

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

1987 Volume IV



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Item number	100	PN-AAW-986 MF \$1.08/PC \$5.72	Document number Microfiche/ Paper Copy prices
Title	Draught animal power in Africa : priorities for development, research and liaison		Serial title and number, date, pagination, and language
Author(s)	Starkey, Paul H.		
Institution(s)	University of Florida		Serial title and number, date, pagination, and language
Meeting	(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)		
Supplementary note(s)	Mar 1986, v, 64p. : ill., En		
Project number	Spanish ed.: PN-AAV-301		Abstract
Contract/Grant	9311006		
Availability note	AID/DSAN-C-0054		
	* Also available from: International Council for Research in Agroforestry, P.O. Box 30677, Nairobi		

Using experience from Latin America and Asian researchers, this paper discusses the design and testing of alternatives for producing livestock - especially large ruminants - in mixed farm enterprises. Stress is laid on sedentary mixed farms in which livestock are kept for all or most of the year within farm boundaries; although the approaches discussed are meant to apply to, or to be readily modified to suit, other types of animal production systems.

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001

PN-AAV-540

MF \$1.08/PC \$6.37

Study of the role of extension in farming systems research in Tanzania

Acker, D.G.; Sungusia, D.

Consortium for International Development
Oregon State University

U.S. Agency for International Development. Bureau for
Africa. Tanzania

Nov 1985, 46p. : charts, map, En

Publication no.112

6210156

AFR-0156-C-00-3033-00

A September 1985 study of the role of extension in farming systems research (FSR) in Tanzania is summarized. Based primarily on semi-structured interviews with 10 extension professionals, the study found that the involvement of extensionists allows FSR to: (1) reach a wider area by utilizing trained village and district level extension personnel; (2) ensure consideration of the socioeconomic perspective in farm-level diagnosis and an adherence to real farmer conditions in review of technology design; and (3) increase the number of replications of on-farm trials under close supervision and management, while incorporating extension workers in the process of developing technology. This paper also includes background information on the Tanzania Farming Systems Research project, which sponsored the study, a literature review on the role and structure of extension services relative to agricultural research, recommendations for institutionalizing the FSR approach in Tanzania (as mandated in a 1983 National Agricultural Policy directive), and suggestions for further research. Appendices provide the study questionnaire and graphically illustrate functional relationships within FSR.

002

PN-AAW-158

MF \$1.08/PC \$2.26

On - farm research into maize : the concept and its implications

Agrawal, B.D.; Sazena, S.C.

Appropriate technology, v.11(4), 1985, p.24-25 : ill.,
chart, En

An on-farm research program was set up in Bulandshahr and Moradabad, two important maize growing districts in western Uttar Pradesh, India, to find out why the improved varieties and techniques developed through on-station research were not being adopted by farmers. The same group of researchers controlled both on-farm and on-station research, and as expected, the results of the on-farm trials have

significantly modified station research priorities and changed recommendations to extension workers. For example, the farm trials revealed that local varieties were preferred by farmers because they matured faster and were more stable under stress than station-developed varieties; as a result, the best of the local strains are now being introduced into station breeding populations, and varieties which mature quickly are being developed. The trials also helped to establish guidelines for planting density and fertilizer use. In addition, the trials quickly showed that soil and climatic conditions at the research station did not represent those of the Bulandshahr area, so another research program was established there to help develop better-adapted varieties.

003

PN-AAW-319

MF \$1.08/PC \$2.21

From recommendation domains to intra-household dynamics and back : attempts at bridging the gender gap

Alberti, Amalia M.

