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SEMI-ARID FOOD GRAIN RESEARCH AND DEVELOPMENT PROGRAM

(Contract OAU/CSTR - Joint Project 31)

Farming Systems Research Unit in Upper Volta

1979 ANNUAL REPORT

Contract AFR-C-1472
between
Agency for International Development
and
Purdue University

May, 1980

FARMING SYSTEMS RESEARCH UNIT - SAFGRAD

REPORT OF PROGRESS

December 8, 1978 - December 7, 1979

and

PLAN OF WORK FOR 1980

For Contract

AID/AFR-C-1472

Division of International Programs in Agriculture

PURDUE UNIVERSITY

West Lafayette, Indiana

INTRODUCTION

The purpose of this report is twofold: 1) to summarize the accomplishments during the first year of the contract and, 2) to present the plan of work that has been developed for the second year of the project. The project, hereafter referred to as the Farming Systems Research Unit or FSU, was initiated with the signing of contract AID/AFR-C-1472 on December 8, 1978.

The initial objective of the FSU (and its establishment) is to provide an understanding of existing farming systems in the Semi-Arid Zone of Africa, and the environment in which they have evolved. This will provide a scientific basis for establishing priorities in the conduct of agricultural research to increase production of food grains in the semi-arid region. Thus, the FSU is an integral part of the overall research effort under the OAU/STRC JP 31, Semi Arid Food Grain Research and Development (SAFGRAD), program. As implied by the name, SAFGRAD is designed to yield new technologies which will increase production of food grains. The FSU was included in the framework so as to provide the link between farmer and researcher that has so often been missing, but which is essential if research results are to be appropriate to farmer needs.

Given this general objective, the primary functions of the FSU are:

1. To conduct research which will lead to an understanding of existing farm production units as production/consumption systems. That is, to provide greater understanding of the set of physical, climatic, economic and social factors that constitute the environment within which the farm/household system makes and implements decisions about production and consumption.

2. To utilize results from research conducted under 1) above, to identify and prioritize factors serving to constrain production and productivity in the existing system, and to interact with other research components of SAFGRAD to identify research approaches to easing these constraints.

3. To evaluate the likely impact of new technological findings on the existing system. Different types of evaluation will be needed to reflect the differing requirements of information users, and the differing and changing environments for the new technologies.

4. To work cooperatively with other SAFGRAD research units and with Accelerated Crop Production Officers (ACPOs) in each country to design and carry out field trials and studies under farmer conditions.

5. To serve, with the ACPOs, to facilitate information flow from farmers to SAFGRAD researchers (and where possible as a linkage to research organizations) to insure that research is relevant to farmer needs and that research results are appropriate to the farmer's environment; and

6. To develop suitable methodologies for farming systems research in SAFGRAD member countries.

Intensive Versus Extensive Surveys:

Various methodologies will be used to achieve FSU objectives. Their appropriateness for implementation in all SAFGRAD member countries will depend on personnel and financial resources as well as defined objectives. For instance, intensive village level socio-economic studies are costly; data collection and analysis may take a long time. However, such studies generate data through which farm production and household economic relationships can be quantified. Certain types of production technologies can be evaluated with greater precision and confidence, and less cost. They increase the analytical value of various measurements and thus enhance the predictive capacity of farming systems models.

On the other hand, extensive surveys, being short-term in nature, can be less expensive and can yield much quicker results. They may be either quantitative or qualitative in focus. Such extensive reconnaissance type studies help researchers in: 1) acquiring first-hand knowledge of farmers and their problems as they see them, 2) identifying in broad terms important

socio-economic and agronomic forces that influence the farming system, 3) interpreting secondary data related to production system, and 4) formulating or generating certain hypotheses to explain current production practices followed by farmers and which could have important bearing on development of new or improved production technologies. Such surveys can be used to determine production practices and delineate the general geographical areas with broad common features that characterize the farming systems.

Extensive surveys can provide information (data) necessary for modification of existing farming systems models to reflect: 1) conditions in a different region, 2) specific technological or resource problems, 3) different agronomic constraints or opportunities, 4) different social, cultural or economic constraints, and 5) different farmer goals and objectives.

However, the extensive survey does not provide an adequate data base for initial model development. Thus, the combination of intensive surveys, (conducted initially as a basis for model development) in conjunction with a series of extensive surveys, (conducted over time, to broaden understanding of farming systems and regional applicability of the model) can be highly complimentary.

The remainder of this report is presented as two parts. The first section presents a summary of activities and achievements during the first year of the project. The second section presents a plan of work for the second year.

REPORT OF PROGRESS

(Dec. 8, 1978 - Dec. 7, 1979)

Major emphasis during the first year has been placed on getting a high quality staff in the field, setting up an administrative and logistical

support system in the field and on campus, establishing working relationships with other SAFGRAD and Upper Volta scientists, and initiating socio-economic and agronomic research to the extent possible. A great deal has been accomplished which provides a firm basis for the second year to be extremely productive in terms of research results and contribution to achievement of FSU objectives.

