

FSSP NETWORK REPORT NO. 1

"ANIMAL TRACTION IN A FARMING SYSTEMS PERSPECTIVE"

A FARMING SYSTEMS SUPPORT PROJECT NETWORKSHOP

MARCH 3 - 8, 1985

KARA, TOGO

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The Farming Systems Support Project (FSSP) is a Cooperative Agreement between the University of Florida and the United States Agency for International Development, Cooperative Agreement No. DAN-4099-A-00-2083-000, Project Number 936-4099.

ACKNOWLEDGEMENTS

The networkshop coordinators, resource persons, participants and the Farming Systems Support Project express their appreciation to the Direction Regionale de Developpement Rural and the USAID Mission in Togo for hosting the "Networkshop on Animal Traction in a Farming Systems Perspective". Their willingness to host the networkshop is further indication of their support for the development and extension of animal traction technology for West African farmers. We thank the Togo Animal Traction Project Staff for their support and participation during the networkshop, for the use of their office equipment to meet our secretarial needs, and especially for their help in making the arrangements for our field trip. Our appreciation is also extended to the many projects, including Togo Animal Traction, which provided vehicles and drivers for the field trip.

The Hotel Kara provided us with a comfortable workshop setting and succeeded in meeting all of our many special requests. We express our thanks to the hotel managers and staff for their hospitality and assistance. We would like to thank the Prefecture of Kossah for officiating at the closing of our networkshop. We owe a special thanks to the Conference Management Bureau for providing excellent translation services throughout the networkshop. Finally, we would like to thank all of the farmers, extension agents and project managers visited during our field trip. We hope the results of our networkshop will ultimately prove useful to you in your efforts to successfully adapt and use animal traction technology.

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SECTION I: INTRODUCTION AND NETWORKSHOP OVERVIEW

REPORT LAYOUT

This is a report on the FSSP Networkshop on "Animal Traction in a Farming Systems Perspective", which was held March 4-8, 1985 in Lama Kara, Togo. The report is divided into six sections. The first provides an overview, background and summary of the networkshop and outlines the five major themes of discussion for the five-day program. Section II contains major background presentations including a summary of the systems experience to date related to livestock, an overview of animal traction research and extension in Africa, and a presentation covering the highlights of a previous networkshop in Swaziland, sponsored by The International Maize and Wheat Improvement Center (CIMMYT), which also focused on animal traction and forage requirements. Section III reports on the field trip to visit several animal traction projects in the Lama Kara region and the country reports made by the non-Togolese networkshop participants. Section IV summarizes small group discussions on the five major themes. Section V gives the wrap-up and concluding statements by networkshop facilitators and a summary of the participant evaluation. The last part of Section V outlines plans made to continue networking through the rest of the year, culminating in a second networkshop in 1986. The final section contains appendices pertinent to the rest of the report.

WHAT IS A "NETWORKSHOP"?

The term "networkshop" comes from CIMMYT's Eastern and Southern Africa Economics Programme, and is used to describe a workshop where peers with common concerns come together to exchange information and results, and to determine common strategies for solving problems. A "network" of shared results develops from continued support for the same (or nearly the same) group to meet on a regular basis. The Farming Systems Support Project, FSSP, recognizes that both intra- and inter-country peer group interaction will greatly enhance the development of Farming Systems Research and Extension, FSR/E, as a viable agricultural development approach for West Africa. The FSSP is committed to the support of existing FSR/E networks in the West African Region, such as the West African Farming Systems Research Network, WAFSRN, and stands prepared to assist formal networks in developing activities as necessary. However, FSSP also recognizes that networking does and must take place outside of formalized networks and that such activities can often contribute to the growth of formal network structures by creating a "felt need" among researchers and practitioners for peer exchange of problems and results. The Togo Networkshop on "Animal Traction in a Farming Systems Perspective" is an example of such a peer exchange.