University of Florida

U.S. Agency for International Development. Bureau for
Science and Technology. Office of Research and
University Relations (Sponsor)

(Conference on Gender Issues in Farming Systems
Research and Extension, Gainesville, FL, US,
26 Feb - 1 Mar 1986)

Feb 1986, 16p., En

9311282

Recommendation domains (RD's), which group together individual farmers with similar circumstances, were developed in farming systems research (FSR) as a methodology for facilitating technology extension. This paper argues that RD's sensitive to gender issues are difficult to develop, due to insufficient information on women's role in agriculture, and if developed, difficult to implement. The paper: (1) discusses specific obstacles to identifying gender-sensitive RD's via the usual methodologies (reviews of secondary data, informal interviews, exploratory surveys, etc.); (2) proposes a series of questions to assist researchers in quickly identifying gender issues relevant to a particular FSR site (for example: what are the cultural norms regarding women's participation in agriculture?; does participation vary by social class?; do women specialize in food production?); and (3) enumerates various deterrents to utilizing the gender information thus gathered in FSR projects - FSR's tendency to be biased against marginal farmers (many of whom are women), to be oriented toward commodity (hence commercial) crops, and to adapt existing capital-intensive technologies rather than develop new ones that are affordable to the poor. To

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truly incorporate gender issues into FSR, it is concluded, the basic unit of analysis must be changed from the household to the male and female heads within the household.

004

PN-AAV-924

MF \$1.08/PC \$0.52

Developing pest management strategies for small farmers based on traditional knowledge

Altieri, Miguel A.

University of California, San Diego. Dept. of Biology

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(Annual Meeting of the Caribbean Food Crops Society, 20th, St. Croix, VI, 1985)

Proceedings of the Caribbean Food Crops Society : annual meeting, v.20, 1985, p.47-50, En

9310930

For centuries traditional farmers have kept pest damage within acceptable levels by employing a wide variety of cultural practices based on local lore and resources. One such practice is the use of polycultures. Factors involved in pest regulation in polycultures include: increased parasitoid/predator populations, available alternative prey/hosts for natural enemies, decreased colonization and reproduction of pests, feeding inhibition or repellency from non-host plants, and prevention of movement and emigration. These elements of natural pest control built into small farming systems should be examined, so that the valuable ones are retained in the course of agricultural modernization. Thus, traditional knowledge must be considered to guide changes and attain optimum yields in regions with low-input agriculture. All development approaches should be village-based, with emphasis on self-sufficiency, use of local resources, and indigenous agricultural regimes. (Author abstract)

005

PN-AAW-159

MF \$1.08/PC \$1.30

Diversification of agricultural landscapes : a vital element for pest control in sustainable agriculture

Altieri, Miguel A.

Sustainable agriculture and integrated farming systems, 1985, p.166-184 : charts; statistical tables, En

Edens, Thomas C.; Fridgen, Cynthia; Battenfield, Susan L.

Farmers in developing countries have traditionally used diverse cropping systems, which control pests better than do the monocropping systems typical of U.S. agriculture today. This paper explores the linkages between agricultural diversity, arthropod community ecology, and the complex factors involved in designing sustainable agroecosystems. Specifically, the paper discusses: (1) the contribution of edges of natural vegetation to the dynamics of arthropod communities adjacent to cultivated areas; (2) the comparative ecology of insect populations in orchards under various successional stages and management intensities; and (3) the effects of within-field plant diversity (i.e., polycultures, groundcover, and weed-diverse crop systems) on arthropod abundance. The paper concludes that the greatest challenge facing agricultural scientists is to identify diverse vegetation mixes that provide natural pest control and are also agronomically acceptable and economically viable - a challenge which may be impossible to meet within the present capital-intensive structure of agriculture. (Author abstract, modified)

006

PN-AAW-964

MF \$1.08/PC \$2.47

Insect, weed, and plant disease management in multiple cropping systems

Altieri, Miguel A.; Liebman, Matt

Multiple cropping systems, ch.9, 1986, p.183-218 : statistical tables, En

Francis, Charles A.