Research planning has been an ongoing activity which began before the first member of the team departed campus. Planning for the 1978 crop year was finalized during a formal planning session in Ouagadougou during April, 1979. Dr.'s Christensen, Singh, Morris and White participated. At the same time, numerous meetings were held with the units of SAFGRAD, USAID, OAU and institutions of the Upper Volta government which are involved in agricultural research, training and extension. The work plan developed at that time was based on best preliminary estimations of the speed with which U.S. and African personnel could be placed and engaged in research. Our assumptions proved too optimistic, and so we were unable to accomplish as much as was anticipated.

Accomplishments will be discussed in three sections: 1) FSU staffing and training, 2) village level surveys, and 3) agronomic trials.

FSU Staffing and Training:

The FSU core staff consists of one agricultural economist, who also serves as the team leader, one agronomist, and one anthropologist. Of the three key personnel, the agronomist, Dr. Paul Christensen, was the first to arrive in Upper Volta, West Africa, January, 1979. The agricultural economist and team leader, Dr. Ram D. Singh, joined the team in Upper Volta in August, 1979. He had visited Upper Volta during April-May and spent

three weeks in planning and initiating the field operations, especially the socio-economic studies. The anthropologist, Dr. Richard Swanson, joined the FSU team in August, 1979. Dr. Swanson brings with him a rich experience of working in the rural sector of Upper Volta.

The FSU field staff in Ouagadougou is backstopped, both scientifically and administratively, by a team on campus. The campus team consists of Dr. T.K. White, Campus Coordinator, Dr. W.H.M. Morris, P.I. socio-economic research, Mrs. Katy Ibrahim, Administrative Assistant, and computer and research support has been rendered by Dr. Saunders and Mr. Jones. The campus team members spend only part of their total time in FSU's activities. However, in the coming year, 1980-81, Dr's. Morris and Saunders will no longer be available for the FSU. The composition of the campus backstopping team will be reevaluated by Purdue and AFR/RA from year-to-year as support needs of the field staff change.

The Farming Systems Unit identified two individuals, one American and another French, to be hired as research supervisors for a period of one year. One of these, Miss Annie Bruyer, an anthropologist from France, joined the team on September 18, 1979. The other, Mr. Richard Miller, a graduate student from Northwestern University, was offered a position. However, for family reasons, he accepted another position.

Much effort was made to identify local professionals from economics, sociology, anthropology and agronomy to work with the FSU team. The aim is to offer them opportunities to acquire practical experience in the conduct of farming systems investigation, and analysis of socio-economic data. After search and evaluation, three Voltaics were identified. They are:

1.	Mr. Yanogo Alexis*	Degree in Economics with one year training in France.
2.	Mr. Savadogo Kimseyinga	Degree in Economics with courses in Rural Development.
3.	Mr. Bazouamon Bernard	Has completed three years of undergraduate work with strong quantitative background in the biological sciences.

The above mentioned individuals will work as research supervisors and will receive training under the guidance of the FSU team. They will be considered for advanced training and education in American universities where one expects that they will be able to initiate the university admission process starting January, 1981. Before their training commences in the U.S., they will have acquired valuable experience in socio-economic aspects of farming systems by participating in field surveys, collecting socio-economic data, and making preliminary analyses. It is hoped that these individuals will fit into their country's farming systems research after completion of their training in the U.S.

Another means of providing on-the-job training has involved a cooperative arrangement with the University of Ouagadougou. Students in the fifth year of study in agriculture are required to conduct a practical study in the field and write a paper based on their experience. The FSU is providing a workstudy experience for one such student at the present time. This student is helping the FSU team in its fields trials in the selected villages for intensive studies. He has also been assigned a topic on utilization of phosphatic fertilizer in farmers fields. He is collecting data from the field as well as from other published sources. An effort will be made to involve more students in the second year.

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*Since this report was drafted, Mr. Alexis has left the project to join the economic services with the government of Upper Volta. A potential replacement (a Voltaic ethnologist) has already taken over his responsibilities.

Village-Level Surveys:

The acquisition of primary data from intensive, long-term observation of agricultural household-production units (farms) is one means of developing a quantitative and qualitative basis for understanding existing farming systems. During the first year, several activities were undertaken which will make this kind of data collection possible during the 1980 crop year. Initially, we had hoped to get this village-level farm survey launched early enough to obtain useful data for the 1979 crop season, but staffing and organizational problems limited our accomplishments in this domain.

Three zones (Appendix A) were identified for intensive field research activities, taking into account the information needs of SAFGRAD and ICRISAT researchers. Due weightage was given to agro-climatic characteristics of the areas such as rainfall, soils, crop pattern and management practices. Additionally, while selecting villages in the three areas, farmers' cooperation and willingness to participate in FSU's agronomic field trials were also taken into account.

The first area is in Ouahigouya. The average annual rainfall in this area of study varies from 600 to 650 mm. In this area, most of the agricultural land is in the valley bottoms where it received some supplemental water and slit from surrounding hillsides. Though millet and sorghum are the major cereal crops, the cash economy of the area is oriented toward livestock production. Bovine traction equipment is used.

The second area is Nedogo, some 30 km. north of Ouagadougou. The annual rainfall in this region is around 800 mm. Here the soils are thin and infertile and have drainage problems because of laterite and hard pan just under the surface. Donkey hoes have been used for many years and a standard system for their use has developed. The cash economy of the area

is not specialized and includes: grain, peanuts, cotton, small animals such as goats and sheep, peanuts and other local products, all of which may be sold to the Ouagadougou market.