RATIONALE FOR THE NETWORKSHOP

The idea for FSSP to organize a regional networkshop on animal traction and FSR/E arose out of a concern expressed by participants in previous FSR/E training activities that too little attention in FSR/E was placed on the animal systems within West African farming systems. In developing a networking activity to address the issue, FSSP organizers felt that "animal systems" in general was too broad of a theme for a single networkshop, and decided instead to focus on a specific intervention technology and use the FSR/E perspective to explore problems and results found to date in its application in West Africa. Animal traction was selected as the networkshop theme for two reasons. First, USAID/Togo offered to host the networkshop, and, since animal traction is a focal issue in Togo's agricultural development plans, the topic seemed especially appropriate for this networkshop site. A second and stronger argument for the topic was the fact that focusing on animal traction technology provided a very useful entry into the exploration of the crop-livestock interaction in the farming systems of the region, and generally into the utility of the FSR/E approach in the research and extension process.

Animal traction is a unique technology in the general agricultural development portfolios of donor organizations in Africa, although worldwide it has a long history of proven utility and adoption. It is a farmer-generated technology many centuries old, found in virtually every ecological zone. Though it spread successfully to most parts of the world without the assistance of extension systems and donor funds, its development and diffusion in West Africa, despite considerable donor funding, has been uneven and problematic. For this reason, it seemed particularly useful to explore the topic in the context of a networkshop where researchers, practitioners and policy makers could have an opportunity to discuss the suitability of animal traction technology for the region, and mechanisms that might promote greater and more successful utilization.

NETWORKSHOP OBJECTIVES

The Networkshop objectives included:

1. Establishing an information exchange among animal traction projects in West Africa;
2. Developing an inventory of animal traction projects and activities in the sub-region;
3. Identifying animal traction research problems and potential solutions;
4. Developing a research agenda for the specific regional problems; and
5. Developing follow-up programs which might involve exchange visits, technical assistance and training activities, and further networkshops.

PROGRAM OVERVIEW

On the first working day, keynote presentations were made relating to FSSP, on-farm research methodology, animal traction in Africa and a conceptual typology of animal traction programs. Background information and observation frameworks were presented for the subsequent field visits.

The second day involved group field visits to four distinct areas and many different farmers, projects and associations. Field trip teams met during the evening to discuss their findings and conclusions.

The third day involved synthesis of the field trip experiences, combined with further information from the projects of the participating countries. Slide presentations were given illustrating the work of the Sierra Leone Work Oxen Project, ILCA/Ethiopia, Senegal, and animal traction activities elsewhere in Africa. A report was presented on the CIMMYT networkshop on feed resources and animal traction held in Swaziland in 1983.

The fourth day involved intensive small working groups, followed by group presentations. Subjects included management of draft animal technology, forage and feeding, preconditions for successful animal traction, methodology for animal traction research, and the monitoring and evaluation of animal traction activities.

The final day involved additional work group sessions, followed by plenary presentations and discussions relating to possible solutions to the problems raised. The networkshop closed following synthesis of the week's experiences and a discussion of follow-up activities. The networkshop schedule in Appendix 10 provides greater detail on the events and presentations made during the week. Following the workshop, (after departure of the participants from outside Togo) the resource group had a day of discussions with representatives of the Togo Animal Traction Project team.

TOPICS OF SMALL WORKING GROUPS

Small working groups focused on five topics which were developed in advance of the networkshop by the facilitators (see participant list, Appendix 1 for the list of facilitators and resource persons). The first three dealt with specific problems in adopting animal traction; the other two considered related topics.

1. Animal feeding.

Dry season maintenance and feeding of livestock is a problem recognized throughout West Africa. Due to the animal traction theme, the main focus for discussion was on cattle and other large ruminants. Maintenance of cattle or other traction animals without recourse to transhumance is perhaps the most important constraint to animal traction and the integration of livestock into crop-oriented farming systems. The effective use of existing forage, the use of crop residues, the possibility of using purchased feeds and supplements, improved forage production and the

elaboration of minimum maintenance rations using locally available feedstuffs were some of the techniques discussed with regard to their contribution toward overcoming this constraint.

