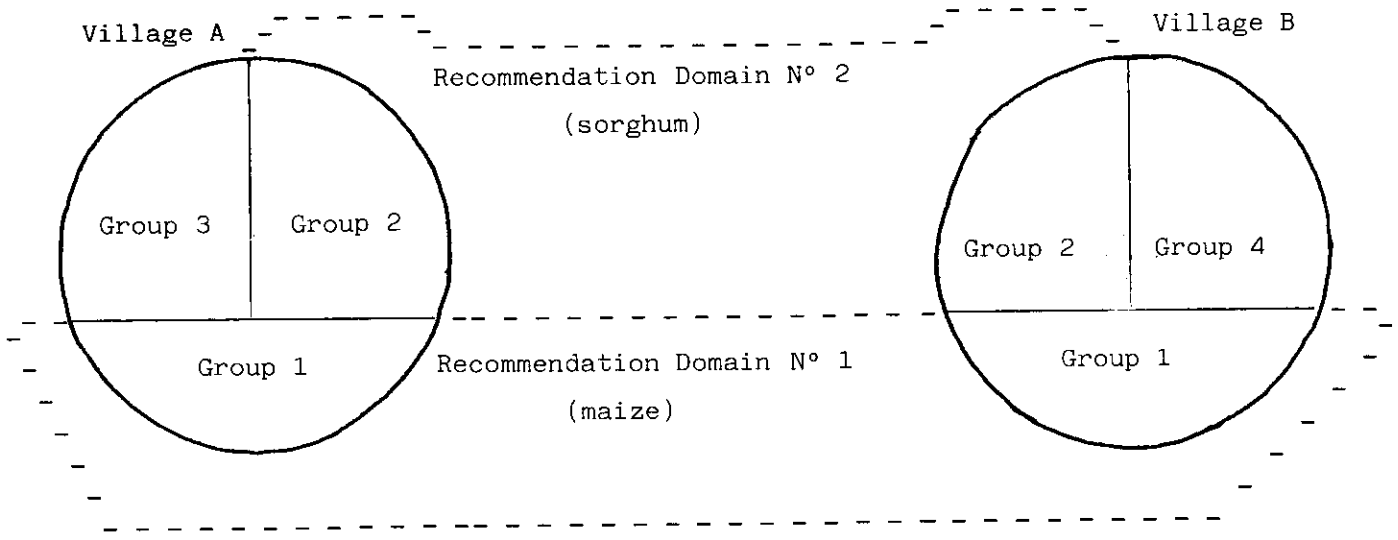
These concepts are the tools of systems research because they classify and order information at different levels of observation described earlier. A zoning system is useful for ordering village-level data, similar to the five zones of the Lower Casamance identified by the Djibélor Team. A zoning system can help to identify research priorities and to define adaptive recommendations. Such a system, usually prepared following pre-diagnostic work, helps to define where research should be undertaken and to identify solutions adapted to specific situations.

At the level of the production system or the parcel, on the other hand, a typology is commonly used to order information. For a production system a typology can be developed in terms of similar modes of production or in terms of management recommendations. Similarly, cropping systems typologies at the plot level help in making recommendations to improve specific cultivation practices. Cropping system typologies usually require detailed diagnostic work.

Recommendation domains are identified specifically to provide or suggest recommendations for extension and for research. They do not usually conform to a geographically or administratively defined unit. Instead, a recommendation domain is usually composed of farmers who

confront similar agro-ecological conditions and problems but who may have, however, different access to land, labor, financial resources, and equipment. In other words, farmers in the same domain do not necessarily have the same development potential in the short- and medium-term. (See Figure 4 below).[7]

Figure 4. Recommendation Domains



These domains, as well, might be redrawn; for example, farmers in Groups 1 and 2 might be part of the same recommendation domain with respect to improved animal traction practices, for example, if this was considered to be a more critical variable.

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[7]A clear presentation and discussion of this subject was hampered by a weak translation of the resource document. See Appendix 1. Moreover, the concept of a recommendation domain is much more specialized than that of a zone or some kind of typology.

2.3.4 Group Discussion

Tuesday morning's group exercise asked workshop participants to design a research program using the information presented during the discussions of systems research concepts and methods. Six groups (different from those that worked together previously) were formed and were assigned the following task:

> You have three years to do systems research in a new region. What are the steps that you will follow and the duration of each phase? What percent of your resources will you spend on each phase? You have one hour. Each group will have 15 minutes to present its results; discussion will follow.

The group reports repeated the basic steps in the systems research process: prediagnosis-bibliographic review; informal contacts; exploratory surveys; and, diagnosis(recommendations and testing). Each group, however, gave different estimates of the time and resources required. No group questioned the feasibility of the three-year limit, seeking instead to adapt their proposed program to this timeframe.

The groups tended to discuss zoning, typologies and testing as the results of research rather than as tools for organizing the research effort. No group, for example, discussed testing as an exploratory tool or a vehicule for establishing a dialogue with farmers. Moreover, the groups did not address how to identify farm-level constraints or how to establish working relationships between systems researchers, thematic researchers and extension personnel.

2.3.5 Livestock Systems Research

At the request of several participants, some central concepts specific to livestock systems research were presented after the discussion of the group reports. This introduction was intended as

background information for a more detailed discussion (and slide presentation) of livestock research on Tuesday evening. Among the concepts discussed:

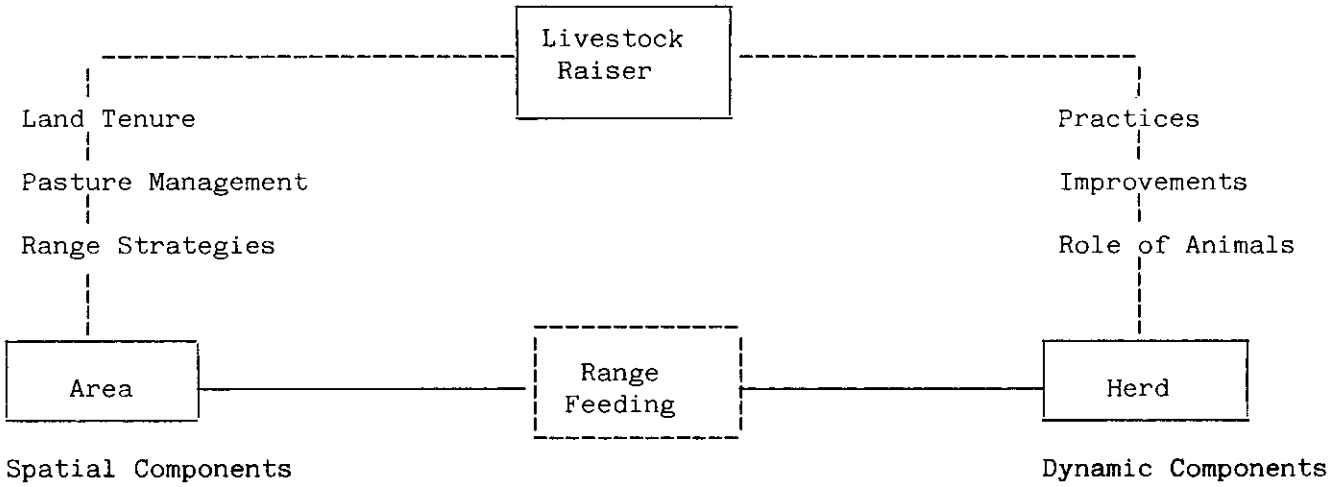
1.Conduite: the manner in which animals are managed, or cattle management.

2.Troupeau: a herd of animals of the same species that are managed in the same manner. This is the basic technical unit. In contrast to the basic agronomic unit, (the parcel), the herd is usually less homogeneous, as individuals differ in age, sex, etc.

3.Cheptel: a group of animals defined by possession. A collective troupeau contains the cheptel of several individuals; a person with many animals might separate his cheptel into several troupeau. Reference to the regional or national cheptel also implies a sense of possession.

Two different types of livestock systems can be distinguished. The first is the livestock subsystem within the farming system. This type of system differs significantly from the second type where grazing to a large extent, takes place on common land. The latter type requires a more global systems concept to cover relationships between the livestock raisers and their herds, including ecological and socio-economic factors. Figure 5 illustrates this concept.

Figure 5. The Livestock Production System



2.4 Wednesday, 10 October 1984

The principal objectives of Wednesday's presentations and group discussions were:

1. To orient the participants to some basic ideas concerning the structure and functions of the village and the family.
2. To provide some preliminary experience in the practical aspects of village visits and interview techniques by means of a simulated interview.
3. To prepare an interview guide for Thursday's village visits.