The third area is in the east central portion of the country near Zorgho, with an annual rainfall of 800-850 mm. Here soils are infertile but deeper and have greater potential for yield improvement under improved fertilization. There is little animal traction equipment. Sorghum and millet are major cereal crops while peanuts provide the major cash crop.

The intensive survey work was started in the village of Nedogo. (Ouagadougou) with complete enumeration of households. This village is comprised of 9 sub-villages. A complete enumeration of households in the selected sub-villages was conducted to provide an overview of the population. A sample of 30 households was then drawn for intensive surveys during 1980. Two interviewers live in the village to carry out day-to-day surveys. Their research supervisor will observe and study the area to gain qualitative understanding of the production system. Intensive survey work was also initiated in the three villages of Zorgho with an interviewer placed in each of the villages. Survey work commenced in Ouahigouya in January, 1980.

A set of detailed questionnaires was developed and tested (Appendix B). The questionnaires provide the means to collect information on current farm practices and production, input-use, resource productivity, production constraints, family labor use, consumption, transactions, land-use rights, farmers perceptions and preferences, and possibilities of the introduction of new technology. The questionnaires were finalized after a considerable amount of discussion with researchers in the field and others conversant with farm surveys in Upper Volta and some other parts of West Africa.

Several visits to villages and discussions with selected groups of farmers proved useful in preparing and finalizing the format of the survey questionnaires. An effort was made to achieve a high degree of consistency between FSU questionnaires and those employed by other researchers in West Africa so as to facilitate comparative analyses across geographic zones.

A mini-computer system has been installed for handling the quantitative data. This system uses magnetic discs for transfer of data files to Purdue University for summary and analysis. The computer is also capable of performing consistency checks and preliminary summaries of data in Upper Volta.

Agronomic Trials:

The choice of topics for investigation was based on two general criteria: the pertinence and timeliness of the topic, and the necessity of interdisciplinary analysis. The first topic chosen was the utilization of rock phosphate fertilizer. Rock phosphate fertilizer is just becoming available in Upper Volta and some West African countries. It will reduce the cost of crop production considerably, but its maximum benefits can only be obtained with certain changes in crop rotations. The changes in crop rotation and agronomic practices are necessary because the use of this fertilizer removes the soil fertility constraint to production in a fashion different from other fertilizers. A designed trial was placed in three of the villages chosen for socio-economic surveys. This trial was designed to test alternative sources of organic nitrogen to complement the rock phosphate. Previous work on responses to rock phosphate done by the Voltaic Phosphate Institute and IRAT had used the rock phosphate with imported chemical nitrogen fertilizer. The fertility trial was designed to establish the benefits of certain organic nitrogen

sources which can be used with the rock phosphate. The cost of this organic nitrogen will be determined from survey data.

The other topic investigated this year was intercropping of cereals and cowpeas. Intercropping is a strongly entrenched traditional practice in Upper Volta, and one suspects that the cowpeas are a major source of nitrogen for the cereal and thus have an importance far greater than the cowpea grain production would indicate. With the availability of the rock phosphate fertilizer one would expect the relative importance of all leguminous crops to increase. It may be possible to increase the productivity of cowpea-cereal associations considerably, by introducing planting in rows with erect varieties of cowpeas allowing inter-row cultivation, staggering planting dates to reduce competition between the two crops, and incorporating crop residues or animal manures for nutrient recycling. There is a limit to the possible intensification of cowpea production imposed by increased susceptibility to insect attack and marketing constraints. Even with insect attack, the increased production of cowpea forage and recyclable nitrogen could be of considerable value.

The 1979 trial results indicated the superiority of cereal-cowpeas mixtures under certain patterns of drought stress, even though the two crops competed intensely for soil moisture during early season droughts. The 1979 results also showed that failure to plant and incorporate the rock phosphate fertilizer early in the season restricts yield response. However, current planting and tillage practices may constrain the farmer to apply the fertilizer with his first weeding, and therefore restrict the first year return from phosphate investment. These observations will be used in the design of production scale trials for farmers' fields in 1980.

PLAN OF WORK FOR 1980

The work plan for the FSU during the period December 1979-December 1980 is designed with the following criteria as a basis.

1. Pursue the long-term objectives of the project but insure a flow of short-term outputs which will contribute to the overall SAFGRAD effort;

2. Build on staffing organization and preliminary research accomplishments of the first year;

3. Place primary research emphasis on Upper Volta farming systems but initiate efforts to extend activities into other SAFGRAD countries; and

4. Emphasize the integrative and collaborative roles of the FSU within the overall SAFGRAD and SAFGRAD associated research programs.

The work plan was developed during an intensive planning session held in Ouagadougou during the latter half of October 1979 involving the FSU field team and the Purdue Campus Coordinator. The tentative work plan was presented to and discussed with the OAU coordinator and AID representatives and has been discussed further at the FSU planning sessions with SAFGRAD and SAFGRAD associated research organizations in the spring. The major elements of the work plan are presented below under five activities:

1. Geographical division based on broad agro-climatic, economic and cultural characteristics relevant to production systems, and development of criteria for describing farming systems zones; and,

2. General qualitative description and analysis of existing farming systems and problems and constraints perceived by farmers in selected regions of Upper Volta.