Much evidence suggests that the vegetational diversity involved in multiple cropping (MC) often results in a significant reduction in insect pest problems as a result of either crop mixture or ecological mechanisms. This report reviews the literature on the dynamics of pest, pathogen, and weed communities in MC systems, with an emphasis on recent findings. Citing studies from developing countries, where MC is a way of life for subsistence-level farmers, and studies on monocropping systems in the United States, the report discusses hypotheses and related tests concerning the natural controls that MC provides against insects, as well as management considerations for MC insect control. Following brief discussions of the effects of MC systems on plant diseases and nematodes, a section on the effects of intercropping on weed growth devotes particular attention to biological factors affecting the intercrop/weed balance. A concluding section suggests that long-term economic and ecological concerns may force agricultural scientists and U.S. farmers to consider MC as an alternative to chemical-based agricultural production and crop protection. Six pages of references (1929-84) are included.

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007 **PN-AAV-541**
MF \$1.08/PC \$1.43

Assessing the impact of farming systems research : framework and problems

Anderson, Jock R.
Agricultural administration, v.20, 1985, p.225-235, En

Farming systems research (FSR) is a feature of the mandates and programs of several international agricultural research centers and is an accelerating activity among national research programs. Few attempts have been made however, to assess its impact, perhaps because of several difficulties, illustrated herein, inherent in developing a utility or preference function by which to assess that impact. The difficulties include the multiple attributes by which agricultural households judge their achievements and the multiple constraints and technological relationships under which they operate, as well as the several challenging tasks of aggregation (over research projects, target farms, and time) and of accounting (over individuals and markets). There are, however, clearly demonstrated advantages in FSR's role of providing feedback and guidance to research workers. (Author abstract, modified)

008 **PN-AAW-160**
MF \$1.08/PC \$1.43

Social ecology of soil erosion in a Colombian farming system

Ashby, Jacqueline A.
International Center for Tropical Agriculture
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)
Rural sociology, v.50(3), 1985, p.377-396 : chart, statistical tables, En
936411104; 9310054

New interest in environmental factors in the sociology of agriculture has stimulated the development of a "social ecology" perspective. This paper applies a socioecological perspective to soil resource degradation and the implementation of soil conservation policy in a Colombian farming system. The analysis illustrates two important themes in social ecology: how interaction between biophysical and social parameters in agriculture structures farmers' use of natural resources; and the interpretation of natural resources in terms of how farmers perceive them. Analysis of the political economy of the farming system shows how biophysical and institutional factors create incentives for farmers to use destructive soil management practices, which are reflected in norms and values associated with land use in the farm community and in the farm types which reflect adaptive strategies for coping with this environ-

ment. The paper concludes that a socioecological perspective focuses analysis on institutional factors that cause soil erosion. (Author abstract, modified)

009 **PN-AAW-161**
MF \$1.08/PC \$1.95

Economic diversification and risk management : constraints to the adoption of modern rice technologies in the Besut agricultural development project area

Bailey, Conner
Kajian ekonomi Malaysia, v.19(1), 1982, p.1-15 : statistical tables, En

The fact that small rice farmers in Malaysia have often failed to adopt fertilizer-responsive varieties must be viewed in the light of farmers' broad economic concerns. This study, based on field research in Gong Guncil, Malaysia, shows that farm families engage in a range of economic activities, i.e., contrary to the assumptions inherent in most agricultural research projects, they are not full-time rice farmers and not primarily concerned with maximizing yields from a single crop. For most, limited farm size necessitates involvement in other agricultural and nonagricultural occupations. The report reviews the characteristics of family farms in Gong Guncil, noting the eclectic mix of traditional and modern rice varieties and techniques used; the average rice farm size and reasons for it; the income potential of rice production; alternative income opportunities, including rubber tapping (the most important alternative economic activity); livestock, tobacco, and fruit production; and non-agricultural sources of income such as marketing, trading, and day labor. Understanding the economic diversity and the production constraints of Gong Guncil farmers, it is concluded, may encourage redirection of research and development efforts away from concentration on single crops and towards multiple cropping systems and alternative strategies for increasing rural income.