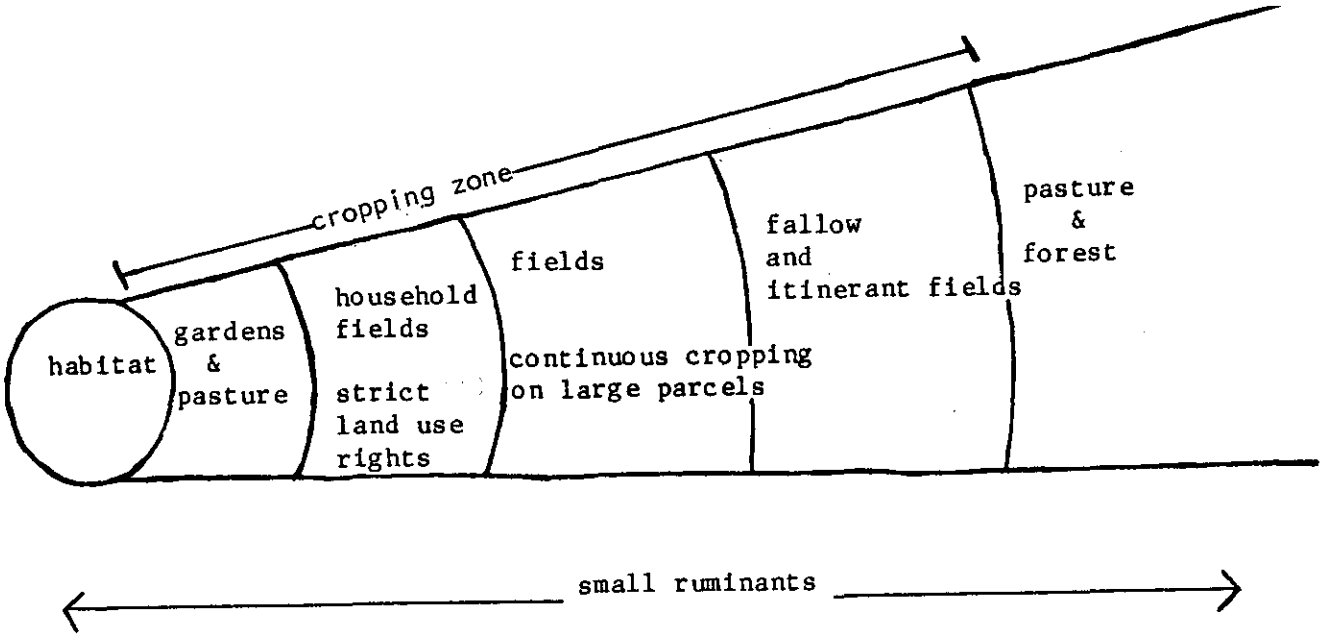
Jacques Faye, Director, Production Systems Department, discussed the organization and activities of the Wolof village and family. Etienne Landais dealt with surveys, exploratory surveys and the use of a survey guide during the afternoon session.

The presentation on the organization and activities of the village and family drew largely on the case of the Wolof in the Sine-Saloum. Two levels of analysis were distinguished: (1)the village and its territory (terroir); and, (2) the family group and its functions. The highly structured nature of the village can be understood by drawing attention to the following levels of organization:

-Hamlet (Hameau): a geographically-defined unit which may or may not overlap with an ethnic group, lineage segment or caste unit.
-Quarter (Quartier): usually part of a hameau which may or may not overlap with a lineage segment.
-Compound (Concession): a residential unit of a family group.
-Village Territory (Terroir): the land which "belongs" to the village and which can be best illustrated as in Figure 6. Land-use rights by type of cropping zone become less well-defined in relation to the distance from the habitat; the pasture and forest zone (below) are essentially "free" areas.

The usefulness of the concept of the household farm (exploitation agricole) as an analytic tool needs to be closely examined. The household is commonly defined as those eating and working together, but the two activities are often separate and distinct within the same family. As a result, it may be more useful to analyze the family through the organization of three different activities: production and reproduction, consumption, and accumulation (the third activity is often underestimated by agricultural researchers). Furthermore, separate compounds (concessions) should not necessarily be considered as independent family groups. For example, a "separate" family may continue to

Figure 6. The Village Territory



eat in their original compound and to work in the same fields, i.e., family segmentation is often a very long-term process taking several years.

2.4.1 Group Discussion

The Wednesday morning group exercise encouraged the participants to simulate an interview in a village. Participants again were divided into six groups. This group assignement would be used as well to prepare the interview guide for the village visit and for the Saturday sessions on research-extension. The interview exercise was:

Choose someone from among the group who knows a specific agricultural situation well enough to play the role of the farmer. Interview this person. From this interview, define the production system of the farmer and establish hypotheses about its constraints and research opportunities. Organize a presentation and list the important points on a flip chart.

The interview reports presented a broad range of very general information on the informant, the village, village agricultural production and cropping systems. Most of the groups did not identify specific constraints on improved productivity.[8] Each group did identify research questions, but the reports tended to reflect the situations and problems found in the Lower Casamance, such as problems of land tenure, land availability and salt water intrusion.

In the floor discussion of the interview results, most groups noted difficulty in obtaining information from the "farmer." Many participants tended to use technical terms or concepts that the farmers would not answer; many posed detailed questions related to field size or production and yields for which the farmer had no answer; many frequently, asked leading questions, did not attempt to establish rapport with the farmer, and tended to ask sensitive questions. The discussion of these latter issues emphasized the need for testing questions prior to doing a survey.

In order to help the groups prepare their interview guides, a brief "nuts and bolts" presentation was made on the principal characteristics of surveys, on the objectives and methodological aspects of exploratory surveys and on the use of a survey guide. The principal characteristics of a survey were identified: the target group and its size; sampling;

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[8]This may have reflected the sociological emphasis of the immediately preceding presentation.

representativeness; and different methods of sampling (stratification, cluster, random,and purposive). A wide range of practical, operational points was noted: survey timeframe (permanent to periodic or one-shot); closed, formal-type questionnaires or more anthropological and open-ended,informal surveys which maximize the farmer's comments; the means of recording information (the use of a tape recorder, written notes or notes prepared following the interview); the use of enumerators and their advantages and disadvantages; the question of language and the use of interpreters; the type of information to be collected in group interviews and that type generated more readily in private conversation; and finally, determining the type of survey to use as a function of the objective, the level of analysis, the phase of the research process, the means available, the discipline of the researcher and the type of analysis desired.

It was noted that exploratory (informal) surveys are useful during a pre-diagnostic research stage as a means for researchers directly to identify possible research problems. These surveys should permit a preliminary identification of different agrarian systems or agricultural zones and the basic constraints on improved production. They should also generate enough information to prepare a preliminary typology of different systems of production.

In order to prepare its survey guide each group received a brief typed note describing "its" village (See Appendix 3 for illustrative notes). Instructions were given on the organization of the field visit and the type of report to be prepared. Each group was expected to hold at least three interviews so that each successive interview could be improved or be used to obtain additional information. Each village

report was expected to include a brief description of the farming system, hypotheses concerning the farmer's constraints, and an identification of possible research or intervention opportunities.

The survey guides prepared by the groups closely followed the "Kaolack Guide" and Collinson's Guidelines[9] which had been distributed to the participants.

2.5 Thursday, 11 October 1984

The groups left for the village visits by 8:30 AM. Each group was accompanied by a member of the Djibélor Team, and included either a member of the PSR Department Central Systems Analysis Group or an invited guest researcher.

They were instructed to return by mid-afternoon to work on their presentations. Return time varied from 3:00 PM to 7:00 PM. Several groups worked on their reports as late as 11:30 PM. Apparently many teams did not use whatever guide they had prepared. Questions were posed in seemingly random order instead of proceeding logically from one subject to another. For example, one series of questions covered the following topics in this order:

maize, where grown
rice, cycle
groundnuts, variety
seeding and weeding
migration
labor constraints
groundnuts, inputs
reasons for migration
drought strategy
crop rotation
fallow
groundnut marketing strategy
millet, constraints
sweet potatoes, price
oil palm, income source
livestock, constraints.

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[9] See Appendix 1.

2.6 Friday, 12 October 1984

Friday's objectives were:

1. To present the reports of the village visit.
2. To discuss these reports.
3. To present and discuss the detailed results of the Djibélor Team's research in order to compare the "findings" of the group visits to the villages.

The groups were given an hour and one half to finish their presentations. Each group gave a 30 to 40 minute report, followed by 15 to 30 minutes of discussion.

The quality and nature of the reports reflected the general nature of the survey guides, which were not specifially oriented to the field visits and often did not reflect an explicit statement of group objectives or priorities. As a result, the reports were descriptive and very general. Some identified constraints on agricultural production, but most paid little attention to problems of agricultural development. For example, one group spent nearly half its time describing village associations, but neglected to discuss the role of these associations or their importance in village agriculture. In summary, the reports tended to be descriptive monographs that did not identify a problem or group of problems; they avoided a presentatation of hypotheses and analysis. Consequently the discussions were informative but could have been more instructive if each group had developed or identified research problems for the visits.

The group presentations were subsequently "compared" to the results of the Djibélor Team through Team member summaries of their work. The Team discussed zoning, agronomic testing and findings, livestock and animal traction, socio-cultural surveys, and economic analysis. The time, unfortunately, did not permit an adequate discussion of the problems associated with the preparation for the village visits or the way in which the visits were done.

2.7 Saturday, 13 October 1984

Saturday's objectives were:

1. To present and discuss a case study on the research-extension linkage.
2. To discuss the relationship between research-extension and thematic and systems research.
3. To hold a roundtable with policy-makers on the problem of research-extension.
4. To present a summary overview of the workshop, including an evaluation by participants.

The main discussants were Philippe Jouve, for the research--extension case study and John Lichte, for the summary overview and workshop wrap-up.

The research-extension case study was based upon a development project near Maradi, Niger. This project sought to link research with extension in order to implement the government's policy for reorienting agricultural development programs and for improving the effectiveness of the diverse interventions in this specific project. Researchers prepared a regional typology to select research themes and priority development interventions on the basis of identified development problems. From this typology, a research-extension program was defined, including applied research, monitoring and evaluation, extension and farm organization.

2.7.1 Group Discussion

The discussion groups addressed the questions of the relationship between research-extension and between systems and thematic research. Three groups were assigned the following R-E task:

Define the institutional and functional relationships necessary for the implementation of a research and development program.

The systems-component or discisplinary research question was to:

Identify the respective roles of disciplinary, on-station research, of systems research, and the linkages between them within the framework of a research and development program.

The groups dealing with the R-E issue presented standard descriptions of the institutional characteristics of research and extension agencies in Senegal. These descriptions drew heavily on material presented during the workshop. The reports repeated the widely known problems or critiques commonly cited by researchers and extension personnel vis-a-vis their respective counterpart agencies.