2. Management of new techniques/technology.

The introduction of technology has often failed because farmers did not have the technical (management) level necessary to use the technique/technology to advantage. Three-to-five years of accumulated experience may be necessary to manage a new technique well. This delay is exacerbated by the use of technology packages which require a farmer to learn a number of techniques and their interactions at the same time. The group discussed the kinds of information and management requirements a farmer must have when facing animal traction adoption from one of the four (or more) situations described above, and the kinds of information and training needed to facilitate this transition.

3. Preconditions for successful animal traction adoption.

Both exogenous and endogenous preconditions were considered. Exogenous factors are those from the farmer's environment which may influence the success of the farming system or its subsystems. These include the availability of timely input delivery, transportation, marketing services, animal health services and credit. Endogenous factors are those internal to a farming system such as the farmer's resource levels, experience with cattle and other large ruminants, cropping patterns and the level of technical/management skills. Are there certain resources, experiences or technical/management skills which a farmer should have before undertaking the heavy capital investment required by the animal traction technology? Preconditions should be considered not only with regard to repayment, but also with regard to the expectation that animal traction can realistically produce the theorized benefits for the farmers. From a systems perspective, perhaps animal traction should be considered as an intermediate technology in a broader project/development framework. The introduction or improvement of animal traction might be initiated with farmers who meet certain preconditions, but the first phase might be largely devoted to helping other farmers develop the resources and technical/management skills which would allow them to successfully adopt and benefit from animal traction.

4. Methodologies for on-farm experimentation with animals.

Even though there are many years of accumulated experience concerning on-farm agronomic testing, the correct or best methods are still vigorously disputed. The same kind of experience does not seem to exist with regard to on-farm experimentation with animals. Researchers and extension personnel often seem to lack the methods which would allow them to undertake effective animal-related testing. Is it possible to identify procedures or types of on-farm experimentation with animals which have been found to be effective or are likely to be effective?

5. Monitoring and evaluation criteria for animal traction and other projects including livestock.

The lack of generally accepted methodologies for on-farm experimentation with animals contributes to the difficulty in identifying evaluation criteria for livestock-related project components. Adoption rates have often been used, but if animal traction and other livestock components are regarded in a larger systems perspective and/or as an intermediate phase in a multi-phase process, then the placement of animal traction units is not an appropriate evaluation criterion during the early phase(s). If the kinds of preconditions mentioned above can be identified for particular situations then these might indicate better evaluation criteria. But it is likely that these preconditions will differ in different farming systems. This may lead to a system where some evaluation criteria cannot be identified during project design, but must be developed as part of on-going project monitoring and evaluation.

Discussion on these five topics was guided by an overview of Farming Systems Research and Extension (FSR/E) concepts and methods and through the use of a conceptual framework which was developed for the workshop by the facilitators based on the experiences of both FSR/E and animal traction projects in West Africa.

AN OVERVIEW OF FSR/E PHILOSOPHY, CONCEPTS AND PERSPECTIVES

Most of the participants invited to the workshop were drawn from projects with a farming systems orientation. It was assumed, therefore, that it was unnecessary to devote much workshop time to presenting the farming systems approach. A very brief overview was presented to establish a common terminology and as an introduction to observers who did not have a farming systems background. The FSR/E approach was outlined as consisting of five steps (adapted from Shaner et al. 1982):

1. Selection of a target area
2. Diagnostic description and problem identification
3. The design of on-farm experimentation
4. On-farm experimentation, analysis and evaluation
5. Diffusion of technology

In addition FSR/E was characterized as being:

1. Farmer based
2. Problem solving
3. Comprehensive
4. Interdisciplinary
5. Complementary
6. Iterative and dynamic
7. Responsible to society
8. Developmental

A CONCEPTUAL FRAMEWORK FOR THE NETWORKSHOP

Within a farming systems perspective, animal traction, as with any

other technology, must be considered with regard to local conditions such as soils, crops and climate. Two important questions must be addressed: is animal traction appropriate?; and what form of animal traction is appropriate? Animal traction is a "shelf technology", meaning that it is available and relatively well known. It is expected that it can be "pulled off the shelf" and applied fairly rapidly, whereas other technologies might require considerable adaptive research. But in fact animal traction is not a single technology. The appropriate tools and the type of cattle used (Zebu, N'dama, or crosses between them) vary across West Africa for many reasons, including differences in crops, soil, climate, and incidence of tsetse fly. Field operations for one area may not be appropriate in another location. Animal traction components need to be adapted to each local situation. Types of farms or farming systems must be grouped to reflect similar situations. The conceptual framework is a means of grouping similar farming systems so that problems can be specified as relating to a particular situation.