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010

PN-AAW-320

MF \$1.08/PC \$2.73

Farming systems research and extension in harsh environments : development of a farmer cooperator approach in Botswana

Baker, D.C.; Norman, D.W.

Kansas State University. Office of International Agriculture Programs

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research and extension : management and methodology, Aug 1986, p.535-555 : statistical tables, En

Flora, Cornelia Butler; Tomecek, Martha

9311282

DAN-0000-G-SS-0092-00

The use of farming systems research (FSR) methodologies in harsh environments is examined in this case study of the Agricultural Technology Project in Botswana, with stress on the project's use of farmer cooperators - a limited number of representative farmers on whose farms research is conducted and who themselves participate in various research activities. After a general discussion of FSR goals in harsh environments, the report chronicles the development of on-farm research in the Botswana project; this entailed selecting and approving target villages, conducting an exploratory survey, creating a village sample frame, selecting farmer cooperators, and, after on-farm research was begun, conducting two surveys to verify that the villages and farmers chosen were representative of the region. A third section outlines the subsequent diagnostic and technology generation activities carried out under the project and discusses seven characteristics of the farmer cooperator approach relative to these activities. The replicability of the Botswana experience is briefly discussed in conclusion.

011

PN-AAV-925

MF \$1.08/PC \$1.82

Improved sorghum production technology in northern Nigeria : an assessment

Banta, Thomas A.; Bbuyemusoke, Samm

Purdue University. School of Agriculture. Division of International Programs in Agriculture

U.S. Agency for International Development. Bureau for Africa. Office of Regional Affairs (Sponsor)

(Appropriate Technologies for Farmers in Semi-Arid West Africa Workshop, Ouagadougou, HV, 2-5 Apr 1985)

Appropriate technologies for farmers in semi-arid West Africa, 1985, p.204-217 : statistical tables, En

Ohm, Herbert, W.; Nagy, Joseph G.

6980393

The profitability of an improved sorghum production technology developed in Nigeria and disseminated in the northern sorghum-growing areas, its effect on farm income, the level of adoption by farmers, and the reasons for adoption or non-adoption are examined. The technology package included improved seed (SK 5912) and recommendations for seed dressing, land preparation, time of planting, seed rate, interstand spacing, thinning, weeding, and fertilizer. A study conducted 3 years after the end of the extension project showed that the technology had not been widely adopted - 41% of farmers were using the improved sorghum variety (although always alongside traditional varieties), but of the recommended practices, only that regarding seed dressing was in wide use. Gross margin analysis showed that the practice was profitable per se, but linear programming revealed that farmers, given their low resource base, were rational in following indigenous methods of sorghum production, which appeared to be relatively more profitable. (The improved package and indigenous sorghum technology for the study area are each outlined and compared.) It is concluded that farmers' socioeconomic conditions and resource base must be considered during technology development, and that farmers should be incorporated into the technology development process early on.

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012

PN-AAV-926

MF \$1.08/PC \$2.86

Farm experiments on trial

Barker, Randolph; Lightfoot, Clive

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.300-321 : statistical tables, En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

Responses to a survey of the staffs of 120 farming systems research (FSR) projects worldwide are used to analyze the methodologies used in on-farm field trials, especially those involving farmer cooperation. An opening section describes the trials themselves in terms of basic structure and mandate, trial management, research focus, trial design, and level of farmer interaction. Next, key problems and successes that respondents experienced in their farm trials, particularly in relation to FSR principles, are highlighted. Problems included: overambitious designs, lack of physical and human resources, various problems relating to the subsidization of farmer cooperators, problems with data collection and analysis, a lack of appropriate technology, and communication difficulties. Factors identified as contributing to the success of the trials included close interaction with all actors, flexible designs, clearly defined responsibilities, and the recognition that good trials require knowledge of farm-, community-, and national-level conditions. A concluding section presents eight propositions to help researchers manage on-farm trials in a way that accords farmers a major role. A follow-up survey is being conducted to test the relevance of these propositions. A list of responding projects and a copy of the survey instrument are appended.