Most of these critiques arise from the inherent differences in the objectives, methods and organization of research and extension agencies. For example, researchers are criticized for studying non-essential or unrealistic subjects while extension personnel are seen as interested only in increasing crop production and in using research to solve specific and immediate problems.

The groups did not explore the possibilities for researchers and extension personnel to work together or to address common problems among themselves and with farmers. Instead, the groups drew primarily on the idea of research-extension committees as the means to assure the institutional and functional relationships necessary for joint R-E programs. Similarly, the policy implications of research-extension relationships were discussed only in very general terms.

The groups dealing with the systems-component research question tended to compartmentalize the two types of research on the basis of the identification of research problems. Systems researchers were characterized as using research to identify problems, while component

researchers were seen as being interested in carrying-out studies on pre-defined questions. The need for systems, component and disciplinary researchers to work together was recognized, but no concrete suggestions were proposed to bring about such collaboration. Similarly, the role of extension in this relationship was somewhat summarily treated. Many noted that extension agencies should be involved at the diagnostic stage, but usually only "received" already defined "solutions" from researchers.

The afternoon session summarized the weekly presentations and exercises by reviewing the weekly and daily objectives. The following list of systems research characteristics was used to delineate some of the key features of systems research:

Farmer-based	Perspective du paysan
Problem-solving	Problématique
Comprehensive	Compréhensive
Multidisciplinary	Pluridisciplinaire
Interactive	Interactive
Dynamic	Dynamique
Complementary	Complémentaire
Development-oriented	Lié au Développement
Policy Sensitive	Lieé à la Politique Agricole

Following this summary, the Governor of the Ziguinchor Region and the Directors General of SOMIVAC and ISRA directed a roundtable discussion on research-extension. During the discussion three different but complementary policy perspectives on the research-extension issue were presented. Time did not permit an in-depth discussion of the many questions posed by the participants. The roundtable did effectively remind everyone of the complex and difficult task of bringing together research and extension as long as both remained bureaucratically and structurally separated.

This roundtable closed the workshop.

3. ISSUES

This section presents major issues that arose during the planning and implementation of the workshop. Many of these should be addressed by those planning to run similiar training activities.

3.1 Coordinated Planning

If village or field visits are planned during a workshop, it is important to be in early, close and continuing contact with those "on the ground" who are responsible for the detailed organization of the visits. Even under the best circumstances, program planning will inevitably overlook some of the field level constraints on the organization of local visits.

3.2 Program Orientation and Workshop Organization

A PSR Workshop based on a national research and development experience offers a wealth of illustrative case material to complement more theoretical or methodologically-oriented presentations. The most appropriate balance between the use of case studies and more general or abstract presentations will vary according to the experience and background of workshop participants. Some general considerations that affect program scheduling need to be kept in mind.

The discussion of "real world" experiences easily takes time away from more formal lectures, but this type of formal presentation may be ineffective without an opportunity for participants to use their individual and concrete experiences for illustrative purposes. In fact, an opportunity to discuss "real world" cases can keep participants from getting "lost in the woods" of theory and abstract discussion.

Striking a balance between the concrete and theoretical requires that workshop coordinators remain sensitive to the evolution of the workshop and time for them to discuss on-going program changes.[10] Other factors which impinge on program flexibility include the type and amount of reading expected of participants and the nature (objectives) and length of time devoted to group discussion in contrast to less time-consuming lecture presentations.

Two tangential questions include the role of the workshop coordinator and "break" time during the day that is needed to keep participants from feeling rushed or harried. A workshop leader who can achieve each day's objectives and can keep the program "on-track" is critical to the success of a workshop. Such a leader can play a more substantive role in presentations and discussions, but this may occur at the expense of maintaining a measure of objectivity in overall program management. "Free" time is also critical, not only to assure that participants will maintain their interest and also to pace the workshop and to assure that sessions begin and end on schedule.

3.3 Group Discussions - Experiential Learning

Group discussions achieve their primary objectives by allowing participants to deal personally, and in a multidisciplinary context, with major workshop themes. Many participants noted that the group discussions were among the workshop's strengths since they provided a means to exchange points of view and more openly to discuss ideas and problems .

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[10]Available time is especially scarce when sessions run late and when meals are lengthy affairs. This time was not available as planned during the Nema-Kadior workshop. An effort to "cover the waterfront" of issues and questions in production systems research, in addition, also reduced the time for making adjustments.

Many group presentations did not receive adequate discussion time. Despite a concern with clearly prepared instructions, the tasks assigned to the groups for some themes (especially Research-Extension and the preparation of the exploratory guide) could have been more clearly written. It is not obvious, however, that the question of Research-Extension links could have been adequately discussed during this introductory workshop; nor is it obvious that the discussion group format was the most appropriate means for dealing with the essential aspects of this complex question.

The groups tended to limit the issues addressed in their discussions and presentations. Assigned tasks were interpreted as directives rather than guidelines and most presentations were cast in a fairly abstract, almost theoretical manner. It seemed difficult for them to state concretely, for example, how component and systems researchers might collaborate, or how researchers would proceed specifically to identify farmers' constraints. Such a narrow interpretation of the assigned topics limited the contribution of participants in the discussions of some important workshop themes.

3.4 Village Visits-Exploratory Survey Guidelines

The preparation of the exploratory survey guidelines for the village visits was instructive. It was unrealistic perhaps to expect each group to prepare more problem-oriented guidelines in the short time allowed and with the available information. The village visit reports, for example, showed that several groups had not defined the objectives for their village visit. The almost random nature of the interviews has been noted. This problem illustrates the need for training in interviewing techniques. Despite the simulated interview

"lesson", it was not uncommon for participants to pose abstract (how is your agrarian system organized?), and sensitive (who controls money in the household?) questions and to fail to probe partial answers. The workshop did not deal adequately with the techniques needed to conduct a village-level interview and the failure to teach these field techniques compromised the learning experience of the village visits. Given the time constraints on the workshop, it may have been useful to a priori restrict or limit the nature and objectives of the visits. The desirability and/or feasibility of a field exercise during a one week introductory workshop should be seriously examined. Case studies might be better suited for another one-week workshop. Alternatively, more attention could be given to practice interviewing.

4. CONCEPTS AND TERMINOLOGY

This workshop used articles, reports and documents written in both English and French. Most of the documentation in English that was distributed to participants was translated into French. These documents, plus presentations by Anglophone researchers, necessarily raised many questions of definition and translation. This section discusses some of the major questions of terminology.

4.1 Extension (Vulgarisation): Extension personnel often see extension as the only step in the production systems research process in which they should be or are directly involved. In order to break-down this barrier it may be more useful (for Francophone workshops especially) to replace the word "vulgarisation" by "diffusion," thereby emphasizing the notion of the extension

of a technique. This also opens up the possibility for extension personnel to be involved in PSR from the beginning, rather than being limited only to an "extension time."

4.2 Recommendation Domain, and other terms: The concept of recommendation domain does not translate clearly into French, but it is gaining currency among Francophone researchers. It creates some confusion, however, since it does not convey a sense of being as structured or as clearly defined a concept as "zone" or "typology." Since there are few, if any satisfactory substitutes, it may be advisable to continue to use the concept in similar workshops.

The use and translation of other concepts requires attention: on-farm research translates most clearly as "recherche en milieu paysan" and land tenure as "regime foncier." Circumstances does not usually translate directly as "circonstances," but instead as "facteurs," "situations," or "conditions", depending upon the context.

4.3 Approaches to Production Systems Research

There is no universal production systems research approach or language. Therefore, an identification of some of the differences between the Anglophone and Francophone approaches can help to clarify the presentations given in an international workshop.

There is a tendency among researchers using the Francophone approach to reject Anglophone empiricism, especially as characterized by CIMMYT. On the other hand, researchers who are more accustomed to a more empirical approach have difficulty accepting the presumed need to identify and define theoretical principles before doing fieldwork. From this "Angolphone perspective," the use of an exploratory survey as a

tool for an inventory or census (characteristic of the Francophone approach) is contrary to the timely identification of farm-level problems.

Integrating the two approaches is certainly feasible. The CIMMYT approach is incomplete, but it can help to establish valid starting points for a research program. It can also identify areas where information is lacking or confusing, and narrow the scope for more formal studies. Special studies and formal surveys, which oblige researchers to spend more time directly with farmers, can be used to complement the exploratory survey. This keeps the exploratory survey from becoming a first stage sampling study leading to a multipurpose elaborate, in-depth survey. The use of shorter, special studies or focused surveys can also help to control the data or information overload which tends to cripple many projects and prevents them from moving to the action stage.

5. LESSONS LEARNED

5.1 Forward Planning

Adequate preparation and planning for a similar workshop requires several months, with at least one person-month immediately prior to the workshop devoted solely to final preparations. During this forward planning period flexibility and openness in discussions with all researchers and program coordinators is of the utmost importance. Such frequent and open planning discussions in the early stages help to assure a common perspective and similar expectations for the workshop.

5.2 Documentation

The distribution of appropriate documents can be a valuable service of a production systems workshop in West Africa, especially given the

overall lack of documentation (scientific and professional) available to most researchers/developers. Considerable time and effort, however, is required to assure a useful collection and to arrange for translation when necessary. Documents should be distributed with the intent to serve as resources and not with the expectation that participants will be able to complete the reading during the workshop. Documents or readings considered critical to the discussions should be identified for the participants. When possible, key documents, especially those that provide critical baseline or background information, should be distributed to participants in advance of the workshop.