3. Quantitative description, analysis, and modeling of farming systems.

4. Evaluation of selected technological problems and prospective technologies.

5. Communication of results of farming systems research to SAFGRAD and associated agricultural scientists.

1) Geographical Division and General Description of Farming Systems Zones.

The study of farming systems is usually structured by geographical division of farming systems zones. Within these zones further stratification of systems by agronomic and socio-economic factors is possible. The size of these zones will depend not only on absolute amounts of variation, but also on the specific objectives of the studies to be undertaken.

Geographical division of a region appears to be the most appropriate means of dividing area responsibility between two separate farming system groups, i.e., ICRISAT and SAFGRAD. Agricultural research scientists will, as a result, need to have direct contact with farming systems researchers from each area in order to adapt their research and recommendations to existing conditions in these areas. This guarantees access for each farming systems group to the agricultural research organizations and thereby widens the scope of interaction of farming systems groups with other scientists. Geographic division permits greater coverage of a region, given limited resources. It also increases incentive for adopting common and comparable research methodologies among the farming systems groups.

Given the FSU goal of disseminating information about existing production agricultural systems and superior techniques, it is important that a set of criteria for description and classification of farming systems zones in Semi-Arid Africa be developed, so that one can identify areas where new technology should be appropriately used. The FSU team will review classification and evaluation criteria being employed in other parts of the world and in farming systems literature. On this basis, a tentative set of criteria will be developed and distributed to knowledgeable people for review. A revised set of criteria will be developed for discussion at the SAFGRAD farming systems workshop in January.

2) General Qualitative Description of Existing Farming Systems and Problems and Constraints Perceived by Farmers in Selected Regions of Upper Volta.

Information for this description will be derived from preliminary data obtained in the early phases of the intensive farmer surveys being conducted in three regions, from extensive short-term surveys conducted in other regions, and from other existing data sources (Purdue's West African projects, MSU's Eastern ORD, ORSTOM, etc.). The objective of this activity is to provide preliminary information on the nature and generality of existing farming systems and tentative identification of farmer's perceived constraints limiting production. Emphasis will be on understanding general characteristics of farming systems as contrasted with detailed quantification of farmer resources, technical relationships and cost and returns. These exploratory surveys may in some cases lead to an identification of particular problems requiring more detailed information and therefore formal follow-up investigations.

3) Quantitative Description, Analysis and Modeling of Existing Farming Systems.

The development of a reliable data base for description, analysis and modeling of existing farming systems is important for the evaluation of certain kinds of improved technologies. Two types of activities will be undertaken to provide such a data base. First, the intensive study, initiated during the first year, of sample households in three areas of Upper Volta will be continued throughout the second year.* This study, utilizing frequent interview techniques and carefully designed and tested questionnaires, will provide detailed data on social, economic and agronomic characteristics of agricultural production systems in three regions.

*A set of questionnaires to be used is provided in the appendix.

Data collection will be closely controlled by researchers living in the region and coordinated by the FSU professional staff. Interview forms will be collected at frequent intervals, data coded and entered on micro-computer disks, and consistency checks and frequency distributions developed in the FSU office. Computer analyses of data will provide field researchers with rapid feedback on data quality and identify data problems that can be corrected by consultation with the farmer.

As data collection proceeds through the crop season, analyses will be conducted, using computer facilities in the field and at Purdue, to identify existing patterns of resource availability and use, farming practices employed, and constraints encountered with respect to the different seasonal production activities. This continuous analysis will allow the FSU to exploit data collection activities before the crop season is completed. Reports will be developed and disseminated to other parts of SAFGRAD in a timely manner. It is anticipated that, within the year, reports will be developed which describe demographic characteristics of households, resource structure of farms, land use patterns, early season labor use profiles, and the extent of utilization of various production technologies. These reports can be derived from analyses of data collected from the current crop season.

A second effort to develop a data base will entail the acquisition of data obtained by other institutions conducting research in Upper Volta and other SAFGRAD countries. This will include data from national research organizations, as well as, foreign groups conducting micro research in the region. Close cooperation with ACPO's in the various countries will facilitate identification and acquisition of relevant data. In addition, previous research will be reviewed for findings relevant to understanding farming systems behavior.

A simple linear programming model structure will be developed jointly by FSU field and campus staff. This model structure will be flexible so that the specification of the model can be easily modified and made increasingly realistic as data collection and analysis contribute to better understanding of structure and behavior of actual farms. This farm model will be useful for identifying constraints on production, and evaluating the probable response of individual farmers to changes in their market environment. The construction and use of the model will also provide indications of the adequacy of types and quality of data being collected.

The economic theory of the household will serve as the basis for developing a household model. This model will be useful in understanding household (family) decisions with respect to allocation of time and resources among agricultural and other types of activities and investments. It can also provide understanding of the contribution of social capital investments by the government (education and extension, for example), to increasing family well-being.

4) Evaluation of Selected Technological Problems.

Four technological problems have been identified by the FSU team, based on observation and interaction with other agriculturalists, that will be subjected to analysis during 1980. These are: 1) efficient utilization of rock phosphate fertilizer, 2) increasing the productivity of labor in early season activities - planting and first weeding, 3) increasing returns to land and labor through intercropping, and 4) the role of fallowing in soil maintenance. Quantitative, extensive surveys will contribute information which can be used by SAFGRAD and associated scientists in the orientation of their 1980 and 1981 research programs relating to these topics.