The conceptual framework or typology used in the networkshop consisted of four levels, starting with the most important variable. It did not attempt to be exhaustive, or imply that these are the only elements which could be used, but these four factors seem to be generally applicable across West Africa: agro-climatic zone, livestock traditions, project influence and socio-economic resource level.

1. Agro Climatic Zone.

The agro-climatic zone is the factor which has the strongest influence on differences in animal traction across West Africa. Crop and climatic differences strongly influence field operations and the implements used. For simplicity, the agro-climatic zones identified are limited to the Sahelian zone, the savanna zone and the rain forest zone. These could be sub-divided or divided in different ways, but these are zones that are commonly known and referred to in West Africa.

Many of the other factors to be considered are correlated with the agro-climatic zone. Soils somewhat reflect this zoning with lighter, sandier soils in the Sahel and heavier soils in the savanna. Livestock traditions also generally follow this north-south zoning. In the north most people have a livestock tradition i.e. they are animal producers and herders. In the south, some groups have no tradition of owning and managing livestock. Even project influences are somewhat correlated. Projects in the north have focused on food crops and/or groundnuts. In the savanna area one finds a crossover of cotton and groundnut projects. In the southern region projects are often oriented towards rice production.

2. Livestock Traditions.

Within an agro-climatic zone farmers with different livestock traditions may be found. Farmers with no livestock tradition are in a more difficult position with regard to the adoption of animal traction. They may have little or no knowledge of animal health and nutrition and may even be afraid of the cattle. Four different classifications may be used to classify farmers:

- a) Some farmers may have no livestock tradition and no animal traction experience.
- b) Another group might have a livestock tradition but no animal traction experience. Half-way between these two might be groups who own cattle, but consign them to Fulani herders and thus have little experience managing or working with cattle.
- c) Some farmers may have adopted animal traction, but only partially. Perhaps they plow but do not weed or use other elements of the animal traction package which is recommended. Such farmers are often labeled as poor managers. But care must be used when considering poor management. The use and application of animal traction in an extensive farming system may give the appearance of poor management. But an economic analysis of their results may show higher revenues and returns than that of some farmers using an intensive farming system where animal traction has been more completely adopted.
- d) The final group consists of farmers who use animal traction well and have a high level of technical competence, but may be helped with some advanced techniques and/or animal feeding. Even good animal traction users may not have resolved the problem of dry season feeding for their animals.

3. Project Influence.

The cotton projects have probably been the most successful historically in promoting animal traction. Certainly, projects with a cash crop component have been more successful in promoting animal traction than those with only a food crop orientation. Even if production of a food crop is increased it may be consumed or used for social obligations such as a marriage or funeral. It is not necessarily applied to repaying credit or replacing worn-out equipment.

4. Socio-economic Resource Level.

Many different socio-economic factors may be important in specific situations, but one which is generally applicable is the resource level of farmers. Most villages will contain some farmers with a relatively high resource level and others who are resource-poor. Generally, in an area where animal traction is used farmers with a high resource level have already adopted animal traction while resource poor farmers have not. Resource poor farmers find it much more difficult to adopt animal traction because of its high cost relative to their revenues and economic resources.

The purpose of this broad and very general conceptual framework was to provide participants with a mechanism for comparing their own experiences and the dominant farming systems where they work, with those described by other participants or those observed on the field trips to animal traction projects in the Kara region. Those participants who made the country presentations (Section III) were asked to organize their information within the conceptual framework, and most were able to do so. The framework also provided organization to the small group sessions in terms of the discussion as well as the presentations.