5.3 Workshop Orientation

Production Systems Research workshops in West Africa that are organized around a national program have the advantage of drawing specifically on national research experiences for case materials and discussions. Such an orientation helps to make a workshop more "real" for participants, while also providing an opportunity to develop a critical perspective on specific research (and extension) programs. It may be useful, in addition, to develop some case study material based on a specific national experience. Some group discussions may have been improved if concrete Senegalese examples had been prepared. Researchers from other countries and/or representatives from international institutes, however, should still play a valuable role by providing a comparative perspective derived from other research experiences.

5.4 Participants

A balance of component and systems researchers and of researchers and extension personnel is critical to the success of a workshop of this nature. A "research-extension" and "systems-component" mix brings

different experiences and pespectives to bear on specific questions and also helps to exchange information and ideas. In addition to enriching the discussions, such opportunities also help to establish longer-term professional relationships.

5.5 Group Discussions

The group discussions are a valuable technique for expanding individual opportunities to participate directly in the workshop program. The tasks assigned to the groups, however, must be specific and concrete if the discussion group format is going to work. Moreover, in addition to the pedagogical objective of "learning-by-experience," the programs objective(s) and role(s) of the group discussions must be clearly defined and evaluated. Despite this interest in using the gorup method, it may not be the most appropriate way to achieve a particular program objective, as in the case of the research-extension linkage issue. There are no stock, a priori solutions for managing the time allotted for group discussions. Instead, workshop coordinators must evaluate the program as the workshop evolves without, however, abandonning a defined schedule of activities.

The role of the groups will also vary according to the number of workshop participants and the amount of time available to discuss a specified number of issues. Thirty-five to forty participants seems to be an upper limit for a workshop similar to that held at the Nema-Kadior. With more than forty participants, adequate discussion time for most participants is difficult to arrange and logistic questions become complicated, confusing and difficult to resolve.

5.6 Village Visits

Village visits must be focussed and oriented toward a specific problem or question. This permits the groups to prepare a more directed and specific set of guidelines (open questionnaire). It would also give the groups a more specific and directed line of questions to ask during the visit, without sacrificing the learning experience of the exploratory survey or interview. In the absence of a specific and limited objective, the visits may result in a monograph instead of a more analytical report.

Such a "directed" visit would require more pre-workshop preparation at the village level (and would necessarily mean that the village visits should take place in areas where researchers are already active). It also requires more guidance and direction to the groups in the preparation of the survey guidelines. If possible, it would be useful to provide the groups with an example of a more specific (directed) survey guide to serve as a model in preparing their village guidelines. Indirect guidance should also be provided during the interview in order to assure that particiapnts are aware of when they may be getting "off-track" or to assure that the groups follow a line of questionning instead of asking an endless number of seemingly random questions. More preparation prior to the village visit can also help keep the village visits "on-track."

Village visits, for example, could be directed toward an examination/review of established field trials. This could be done by reviewing available secondary data and by interviewing farmers specifically concerning the trials.

5.7 Research-Extension

This topic deserves a separate workshop, but nevertheless, must be addressed in the context of a more general workshop on production systems research. Because the topic is so widely discussed and because everyone tends to have an opinion on it, the issue is probably best addressed by examining a specific case and problem. This could focus the evaluation of the issue and keep the discussion concrete and specific. Such a case study could be structured so that the progression from the pre-diagnostic stage through the testing and diffusion stage is clearly understood. A case study could also help to illustrate and identify the specific tasks at each stage of the systems research process. The group exercise on this topic as well could be improved by assigning individuals who are familar with the specific case to the groups in order to direct the discussions.

5.8 Other Questions

Workshop length: A workshop based on a national experience, and seeking to provide an orientation to production systems research,should be scheduled for at least 10 days, with a planned two-day break.

Program content: The questions of on-farm testing and trials and data analysis are critical aspects of the overall farming systems research process, but they are best treated in separate, more methodologically oriented workshops.

Workshop coordination: Keeping a workshop going and on-track requires an experienced coordinator. This individual needs to be familiar with the subject matter in order to make informed judgments on program changes and modifications while assuring that workshop objectives are met.

6. CONCLUSION AND FUTURE TRAINING

Most of the major observations, criticisms and suggested improvements made by the workshop participants have been included in the presentation of the workshop issues and lessons learned. The evaluation questionnaire that was completed by most of the participants and a random listing of responses elicited can be consulted in Appendix 5.

This workshop, as noted earlier, was designed to introduce the participants to production systems research and, thus, represents the first in a series of more specific workshops to be offered by the PSR Department through 1986. Separate workshops will address the use of MSTAT in agronomic research, the methodology of agronomic research under farmers' conditions and livestock systems research.[11] In addition the PSR Department will continue to encourage and support the participation of Departmental researchers in national and international conferences, seminars and workshops which can help them to develop professionally and to expand their professional relations in the international research community.

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[11] Note: The MSTAT Workshop was held in January, 1985. A workshop entitled "On-Farm Agronomic Research" was held in May, 1985 and a similar workshop on livestock research was organized in February, 1986.

WORKSHOP PROGRAM

WORKSHOP READINGS

PARTICIPANTS

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00	Registration	Daily Objectives	Daily Objectives	Daily Objectives	Village Visits	Daily Objectives	Daily Objectives
9:00		Production Systems Concepts	The PSR Approach Group Exercise	Village Visits Group Exercise	"	Report Presentations	Group Exercise
10:00	Distribution of Workshop Materials	Agricultural Research in Senegal	"	Break Report Presentations	"	Break Report Presentations	Break Group Presentations
11:00	"	"	Group Presentations and Discussions	Report Presentations and Discussions	"	"	"
12:00		Lunch	Lunch	Lunch	"	Lunch	Lunch
13:00					"		
14:00		The Agricultural Research Project	PSR Methods	Survey Guide	"	Report Presentations	Roundtable
15:00		Production Systems Team Presentations	Group Exercice and Presentations	Presentation of Village Notes	"	"	"
16:00		Break Discussion	Break Discussion	Break Presentation of Survey Guide	Return and Village Presentations	Djibélor Team Presentation	"
17:00		"	"	"	"	"	Closing
18:00		Daily Summary	Daily Summary	Daily Summary	"	Daily Summary	
19:00	Workshop Opening: Objectives,						
20:00	Program						

WORKSHOP PROGRAM

REPUBLIQUE DU SENEGAL

INSTITUT SENEGALAIS DE
RECHERCHES AGRICOLES

DEPARTEMENT SYSTEMES
ET TRANSFERT

INTRODUCTION A LA RECHERCHE SYSTEMIQUE

ATELIER DE ZIGUINCHOR

HOTEL NEMA-KADIOR - ZIGUINCHOR

PROGRAMME

D I M A N C H E 7 O C T O B R E 1 9 8 4

		ARTICLES-CLES
Matin et Après-midi	Enregistrement des participants Distribution des dossiers	
19h.00-21h.00	Introduction à l'Atelier (J. LICHTE, J. FAYE) Présentation des objectifs prévus Discussion des objectifs à ajouter Présentation du programme prévu	

L U N D I 8 O C T O B R E 1 9 8 4

(Animateur : John LICHTE)

8h.30-8h.40	Objectifs de la journée (J. LICHTE) Idées clés des articles clés sur l'approche systémique (Groupe Central - D/Systèmes)	GILBERT, NORMAN, WINCH NORMAN; Rapport Hotel Diola,
9h.30-10h.30	OUVERTURE OFFICIELLE M. le Gouverneur de la région de Ziguinchor M. Mamadou SONKO, Directeur Scientifique, ISRA	
10h.30-11h.00	Pause	
11h.00-12h.30	Historique de la démarche au Sénégal (J. FAYE) Leçons des Unités Expérimentales (J. FAYE)	FAYE FAYE; BENOIT-CATTIN
12h.30-14h.30	Déjeuner	
14h.30-15h.30	Projet Recherche Agricole et discussions (J. FAYE)	Banque Mondiale
15h.30-17h.00	Rapport de présentation des trois équipes Systèmes (Basse-Casamance, Fleuve, Sine-Saloum) (Coordonnateurs de programme)	
17h.00-17h.30	Pause	
17h.30-18h.30	Discussion des présentations des trois équipes Systèmes - Résumé des objectifs de la journées	
Soir	Lecture	

MARDI 9 OCTOBRE 1984

(Animateur : John LICHTE)

		ARTICLES-CLES
8h.30-8h.40	Objectifs de la journée (J. LICHTE)	
8h.40-9h.00	Idées clés des articles sur l'approche systémique (Groupe Central - D/Systèmes)	GILBERT;NORMAN;WINCH JOUVE HILDEBRAND + WAUGH
9h.00-10h.00	Exercice : différences entre l'approche systémique et la recherche/vulgarisation traditionnelle	
10h.-10h.30	Pause	
10h.30-11h.30	Présentation des petits groupes (exercice)	
11h.30-12h.30	Discussion des présentations	
12h.30-14h.00	Déjeuner	
14h.30-15h.30	Idées clés des articles clés sur l'enquête exploratoire, domaines de recommandation , zonage et typologie (GCAS)	COLLINSON ; HARRINGTON+ TRIPP Compte rendu Kaolack Rapport Hotel Diola.
15h.30-16h.30	Exercice : Informations essentielles à recueillir à chaque étape de l'approche	
16h.30-17h.00	Pause	
17h.00-17h.45	Présentation d'un groupe à un autre	
17h.45-18h.30	Présentation des résultats	
18h.30-19h.00	Discussion des résultats - Résumé des objectifs de la journée	
Soir	Lecture	

M E R C R E D I 1 0 O C T O B R E 1 9 8 4

(Animateur : John LICHIE)