013

PN-AAV-927

MF \$1.08/PC \$1.04

Resource - efficient experimental designs for on - farm research

Barker, T.C.; Francis, C.A.; Krause, G.F.

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.403-410, En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

To date, on-farm cropping systems trials have mostly used experimental designs practically identical to those used on research stations (the main difference being fewer treatments and replications) and have lagged (in comparison to socioeconomic farming systems research) in developing methods for directly involving farmers. This paper begins by identifying experimental design criteria needed for on-farm crop research and by summarizing the utility of four frequently used designs (i.e., randomized complete block, split plot, lattice, and fractional factorial designs). Next, it discusses the applicability of two relatively uncommon and "off-the-shelf" designs - augmented and central composite designs - each of which provides at least one unique benefit. For treatment comparison trials, the augmented design permits flexibility in involving farmers directly in the definition of treatments. For response estimation experiments, the central composite design offers a large reduction in the number of plots required, and therefore a savings in research and land resources. Further methodological needs are discussed in conclusion.

014

PN-AAV-928

MF \$1.08/PC \$1.95

Adaptive strategies in peasant agricultural production

Barlett, Peggy F.

Emory University, Dept. of Anthropology

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

Annual review of anthropology, v.9, 1980, p.545-573, En 9311192

DAN-1192-G-SS-0084-00

The use of anthropological methods in studying peasant farmer production strategies (PFPS's) is reviewed. After presenting farmer adaptation as a research framework which integrates the concerns of substantivist and formalist approaches to research on PFPS's, the paper delineates two types of environments that affect PFPS's - the natural and the socio-political-economic - and describes five factors affecting decision-making at the level of the farm household, widely used as a unit of analysis: the relationship between population density and agricultural intensification, stratification in farm household access to resources, the influence of household labor resources, cycles in household resources and needs, and personality variables. A final section reviews two methods used in studying PFPS's - measuring variables and using cognition-based decision models - and indicates researchers' need to link relevant production variables to patterns of household choice. The report concludes that while the holistic approach of anthropological research has been invaluable

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to understanding PFPS's, more comprehensive research methods are needed to account for the response of peasant households to an increasingly complex external environment. A 197-item list of literature (1945-80) cited in the text is appended.

015

PN-AAV-542

MF \$1.08/PC \$3.90

Sistemas de produccion de cultivos : metodologia de evaluacion dinamica durante un ano agricola (Systems of cultivation : methodology of dynamic evaluation during one agricultural year)

Bejarano, Washington; Cuellar, Miguel
Tropical Agriculture Research and Training Center
Institute of Agricultural Research of Panama
U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Regional Office for Central American Programs (Sponsor)
May 1981, 26p. : charts, Es
5960083

A system of cultivation may be defined as the whole range of production-oriented activities, inputs, and techniques which the farmer employs during the agricultural year. It is this system, along with the physical and biological characteristics of the area, which determines the possibilities and limits of local agriculture. The daily gathering of information on items such as fertilizer application, plowing techniques, seeding dates, weeds, insects, soil fertility, and rainfall allows for an unbiased investigation and the production of analyses useful in solving production problems. The authors present a methodology for this data collection process and reproduce the forms utilized in Panama for this systematic inventory and diary.