The efficiency of utilization of rock phosphate will be evaluated using information from previous studies, data obtained from farmer surveys and field trials. Farmer surveys and specialized interviews will provide background information on farmer perceptions of soil types, currently employed soil fertility maintenance and improvement techniques, and land use rights that may influence willingness to invest in phosphate application. On the basis of preliminary analysis of these data, field trials will be designed to produce yield response data for alternative levels of phosphate, sources of organic nitrogen and crops being grown. Trials will be conducted: 1) under farmer conditions, and 2) in designed experiments in farmers fields. Trials will be analyzed to determine yield response and interactions between phosphate levels and other treatments. Agronomic results will be used to analyze costs and returns in both partial (single crop) and systems (total farm) settings. Linear farm model will be employed to analyse the impacts of phosphate use on total farm resource allocation, optimal crop combinations and farm income levels. Social and cultural constraints on and consequences from use of phosphate will also be evaluated. Findings from this analysis may lead to more extensive trials by ACPO's and/or agronomic experiments by other SAFGRAD scientists.

The demand on labor to accomplish early season crop production operations appear to place extreme pressure on family labor supplies and result in non-optimal performance of some activities thus limiting total production. More information is needed to determine: 1) time and labor available and required to accomplish the various early season operations, and 2) the yields effects of non-optimal timing of operations. Previous research will be reviewed to obtain information on weather patterns as related to available time, labor demand patterns for different crops and different techniques, and sensitivity of crop yields to time of performance

of operations. Farmer surveys will yield data on actual practices, labor availability, labor distribution and currently used methods of adjusting to labor shortages during critical time periods. Cooperative agronomic experiments with SAFGRAD/IITA, ICRISAT and IRAT to evaluate yield response to planting and weeding dates will be pursued.

Long-term rainfall data will be sought through secondary sources, and if obtained, used to construct typical and probabilistics calendars of available time for selected operations. All these types of data will be used to specify the linear programming model to reflect time constraints and yield effects of timeliness of operation. This model formulation will be used to experiment with alternative practices and forms of mechanization so as to evaluate the impact on production and income of alternative means of increasing labor productivity during sensitive time periods. Model results will also yield useful information for plant breeders in terms of the importance of photoperiod sensitivity in crops.

Intercropping is a common but incompletely understood practice in Africa. Experiments with sorghum and cowpeas will be conducted in cooperation with IITA scientists to determine relative yields of sole and associate planting, staggered versus simultaneous planting, and use of erect cowpea varieties which would facilitate interrow cultivation. Survey data will provide information on extent of intercropping, farmer's reasons for this practice, techniques utilized, and possibly, yields effects. Both agronomic and economic analyses of data will be conducted.

Fallowing is commonly practiced as a means of soil fertility maintenance. Increasing population and resulting pressure on land will limit the length of fallow in the future. A better understanding of fallow patterns employed and the effects of alternative fallow periods is needed. The farmer survey

will provide information on historical land use. A special study will be made of a subsample of farmers to obtain more detailed information concerning historical fallowing practices, farmers' reasons for and systems of fallowing and willingness to modify land use. Analyses will be conducted to estimate the costs and returns to alternative fallow patterns and to evaluate the economic and agronomic consequences of practices such as fertilization and growing of legumes to replace or complement fallowing.

5) Communication of Results of Farming Systems Research:

The most immediate clientele to be using the results of the farming systems research are those agricultural scientists in SAFGRAD and SAFGRAD associated institutions who are engaged in the development of production technology for small farmers. Farming Systems researchers will therefore need to maintain an effective system of communicating with these scientists. Information about the existing farming systems, the factors that influence farmer's production decisions, and the constraints that limit production must be made available to the agricultural scientists so that they can orient their research to suit real farm conditions and constraints. This will ensure that agricultural research is so designed that among other things, it also takes into account farmers experiences and their socio-economic circumstances. Farming Systems research findings will provide guidelines for setting research priorities, and for designing and conducting agronomic trials.

During 1980, the FSU will have gathered and processed information on farming systems characteristics through surveys, literature review and agronomic trials in farmer's fields. This information will be relayed to agricultural scientists. At the same time, the FSU team will need, from agronomic scientists, information on technical possibilities for change.

This communication can take place through several devices such as: 1) visits to agricultural research programs in SAFGRAD members countries, 2) participating in workshops/seminars on farming systems related topics organized by other institutions, 3) organizing annual workshops (by SAFGRAD - Farming Systems Unit), and presentation of results of research on farming systems, and 4) exchange of reports and publications.

A workshop on farming systems is being planned to be organized under OAU/STRC PC 31 SAFGRAD in Dakar, Senegal from January 12 to January 15, 1981. This workshop will be attended by representatives of SAFGRAD member countries working in farming systems research. The workshop will be structured around the presentation of farming systems research results, methodologies followed, and the contribution of farming systems research in general. The usefulness of farming systems research in extension programs and in the formulation and evaluation of agricultural policy will also be evaluated. In addition, there will be special sessions for the discussion of selected technical topics.