		ARTICLES-CLES
8h.30-8h.40	Objectifs de la journée	
8h.40-9h.30	Idées clés des articles clés sur les visites de terrain (Groupe Central - D/Systèmes)	RHOADES LHOSTE BENOIT-CATTIN + FAYE
9h.30-10h.15	Exercice : jeu de rôle - Entretien avec un paysan	
10h.15-10h.45	Pause	
10h.45-11h.30	Elaboration d'un rapport basé sur l'entretien avec le paysan	
11h.30-12h.15	Discussion des rapports et des entretiens	
13h.-14h.30	Déjeuner	
14h.30-15h.45	Présentation des éléments essentiels d'un guide d'enquête (E. LANDAIS)	Compte rendu Kaolack COLLINSON
15h.45-16h.30	Notes sur les villages retenus pour les visites de terrain (Equipe de Djibélor)	
16h.30-17h.00	Pause	
17h.00-18h.30	Exercice : élaboration de guides d'enquête en petits groupes Résumé des objectifs de la journée	
Soir	Présentation des grandes lignes de l'approche systémique du Département des Systèmes Agraires du CIRAD (Ph. JOUVE)	

J E U D I 1 1 O C T O B R E 1 9 8 4

8h.00	Objectifs de la journée Explications - Instructions
8h.15	Départ aux terrains Entrevue 1 : discuter en petits groupes au village Entrevue 2 : discuter en petits groupes dans les champs Entrevue 3 : discuter en petits groupes au village
Midi	Casse-croûte au village
Après-midi	Elaboration d'un rapport de base sur les entrevues
Soir	Présentation informelle (LHOSTE, ORSINI) L'analyse typologique des exploitations agricoles à partir de l'exemple des Unités Expérimentales du Sine-Saloum

V E N D R E D I 1 2 O C T O B R E 1 9 8 4

(Animateur : John LICHTE)

8h.30-8h.40	Objectifs de la journée (J. LICHTE)
8h.40-9h.30	Finalisation des rapports
9h.30-10h.15	Rapport sommaire du 1er groupe
10h.15-10h.45	Pause
10h.45-11h.30	Rapport sommaire du 2e groupe
11h.30-12h.15	Rapport sommaire du 3e groupe
12h.15-15h.00	Déjeuner
15h.00-15h.45	Rapport sommaire du 4e groupe
15h.45-16h.30	Rapport sommaire du 5e groupe
16h.30-17h.15	Rapport sommaire du 6e groupe
17h.15-17h.45	Pause
17h.45-18h.30	Résumé des résultats de l'Equipe de Djibélor sur les villages Discussion des rapports Résumé des objectifs de la journée
Soir	Libre

S A M E D I 1 3 O C T O B R E 1 9 8 4

ARTICLES-CLES

8h.30-8h.40	Objectifs de la journée	
8h.40-10h.30	Exercice :discussion en petits groupes des thèmes de liaison : 1) Liaison recherche systémique - recherche thématique 2) Liaison recherche-développement Préparation des présentations	VIGUIER TOURTE WHITE
10h.30-11h.00	Pause	
11h.00-11h.45	Présentation commune de 3 groupes sur le premier thème	
11h.45-12h.30	Présentation comme de 3 groupes sur le second thème	
12h.30-14h.30	Déjeuner	
14h.30-16h.30	Table ronde sur les thèmes liaison recherche systémique/ recherche thématique/liaison recherche-dévelopement Réponses aux questions des groupes	
16h.30-17h.00	Pause	
17h.00-18h.00	Résumé de l'Atelier	
18h.00-18h.30	Evaluation de l'Atelier par les participants	
Soir	Soirée de clôture	

D I M A N C H E 1 4 O C T O B R E 1 9 8 4

Départ des participants.

INTRODUCTION A LA RECHERCHE SYSTEMIQUE

ATELIER ZIGUINCHOR 7-14 OCTOBRE 1984

DOCUMENTS DE LECTURE

I. INTRODUCTION A LA RECHERCHE SYSTEMIQUE : L'EXPERIENCE SENEGALAISE

Jacques FAYE

(Note ISRA sur l'historique de la recherche systémique)

R. TOURTE (Août 1977)

La Genèse des Unités Expérimentales

(Bambey, Sénégal : ISRA, CNRA Bambey)

Jacques FAYE

(Synthèse des Unités Expérimentales)

BANQUE MONDIALE (1980)

Sénégal : Projet de Recherche Agricole, Rapport d'Evaluation (Washington, D.C. : La Banque Mondiale) : Chapitres A 2.01- 2.04 ; D 2.12- 2.34

EQUIPES SYSTEMES

Notes de synthèse

II. APPROCHE SYSTEMIQUE : OBJECTIFS, METHODOLOGIE

D/SYSTEMES

Rapport du séminaire de l'Hotel Diola

Jacques FAYE (1984)

"Propositions pour la Mise en Place d'un Suivi Permanent des Exploitations Agricoles" (Dakar, Sénégal : Département Systèmes et Transfert, ISRA).

Michel BENOIT-CATTIN et F. RUF (1984)

"Diagnostics Techniques, Analyses Socio -économiques et Propositions d'Interventions de Développement" - Les Cahiers de la Recherche-Développement, N° 3-4 : 51-56

D. W. NORMAN (1980)

La méthode de recherches sur les systèmes d'exploitation agricole : son applicabilité au petit exploitant (East Lansing, Mi. : Michigan State University, Développement Rural , Cahier MSU N° 5)

Amal CHATTERJEE (1984)

"Le Rôle des Stations de Recherches Expérimentales dans le Farming Systems Research (FSR)" (Haïti, Centre de Recherche et de Documentation Agricole)

Philippe JOUVE (1982)

"Intérêts et Exigences Méthodologiques d'une Approche Systémique de la Production Agricole" (Montpellier : Journées de la Recherche-Développement)

GERDAT (1983)

Document non intitulé du Groupe de Travail Diagnostic Systèmes Agraires.

J.-Y. MARCHAL (1984)

"Pratique de la Recherche-Développement et Aménagement de l'Espace" Les Cahiers de la Recherche-Développement, N° 3-4 : 15-18

III. **LE PRE-DIAGNOSTIC**

D/SYSTEMES

Rapport du séminaire de l'Hotel Diola

P.E. HILDEBRAND ; R. K. WAUGH (1983)

"Recherche et développement des systèmes d'exploitation agricole" FSSP Newsletter 1,1

E.H. GILBERT; D.W. NORMAN ; F.E. WINCH (1980)

Les Recherches sur les Systèmes d'Exploitation Agricole : Une Evaluation Critique (East Lansing, Mi : Michigan State University, Développement Rural , Cahier MSU N° 6) : 11-14

.../...

Michel BENOIT-CATTIN et Jacques FAYE (1982)

L'Exploitation Agricole Familiale en Afrique Soudano-Sahélienne (Paris : Presses Universitaires de France, ACCT) : 11-14

CIMMYT

Planification des Technologies Appropriées pour les Agriculteurs (Londres, Mex : CIMMYT) : 22-35

L.W. HARRINGTON et R. TRIPP

"Domaines de Recommandation : Un cadre pour la recherche sur place" travail pratique du programme d'Economie du CIMMYT, février 1984

IV. VISITES DE TERRAIN

V. DOLLE (1984)

"Les Outils et Méthodes du Diagnostic sur les Systèmes d'Elevage" Les Cahiers de la Recherche-Développement, N° 3-4 : 89-96

Philippe LHOSTE (1984)

"Le Diagnostic sur le Système d'Elevage", Les Cahiers de la Recherche-Développement, N° 3-4 : 84-88

Robert E. RHOADES (1982)

"L'art de Mener des Enquêtes Informelles sur le Terrain" (Lima, Pérou : Centre International de la Pomme de Terre, Département des Sciences Sociales, Document de Formation 2-2)

Robert E. RHOADES (1982)

"Comprendre les Petits Agriculteurs : Perspectives Socio-Culturelles des Essais en Champs d'Agriculteurs", Département des Sciences Sociales, Document de Formation, 1982-3

M. P. COLLINSON (1982)

"Guide pour les enquêtes exploratrices" Farming Systems Research Eastern Africa : The Experience of CIMMYT and some National Agricultural Research Sciences, 1976-81 (East Lansing, Mi : Michigan State University International Development Paper N° 3)

Jacques FAYE et al. (1984)

"Compte rendu de la mission effectuée à Kaolack du 04 au 06 juillet 1984" (Dakar, Sénégal : ISRA, Département Systèmes et Transfert).

Eliassaint MAGLIORE et Michael YATES (1984)

"Recherche chez les Paysans" (Communication CRDA/CIMMYT)

V. LA LIAISON RECHERCHE - DEVELOPPEMENT

J. LEFORT (1982)

"Les Recherche-Développement intégrés en Milieu Rural" (Montpellier : IFARC-GERDAT)

W. F. WHITE (1981)

"La Mise en Place d'une Nouvelle Stratégie : une Nécessité (Introduction)" Participatory Approaches to Agricultural Research and Development : A-State-of-the-Art-Paper (Ithaca, N.Y. :Cornell University, Rural Development Committee, ARE N° 1)

P. VIGUIER et R. TOURTE (1979)

Les liaisons Recherche-Développement, Propositions pour une Organisation (Dakar : SERST), Extrait : 46-72 "Les Niveaux Possibles de Relations et Coordination entre Recherche et Développement"

ISRA - SOMIVAC

Protocole d'accord

INTRODUCTION A LA RECHERCHE SYSTEMIQUE

ATELIER ZIGUINCHOR 7-14 OCTOBRE 1984

LISTE DES PARTICIPANTS

DG-ISRA (1)

Ibrahima MBAYE

DEPARTEMENT SYSTEMES (8)

Jim BINGEN	Etienne LANDAIS
Eric CRAWFORD	Guy POCTHIER
François FAYE	Papa Léopold SARR
Jacques FAYE	Cheikh TALL

CHERCHEURS DEPARTEMENT SYSTEMES (15)

Bambey	Michel HAVARD	
Djibélor	Made DIOUF	Joshua POSNER
	Alioune FALL	Samba SALL
	Mulumba KAMUANGA	Lamine SONKO
	Madické NIANG	
Kaolack	Alain ANGE	Modou SENE
	Abdoulaye THIAM	
Saint-Louis	Medoune BEYE	Philippe LAMBRECHT
	Jean-François TOURRAND	Mamadou NDIAYE

CHERCHEURS AUTRES DEPARTEMENTS ISRA (9)

D/AGRO	Yamar MBODJ	CRA Djibélor
	Demba Farba MBAYE	CNRA Bambey
	Madame GAYE	ADRAO

.../...