With the SAFGRAD and SAFGRAD associated scientists at Kamboinse and Saria, the FSU is expected to interact and provide the necessary feedback concerning research priorities and agronomic trials. Similarly, the FSU will collaborate with the SAFGRAD's Accelerated Crop Production Officers (ACPO's).

APPENDIX A

Zones and villages selected for intensive surveys, extensive qualitative survey, and participation in surveys conducted by other institutions.

Location of Intensive Village Surveys

ZONES

01 - Ouagadougou

02 - Ouahigouya

03 - Zorgho

VILLAGES*

OUAGADOUGOU

01 - Nedogo

OUAHIGOUYA

02 - Aoréma

03 - Sodin

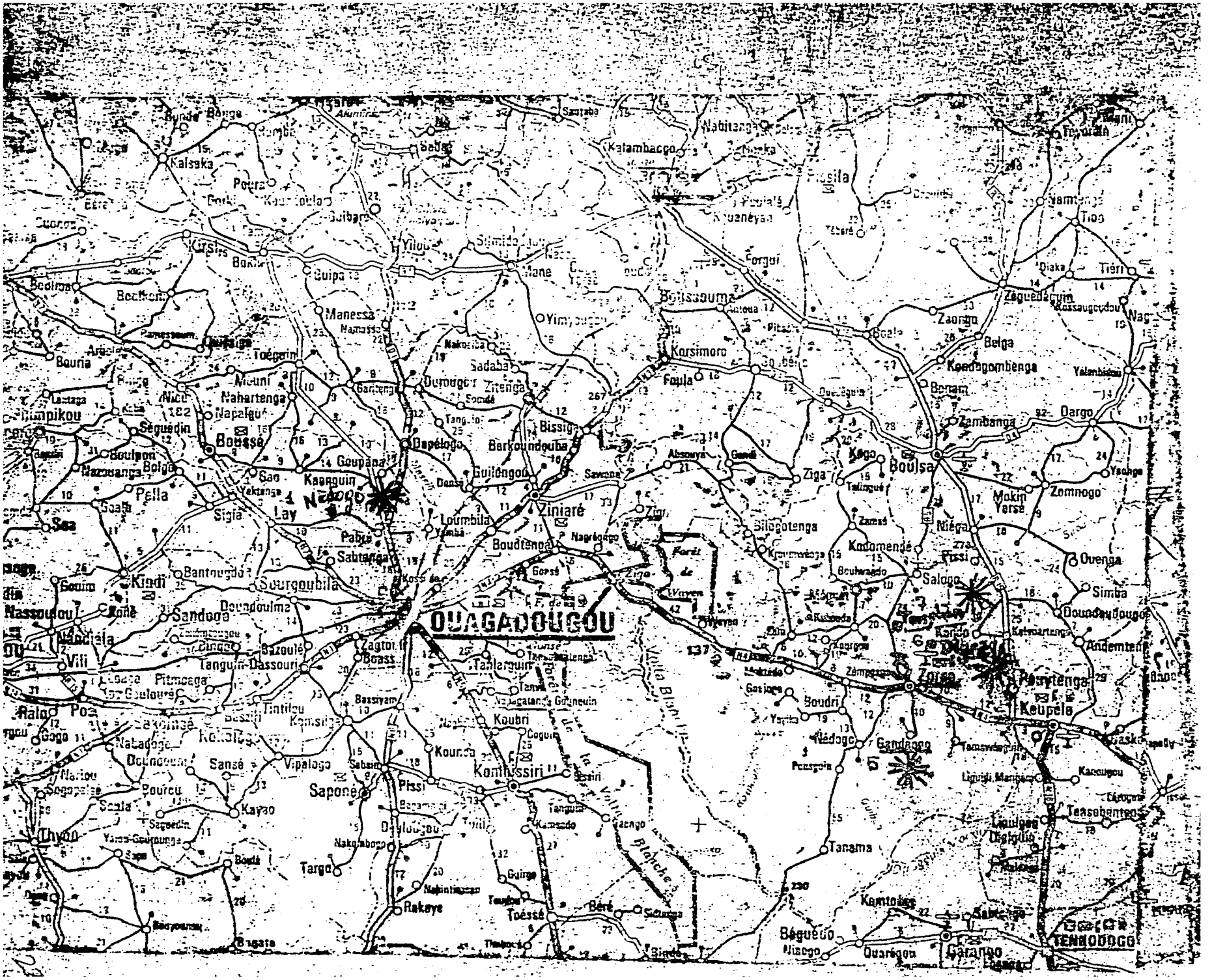
04 - Tougou

ZORGHO

05 - Gandaogo

06 - Digré

07 - Tanghin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Sabtenga
Pabré
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Sandogo
Bazoulé
Tanguin-Dassouri
Zagtouli
Boassé
Tanlarguin
Koubri
Kourda
Vipalogo
Sansé
Pissi
Rakaye
Tiébélé
Bélé
Bissiyam
Nabadogo
Ouagadougou
Nagréongo
Gounghin
Kamboinsé
Kossodo
Gounghin
Nomgana
Ramongo
Zamo
Ziga
Absouya
Sawana
Zitenga
Sadaba
Durouge
Manessa
Toéghin
Nahartenga
Napalgué
Séguédin
Boulpon
Bolgo
Nazoanga
Pella
Goala
Sigia
Lay
Kaongoin
Goupéna
Dapélogo
Dassa
Gao
Yaktenga
Kindi
Bantougdo
Nassoudou
Konè
Mandiala
Vili
Pitmoaga
Ralo
Poa
Nabadogo
Ouncoumi
Sansé
Pourcu
Kayao
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Bouria
Bédéoa
Bédéoni
Kalsaka
Poura
Kirsirs
Bokin
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Silmidi
Nane
Bouissouma
Korsimoro
Foula
Bonam
Zaongo
Belga
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Zamsé
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Kodomengé
Niéga
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Zomnogo
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Boudri
Yédogo
Gandaogo
Pensgoin
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Kancugou
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Béguédo
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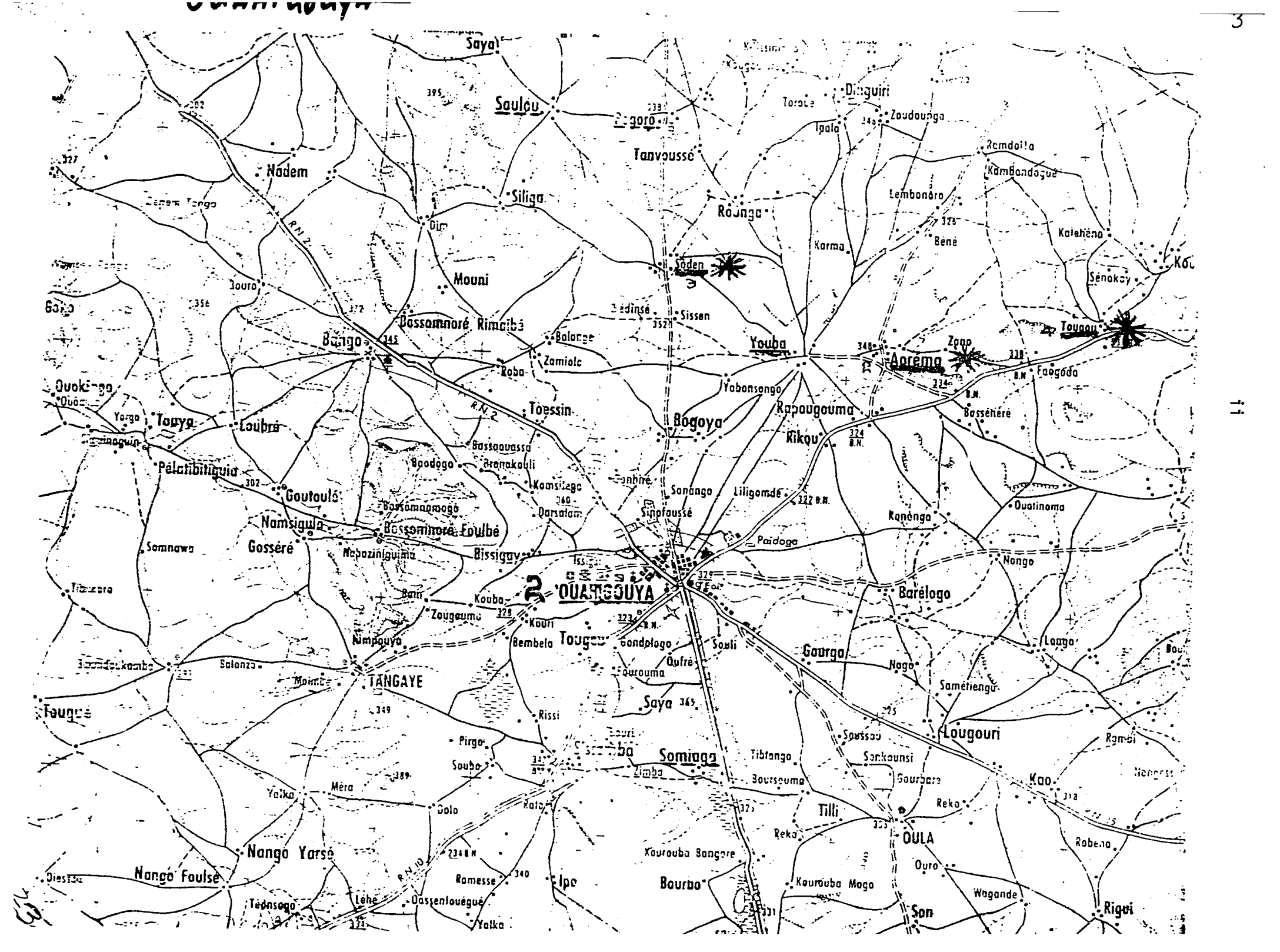