D/FORESTO	Soulèye BADIANE	CRA Djibélor
	Gilbert DIATTA	CNRF Dakar
D/ZOOVETO	Ibrahima DIALLO	D/CRZ Dahra
	Khassoum DIEYE	LNERV
	Ndiaga MBAYE	D/ZOOVETO
	Mamadou MBAYE	D/CRZ Kolda

SOCIETES DE DEVELOPPEMENT (8)

SAED	B. KANE	D. R. D.
	Mallan DIATTA	Chef Périmètre Ndombo-Thiago
SODEVA-KAOLACK	Amadou CISSE	
	Abdoulaye NDIAYE	
SOMIVAC	Georges NAMEANE	PIDAC
	Ousmane SANE	SOMIVAC
	Mamadou DIALLO	SOMIVAC
	Sidy GUEYE	SOMIVAC

HORS SENEGAL (6)

GERDAT	J. P. ORSINI	
	Philippe LHOSTE	
	Philippe JOUVE	
ICRISAT	Dunstan SPENCER	
Université ZARIA	Georges ABALU	
FSSP	John LICHTE	

DISCUSSION GROUP ASSIGNMENTS

EXERCICE DE GROUPE

MARDI MATIN

Présentation : l'Approche Systémique

Exercice : Discutez les différences entre l'approche systémique d'une part et la recherche-vulgarisation traditionnelle d'autre part jusqu'à la pause. Faites une liste des points importants sur le Padex. Choisissez un membre du groupe pour présenter ces idées à la séance plénière. Chaque groupe dispose de 10 mn pour les présentations qui seront discutées ensemble.

Références : Gilbert, Norman, Winch
Norman
Rapport Séminaire Ziguinchor GCAS.

MARDI APRES-MIDI

Présentation :

Exercice : Vous avez trois ans pour faire une recherche systémique dans une nouvelle région. Quelles sont les étapes que vous suivriez et la durée de chaque étape . Quelles sont les informations prioritaires qu'il faut collecter dans chaque étape ? Quel pourcentage des ressources va t-il être dépensé dans chaque étape ? Vous avez 1 heure. Ensuite, avec un deuxième groupe, résumez les résultats, différences, similarités et les choix préférés par les deux groupes réunis. Tous les arguments seront à nouveau présentés et discutés (15 mn).

Réfrences : Collinson
Harrington + Tripp
Compte rendu Kaolack
Rapport 1er Séminaire Ziguinchor.

MERCREDI MATIN

Présentation :

Exercice : Choisissez parmi vous quelqu'un qui connaît bien une situation agricole donnée pour jouer le rôle d'un paysan. Ayez une entrevue avec lui.

A partir de cette entrevue, définissez le système de production du paysan et établissez des hypothèses sur les contraintes auxquelles il doit faire face, et les opportunités de recherche qui peuvent l'aider.

L'entrevue durera 30 mn. L'élaboration des systèmes et des hypothèses : 30 mn. Les présentations : 15 mn par groupe. Organisez-vous pour la présentation en utilisant le Padex pour retracer les points importants.

Conseils : Etablir un bon contact. Domaine couvert et qualité des données. Problèmes d'équipe et d'approche multidisciplinaire. plinaire. Elaborer un guide des thèmes.

MERCREDI APRES-MIDI

Présentation :

Exercice :(Mêmes groupes que le matin). Etablissez une liste des thèmes que vous utiliserez demain pour les entrevues avec les paysans. Comme on n'aura pas le temps nécessaire pour traiter tous les thèmes, faites des priorités dans vos listes. Arrangez-vous aussi pour que chaque membre du groupe ne pose pas en même temps des questions pendant l'entrevue.

Références : Rhoades

Compte rendu de Kaolack

Notes d'information par village (équipe de Djibélor).

INFORMATION NOTES

FOR VILLAGE VISITS

NOTE SUR LE VILLAGE DE MEDIEG

Le village de Médieg est localisé dans le département de Bignona et dans l'arrondissement de Sindian. Il est situé à 22kms au Nord de Bignona (grande ville la plus proche) et à 7kms à l'Est de Sindian. On peut y accéder plus facilement à partir de la route transgambienne au niveau du croisement de Diaroumé et par une piste plus ou moins praticable suivant la saison sur une distance de 9kms.

Ce village créé aux environs de 1800 est peuplé en majorité de Diola et a subi une domination politique mandingue du fait de la proximité de la Gambie. L'influence culturelle mandingue y est d'ailleurs beaucoup plus marquée. L'influence mandingue se note aussi dans les pratiques culturales et le mode de gestion des troupeaux. La zone de Médieg constitue de ce fait une zone tampon entre les ethnies Diola plus au Sud et les ethnies Mandingue plus au Nord (ce qui explique d'ailleurs l'emploi de l'expression de "diola mandinguisé" pour les habitants de cette zone).

Médieg compte une population de 994 habitants répartie dans 108 concessions et 7 quartiers. Le village, sur le plan des infrastructures sociales, possède deux écoles dont l'une est coranique, une coopérative et un terrain de sport. Le village est encadré par le PIDAC (Projet Intégré pour le Développement de l'Agriculture en Casamance) par le biais d'un GP (Groupement de Producteurs villageois) regroupant une quarantaine de paysans qui ont accepté d'appliquer des thèmes proposés par la vulgarisation. En contre partie, ils reçoivent des facilités dans l'acquisition d'intrants (matériels agricoles, semence, etc...).

Les sols de plateau, prolongement du plateau de la Moyenne-Casamance et de la zone des Kalounayes jusqu'au Nord de Sindian, sont sableux, très pauvres en matière organique et en argile. Ils sont aussi très ferralitiques.

Il existe à Médieg deux types de cultures : éxondé et pseudo-innondé. Les principales spéculations y sont l'arachide souvent cultivée en association avec le sorgho, le maïs (ZM 10) et le mil (sanio de Séfa et Sounay).

La riziculture occupe une place importante. Suivant la position sur la toposéquence, on distingue trois types de riziculture. Le riz pluvial se situe sur la partie haute de la vallée (zone très sableuse). Sur la partie moyenne, la riziculture est assistée par la montée de la nappe phréatique. La faible teneur en argile occasionne un retrait rapide des eaux de pluie.Ces deux types de riziculture sont caractérisés par un semis direct aussi bien à la volée qu'en ligne. La partie basse de la vallée est repiquée suivant la pluviométrie puisque inondée dès les premières grandes pluies de la saison (teneur en argile des sols assez élevée).

Il existe une division sexuelle du travail. Les hommes travaillent sur le plateau et les femmes descendent dans les rizières.

A côté de l'agriculture, l'élevage occupe une place importante dans les activités journalières. Les troupeaux sont plutôt individuels et

.../...

les animaux dominants par ordre d'importance sont les bovins, les caprins et les ovins. L'élevage est très intégré avec l'agriculture ce qui explique l'importance de la culture attelée et surtout la traction bovine.

La pluviométrie de cette année tourne autour de la moyenne de 1000mm (en 1983 elle était de 600mm en moyenne).

NOTE SUR LE VILLAGE DE BOUKITINGO

Le village se trouve sur la route du Cap-Skirring, à 7kms de Oussouye et à 15kms de la côte. Limité au Nord par le village de Oukout et au Sud par celui de Essaout, Boukitingo s'adosse à une grande forêt (celle à laquelle il doit son nom) face à ses rizières.

Boukitingo fut ainsi créé par des personnes originaires d'un même ville mais appartenant à des lignages différents.

Comme infrastructures socio-économiques: le village possède :

- une école
- un dispensaire
- une coopérative agricole.

Sur le plateau et dans quelques champs de cases, les paysans de Boukitingo cultivent le manioc, le niébé, l'arachide et le riz.
Dans la vallée, le riz est généralement repiqué après submersion des parcelles.

Dans ce village animiste, l'élevage se particularise par l'absence des ovins et par l'élevage des caprins et des porcins. Il existe un troupeau villageois appartenant aux différents lignages. Les animaux sont généralement sacrifiés lors des évènements religieux et pendant les fêtes familiales.

L'artisanat est représenté par la forge pratiquée par les Diédhiou.
Il existe des activités de subsistance telles que la chasse, la pêche et la cueillette.

Le village est actuellement composé de trois quartiers différents, avec un chef de village choisi dans le clan des Diatta. Il y a des chefs de lignages qui sont aussi des chefs de culte et des gestionnaires fonciers.

Il y a de nombreuses classes-d'âges dont certaines se retrouvent dans les sociétés de travail et dans l'association du foyer. Parmi ces sociétés de travail quelques unes sont devenues des groupements de producteurs encadrés par les structures de développement.

NOTE SUR LE VILLAGE DE MAOUA

Maoua, 45km au Sud-Est de Ziguinchor, est un des plus récents villages de Basse-Casamance. Fondé en 1953 par Mamadou SANE, un marabout originaire du Fogny (pays traditionnel Diola au Nord-Est de Bignona).