Saya
Saulou
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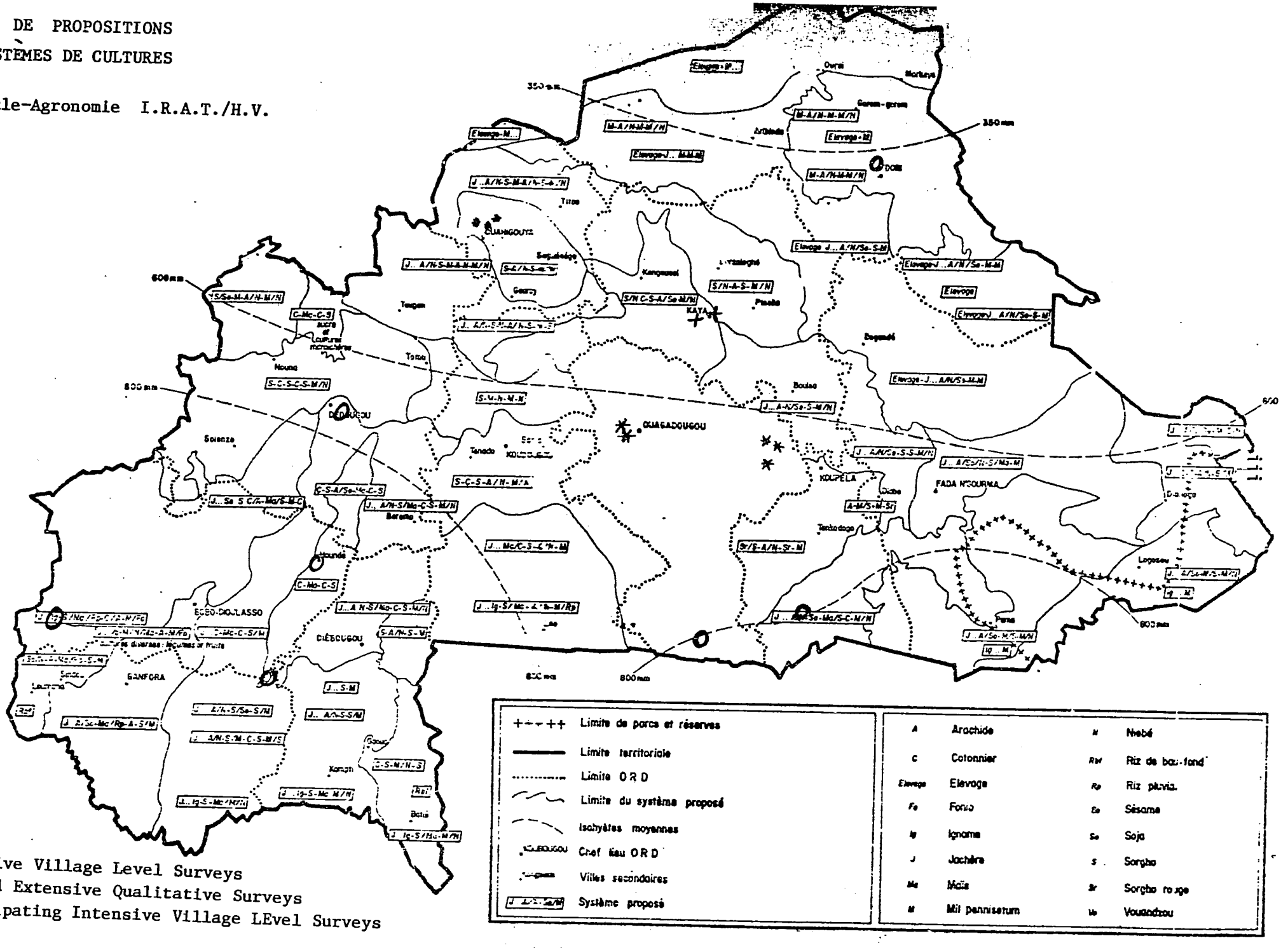
Nadem
Siliga
Dim
Mouni
Bassomnoré Rimaibé
Bango
Roba
Zamiolo
Toessin
Bogoya
Youba
Aoréma
Zano
Tougou
Faogoda
Rapougouma
Rikou
Bassénéré
Yabonsongo
Sissen
Soden
Karma
Bené
Lembonoro
Kambandogué
Ramdolla
Kalehéna
Sénokoy
Ouokingo
Touya
Loubré
Pélatibitiguia
Goutoulé
Namsigula
Gosséré
Bassomnoré Foulbé
Bissigay
Somnawa
Bassaouassa
Baodoga
Bronakouli
Komsilega
Darsalam
Sanango
Liligomdé
Sinofoussé
Paidoga
Kanonga
Ouatinoma
Nongo
Barélogo
Kouba
Zougouma
Kouri
Bembela
Tougou
Gondologo
Souli
Gourga
Nogo
Samétiengu
Lougouri
Nimpouya
TANGAYE
Balonza
Moimbé
Tougué
Saya
Rissi
Pirgo
Souba
Somiaga
Zimba
Tibtanga
Boursouma
Soussou
Sonkounsi
Gourbare
Kao
Reko
Tilli
OULA
Ouro
Wagande
Son
Rigui
Robena
Yalka
Méra
Dolo
Nango Yarsé
Nango Foulsé
Ramesse
Ipo
Bourbo
Kourouba Bangaré
Kourouba Mogo
Tédnsoga
Léhé
Dassentouégué
Yalka
R.N. 2
R.N. 10
R.N. 15

CADRE DE PROPOSITIONS
DES SYSTÈMES DE CULTURES

Cellule-Agronomie I.R.A.T./H.V.



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* Intensive Village Level Surveys
) Planned Extensive Qualitative Surveys
- Participating Intensive Village LEvel Surveys