Les Diola constituent le groupe ethnique dominant ; les Mandingue viennent en seconde position. Les autres groupes ethniques représentés dans le village sont les Balante, les Peulh et les Mandjak. Le village est à majorité musulman et le marabout du village, fils du fondateur, perpetue la pratique de la médecine traditionnelle instaurée par son père.

La population du village est d'environ 255 (149 hommes, 106 femmes) regroupée en 24 concessions. Le village dispose de quelques infrastructures dont un dispensaire, une école coranique, une école française, une coopérative et un siège de la Communauté Rurale. L'accès au village est facile en toutes saisons.

Les cultures principales du village sont le riz, l'arachide, le mil, le maïs et le niébé. L'orgnisation sociale du travail est de type mandingue avec les hommes sur le plateau et les femmes cultivant uniquement les rizières. La culture attelée et l'emploi de la traction bovine sont en général peu importants. Les outils de culture manuelle d'usage courant sont le fanting, la cajendo, le kobadour et la houe.

L'élevage bovin est très peu important ; la présence de troupeau en élevage extensif n'est pas signalé. Mais les paysans élèvent des caprins, des ovins et de la volaille.

Maoua a tour à tour connu l'encadrement de la MAC[1] et du PIDAC[2]. Les paysans exploitent les rizières situées dans une vallée commune avec les villages voisins de Camara-counda et Touré-counda. L'acquisition de la terre se fait souvent par prêt et parfois par défrichement. Toute la terre est considérée comme appartenant au maroubout, chef de village.
La migration, peu importante, se limite souvent aux cas des malades venus se faire soigner.

La production s'organise au sein des concessions dont 16 sont des concessions à un seul ménage.

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1 Mission Agricole Chinoise

2 Projet Intégré de Développement Agricole de Casamance.

NOTE SUR LE VILLAGE DE BANDJIKAKI

Bandjikaki est situé à 10km de Diouloulou, près de la frontière gambienne. En année normale, la pluviométrie est de 1400mm ; cependant avec les 3 dernières années de sécheresse, la moyenne est seulement de 900mm.

La population est dominée par des Diola islamisés originaires du Blouf. La main-d'oeuvre masculine s'occupe du labour des rizières et champs de plateau ainsi que de la récolte des spéculations du plateau alors que seules les femmes récoltent le riz.

Les enfants et personnes âgées sont chargés de la conduite du cheptel intégré tandis que diverses personnes (Diola ou Peulh) sont spécialisés dans la conduite du cheptel extensif bovin.

Un modèle simplifié d'utilisation du terroir peut être présenté comme suit :

- Sur le plateau

  * En plein champ, à l'aide de la traction bovine ; les hommes ; en saison des pluies labourent en billon les champs d'arachide alors que les nouvelles défriches sont réservées pour le riz pluvial (riz Pam-Pam). Les animaux y sont en vagabondage durant la saison sèche alors qu'ils y sont pointilleusement surveillés sur les zones incultes en saison des pluies.

  * Les champs de case sont souvent clôturés, et essentiellement exploités en vergers,occupés en hivernage par le maïs et le manioc. Ils constituent le domaine de pâture des petits ruminants durant toutes les périodes post-récolte et sont souvent sujets de parcage des bovins.

- Dans les rizières

  Après le labour effectué par les hommes, les opérations du semis, de l'entretien de la parcelle et de la récolte sont exclusivement effectuées par les femmes.

Notons que le village est le site d'un nouveau barrage anti-sel en voie de construction par le PIDAC.

NOTE SUR LE VILLAGE DE BOULANDOR

Le terroir de Boulandor (Communauté Rivale de Ouonck, Sous-préfecture de Tenghory, Département de Bignona) est une auréole bloquée entre les villages de Ouffoulo (à l'Ouest), Djiguipoune (au Sud), Sentack (au Nord) et le Soungrougrou (affluent du fleuve Casamance) à l'Est.

La cité a été conquise par les résidents actuels (Sanécounda) sur la caste des forgerons (Diédhioucounda) désormais installés à Ouonck.
Deux grands quartiers ayant chacun à leur tête un chef de lignage constituent le village.

La localité est desservie par une route latéritique qui traverse la région des Kalounayes de Djiguinoume à N'Diéba. Les installations à vocation socio-éducative se résument en un centre de soins primaires, une maison familiale et l'école francophone disposant actuellement de trois classes.

La population actuelle est de 360 habitants répartis en 23 concessions. La composition ethnique est dominée par les Diolas, qui sont suivis par les Mandingues (3 concessions).

L'encadrement des paysans est assuré par le PIDAC (Projet Intégré de Développement Agricole de la Casamance) qui à travers le Groupement des Producteurs et le Projet Kalounayes encadrent l'organisation de la production agricole et de la pêche.

Les principales activités sont celles de la production végétale, animale et du secteur non agricole.
Les activités non agricole sont dominées par l'exploitation du palmier à huile (huile de palme et régimes de noix de palmistes). La pêche saisonnière effectuée dans le cadre de la coopérative des pêcheurs (Projet Kalounayes) constitue le second volet des activités non agricoles.

La volaille et les petits ruminants (où les caprins dominent) sont gérés au sein de la concession.
Les bovins sont regroupés en deux troupeaux de quartier dont l'un est placé sous la conduite d'un bouvier Peulh.

La surface agricole est dominée sur le plateau par la culture de l'arachide généralement associée avec le sorgho et/ou le mil. La proximité immédiate des sites de résidence est le domaine de la culture du maïs.
Dans la vallée les superficies innondables, anciennes zones de prédilection de la riziculture aquatique, actuellement désaffectées cèdent le pas à la zone de nappe où les femmes s'occupent de la production du riz, principale céréale consommée par les populations.

L'organisation de la commercialisation des productions non agricoles est nulle et se fait à travers les marchés de Bignona (± 17km) et/ou Marssassoum (± 10km).
Les transactions animales sont effectuées avec les Dioulas ambulants qui sillonnent régulièrement la région.

Quant à l'arachide, principal produit contribuant au revenu monétaire de l'exploitation agricole, son écoulement se réalise au travers de circuits règlementés de l'état.

WORKSHOP ANNOUNCEMENT AND

LETTER OF INVITATION

(EXAMPLE TO NON-ISRA PARTICIPANTS)

RÉPUBLIQUE DU SÉNÉGAL
UN PEUPLE - UN BUT - UNE FOI

MINISTERE
DE LA RECHERCHE SCIENTIFIQUE
ET TECHNIQUE

INSTITUT SENEGALAIS
DE RECHERCHES AGRICOLES

Rue de Thiong x Valmy
Boite Postale 3120 — DAKAR
Tél: 22-15-29 — 21-24-25 — 21-19-13

N° 3266 DG - ISRA

DAKAR, LE 26 JUIL 1984

NOTE D'INFORMATION

Le Département de Recherches sur les Systèmes de Production et le Transfert de Technologies en Milieu Rural organise à Ziguinchor (Basse-Casamance), du 7 au 14 Octobre 1984, un atelier consacré à l'approche systémique de la production agricole.

Cet atelier s'inscrit dans le cadre de la formation et de l'encadrement scientifique des jeunes chercheurs du Département. Y participeront à ce titre tous les chercheurs du Département qui n'ont pas encore reçu une formation spécifiquement orientée vers la recherche sur les systèmes agraires et les systèmes de production agricoles.

Ce séminaire s'attachera principalement à décrire dans le détail les aspects théoriques et pratiques de la démarche actuellement adoptée par l'ISRA, en s'appuyant sur l'expérience acquise depuis 1982.

L'originalité de cette démarche sera discutée par référence à des expériences menées en d'autres temps (cas des Unités Expérimentales du Sine-Saloum) ou dans d'autres pays.

Des visites de terrain permettront d'analyser le travail de l'équipe pludridisciplinaire de Djibélor (Ziguinchor), et d'illustrer divers aspects méthodologiques relatifs aux enquêtes et aux essais agronomiques.

.../...

Des cadres de différentes Sociétes régionales de Développement Rural sont invités à participer à cet atelier, ce qui leur permettra de s'informer sur la démarche de l'ISRA, mais aussi d'apporter le point de vue des "développeurs" aux discussions qui seront consacrées aux nécessaires liaisons Recherche/Développement.

Des personnalités scientifiques choisies en raison de leur expérience de l'approche systèmique de la production agricole dans les pays tropicaux sont également invitées. Leur présence permettra d'animer les débats et d'élargir les perspectives : si l'objet de cet atelier est avant-tout d'ordre pédagogique, l'ISRA espère en effet en tirer des enseignements, notamment au niveau de la méthodologie.

Dans le cadre de la préparation de cet atelier, un dossier documentaire sera constitué et adressé à chaque participant dès le mois de septembre. Une note détaillée précisera en même temps le programme définitif et le calendrier du séminaire, ainsi que les aspects pratiques : hébergement des participants, lieu des réunions et des visites de terrains, transport etc...

Pour le Directeur Général
de l'I.S.R.A.
et par délégation
Le Directeur Scientifique
MAMADOU SONKO

DESTINATAIRES :

. DG
. DS

Tous D/Centres.

. D/AGRO
. D/ZOOVETO
. D/OCEANO
. D/FORESTO
. UPE
. USAID.

ISRA
DEPARTEMENT SYSTEMES
Sous le n°

Monsieur l'Administrateur Général
du G R R D A T
42, rue Séheffer
75116 - P A R I S /

Monsieur l'Administrateur général,

L'ISRA à travers son Département de Recherches sur les Systèmes de Production et le Transfert de Technologies en milieu rural, organise à Ziguinchor (Basse-Casamance), du 7 au 14 Octobre 1984, un atelier consacré à l'approche systémique de la production agricole.

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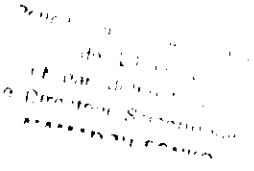
L'appui de deux chercheurs confirmés du GERDAT comme animateurs de l'atelier, dont M. Philippe LHOSTE et à défaut de Philippe JOUVE- un sénior plus particulièrement spécialisé dans la pédagogie (expérience d'enseignement et de conduite de travaux de terrain dans la démarche systèmes) est souhaité.

L'ISRA assurerait les frais de séjour au Sénégal des deux chercheurs et le GERDAT, les billets d'avion PARIS-DAKAR-PARIS, ainsi que les indemnités de déplacement éventuelles.

En vous remerciant de votre collaboration, je vous prie d'agréer, Monsieur l'Administrateur Général, l'expression de mes salutations distinguées et de mes sentiments les meilleurs.



Ampliations
- D/SYSTEMES
- M. le Chef du Département
6 Systèmes Agraires du GERDAT

WORKSHOP EVALUATION FORM AND PARTIAL LISTING OF PARTICIPANTS' COMMENTS

(PREPARED BY JOHN LICHTE)

EVALUATION : ATELIER DE ZIGUINCHOR

7 - 14 OCTOBRE 1984

1. Dans quelle mesure les objectifs de cet atelier ont-ils été atteints ?

   a. Quels sont les objectifs spécifiques qui n'ont pas été correctement remplis ?

   b. Quels sont les objectifs qui auraient du, à votre avis, être pris en compte en plus des objectifs retenus ?

   c. Le cas échéant, quels objectifs auraient du être supprimés - ou se situaient-ils en dehors de votre champ d'intérêt ?

2. Qu'avez-vous personnellement pensé de chacune des phases successives de l'atelier ? Présentez ci-dessous vos critiques et remarques.

   a. Lundi : Historique de la recherche agricole au Sénégal et première introduction à la recherche systèmique.

   b. Mardi-matin : Groupe de Travail sur la recherche systèmique et la recherche-vulgarisation traditionnelle.

c. Mardi après midi : Groupe de Travail sur l'élaboration d'un programme de recherche.

d. Mercredi matin : Groupe de Travail - entrevue avec un paysan.

e. Mercredi après-midi : Préparation d'un guide enquête

f. Jeudi : Enquête exploratoire

g. Vendredi : Présentation et discussion des rapports

h. Samedi : Groupe de Travail et Table Ronde

i. Présentations : Concepts et Méthodes de la recherche systèmique, l'organisation et fonctionnement du village et de la famille, concepts zootechniques ; présentations du soir (diapos, Lhoste/Orsini, Jouve

3. Quels ont été les points forts de l'atelier ?

4. Ses points faibles ?

5. Quelles seraient vos suggestions pour améliorer de futurs ateliers ?

6. Quel profit pensez-vous avoir personnellement retiré de cet atelier ?

7. Quel prolongement souhaiteriez-vous à cet atelier ?

8. Avez-vous d'autres commentaires sur quelque aspect de cet atelier ?

9. D'autres commentaires sur des aspects organisationnels ?

What are your suggestions for improving future workshops ?

- Increase the length of the workshop
- Examine the working group results more closely
- Center workshop activities on a particular point
- Link the workshop much more directly to field visits and writing up diagnostic analysis
- Increase the number of days
- Slow down the pace to place the emphasis on assimilation
- Documents should be distributed in advance especially given the time constraint during this workshop
- Choose better speakers capable of summarizing debate and synthesizing interventions
- Choose an "animateur" with experience in the field
- Increase the duration of the workshop
- Allow time for case studies of Systems Research and focus the workshop on 1 step according to the level of the participants
- Better channeling of group exercises : 1) 1 experienced leader per group to organize and evaluate the groups work ; 2) avoid discussion topics which are too general
- Diffuse documents before the workshop and make better use of them in the exercises
- A more flexible schedule. Have a synthesis after each expose and a general synthesis at the end of discussions
- Establish a program which can be completed in the time available
- Give the participants more time, time to read the documents distributed
- Don't keep people so late in the evening
- People must speak loudly when giving an expose
- Increase the field exercises and exercises focused on specific themes
- Have experienced researchers comment on the strong and weak points of each work group's presentation
- Increase the duration to 10-12 days
- Reserve more time for field exercises and discussion (3 days instead of 2)
- Diffuse documents at least 1 week before the workshop
- Lengthen the duration
- More time for discussion so that topics can be thoroughly covered
- Both the topics of discussion and the documentation should be sent to participants before the workshop so that they can prepare. This would improve the discussions
- Make better use of the field work and make it more valuable by analyzing its weaknesses.

What were the weak points of the workshop ?

- The pace was difficult to follow
- The lack of time and the lack of critique of work group results by the organizers
- The lack of agronomy (on-farm testing - design)
- Discussions of zoning, typology, and recommendation domaines
- The pace was not rational. The amount covered was excessive. The desire to do many things outweighed the desire to allow participants to assimilate what was covered
- The task for work groups on Research and Development linkages and the survey guide could have been improved. Stricter control and organization were needed
- The absence of a synthesis after each day
- The role of John Lichte did not seem necessary
- The conflict between different approaches sometimes hampered progress in certain work groups
- Night sessions
- The field exercise presentations led to a discussion that was never allowed to finish
- The importance of linkages between Research and Development were emphasized but the practical form of these linkages was never covered
- The need to present existing ideas concerning linkages between Research and Development and between Systems Research and On-Station Research within the frame work of the Systems Approach
- Concepts and were not very clear
- Certain documents translated from English were poorly translated
- The manner in which time was managed
- Time constraints, an over loaded schedule and too little time
- It was boring when 6 groups presented practically the same thing
- Too little time devoted to concrete linkages between Research and Development and between Systems Research and On-Station Research
- Insufficient organization and guidance of group exercises
- Relationships between cropping systems and livestock systems not well established
- The practical problems of whom will do what task were not tackled : who will do systems research, institutional arrangements, for the researchers. Some researchers don't know where to place themselves even after the workshop. Multiple affiliations?
- The failure to critique each work group's expose
- The field exercise and ensuing discussions
- The didactic aspect was somewhat marginalized. Over loaded schedule
- Poor organization in the sense that the schedule was over loaded
- The field exercise

The most startling comment on the evaluations was that the farmers perspective got lost as the week progressed.

What were the strong points of the workshop ?

- The presentation on concepts
- The work groups
- The field survey
- The presentation of field experience
- Presentation of the village visits
- The didactic character : there was constantly an attempt to illustrate what was presented
- Participation/organization in work groups
- The exercises and the exploratory survey
- Many concepts were presented and a good number of them were assimilated by participants. The steps in the process were well identified.
- Making people reflect on and become more conscious of the importance of the Systems Approach
- The discussions and exchanging different point of views
- The exchange of views and commentaries on the reports presented by different groups
- Everyone participated and was interested
- An initial outline of the Systems Approach
- Presentation of the concepts
- Team work in certain exercises - the multidisciplinarity is fundamental in the Systems Approach
- Excellent logistical organization
- Excellent working conditions
- Activities and discussions at the level of the participants. Fruitful exchanges
- Overall, a high level of quality was maintained. The exposes were very good
- The participation of development personnel and researchers and working in groups with both present
- Description of the Systems Approach and related concepts
- The willingness, interest and hard work of the participants up to the end even though the schedule was overloaded
- Exchanges on different approaches
- Conceptual contribution (Faye, Jouve, Landais)
- Taking account of livestock

List of Abbreviations

French Research Institutes (Selected)

CIRAD	(Formerly GERDAT): Centre de Coopération Internationale en Recherche Agronomique pour le Développement / International Center of Agronomic Research for Development
CTFT	Centre Technique Forestier Tropical / Tropical Forestry Center
IEMVT	Institut d'Elevage et de Médecine Vétérinaire des Pays Tropicaux / Research Institute for Tropical Livestock and Veterinary Medecine.
IRAT	Institut de Recherches Agronomiques Tropicales et des Cultures Vivrières / Tropical Agronomic Research Institute
LECSA	Laboratorie d'Etudes Comparées des Systems Agraires / Laboratory for the Comparative Study of Agrarian Systems
IRHO	Institut de Recherches pour les Huiles et Oléagineux / Institute for Oilseeds Research
ORSTOM	Office de la Recherche Scientifique et Technique d'Outre Mer / Office for Overseas Technical and Scientific Research

Senegal Regional Development Agencies (Selected)

SAED	Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal et des Vallées du Fleuve Sénégal et de la Falémé / Senegal River Basin Development Agency
SODEVA	Société de Développement et de Vulgarisation Agricole / Agricultural Development and Extension Agency
SOMIVAC	Société pour la Mise en Valeur de la Casamance / Casamance Regional Development Agency
PIDAC	Projet Intégré pour le Développemnt Agricole de la Casamance Integrated Development Project for the Casamance

ISRA-Institut Sénégalais de Recherches Agricoles / Senegal Agricultural Research Institute

ARDI	Actions Regionales de Développement Intégré / Integrated Action-Research and Development Program
BAME	Bureau d'Analyses Macro-Economiques / Macro-Economic Analysis Bureau
PAPEM	Point d'Appui de Prévulgarisation et de l'Experimentation Multilocal / Multilocal Trials Substation
PSR	Département de Recherches sure les Systemes de Production et de Transfer de Technologie en Mileau Rural / Production Systems Research Department

Other

FSSP	Farming Systems Support Project (University of Florida)
MSU	Michigan State University

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