016

PN-AAV-929

MF \$1.08/PC \$2.99

Agricultural research and extension in Francophone West Africa : the Senegal experience

Bingen, R. James; Faye, Jacques
(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)
Farming systems research paper series, paper no.11
Farming systems research & extension : management and methodology, Aug 1986, p.70-92 : ill., maps, En
Flora, Cornelia Butler; Tomecek, Martha
Kansas State University. Office of International Agriculture Programs
9311282

Successful farming systems research (FSR) programs are the result of a partnership between agricultural researchers, extension workers, and farmers, but often one or more of these voices is simply not heard. This paper argues that FSR activities often center around the agendas of donor agencies and FSR staff, rather than the needs of farmers, and that the emphasis these interests place on extension and increased yields often results in the neglect of agricultural research and farmer experience. Using the example of the Senegal Institute for Agricultural Research (ISRA), the paper reviews the history of agricultural research and extension in Senegal in terms of institutional development, and discusses two case studies: first, the contracted research ISRA has done for SAED (an agency created to develop the Senegal river valley), which resulted in the subordination of research interests to extension issues; and a second case in which ISRA's relationship with SOMIVAC, the development agency for the lower Casamance region, resulted in more productive dialogue between extension interests and research priorities. Given the need for foreign funding of research, the challenge for future FSR design in Senegal remains to keep the needs of the farmer - not the donor - at the heart of the project.

017

PN-AAW-965

MF \$1.08/PC \$7.02

Study of farmers intercropping practices and objectives, and the performance of maize / cereal patterns, in the upper river division, 1985

Boughton, Duncan; Senghore, Tom; Langan, Glenn
Mar 1986, [53]p. : charts, statistical tables, En

Findings of a study of farmers' intercropping practices in The Gambia's Upper River Division, where intercropping is prevalent, are presented. Introductory sections identify the study's data collection methods (i.e., farm-level surveys, on-farm experimentation, and literature review) and detail their implementation. Information obtained from seven farm units through the formal survey is then used to outline existing cropping patterns and the extent of intercropping in the area. Four intercropping systems were identified, based on the main crop: maize (maize/late millet and maize/sorghum patterns are diagrammed), groundnut, sorghum, and rice. While no cases of intercropping with cotton were found, the possibility of such cases is noted. The report emphasizes the special consideration given by farmers to maize-based cropping systems, due to, inter alia, its yield stability. To supplement the review of the objectives and rationale for intercropping with an evaluation of farmer performance, the second half of the paper presents an agro-economic analysis of two farmer-managed intercropping trials (maize/millet and

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maize/sorghum); the study's survey instrument and 26 tables and figures are included. Findings are summarized in a 4-point conclusion.

018

PN-AAW-966

MF \$1.08/PC \$1.30

Sociocultural factors in multiple cropping

Bradfield, Stillman

Multiple cropping systems, ch.12, 1986, p.267-284, En Francis, Charles A.

Since 1974, with impetus from legislation requiring A.I.D. to examine the effects of its programs on the lives of the people in target areas, and from funding in that year for social science research in agriculture, social scientists have been incorporated more fully into multiple cropping research programs. Difficulties in interdisciplinary communication between social and agricultural scientists have, admittedly, constrained their successful collaboration; these difficulties affect the definition of project objectives (should results be measured quantitatively or qualitatively?), of appropriate target groups, and of research methodologies. Nevertheless, this article makes a case for the role of the social scientist in research oriented toward the small farmer, arguing that the introduction of superior technologies alone is not enough to ensure project success; a number of cultural factors - psychological, institutional, and environmental - should be considered so that agricultural development can be seen in terms of its social as well as technological impact. Specific areas in which social science research is needed are identified to support the argument. A list of references (1911-84) is included.

019

PN-AAV-197

MF \$8.64/PC \$90.22

Techniques for design and analysis of on - farm experimentation

Caldwell, John; Walecka, Lisette

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

Mar 1986, v.p. : ill., charts, statistical tables, En

FSR/E training units, v.2

9364099

DAN-4099-A-00-2083-00

The second volume of a collection of resources assembled by the Farming Systems Support Project for

training agricultural personnel in farming systems research and extension (FSR/E) methodology, this book focuses on the effective design and analysis of on-farm FSR trials. Six units are included, covering the selection of appropriate testing methods and treatments, trial design and implementation strategies, the analysis of trial data, and field level management of FSR trials. Appended are three supporting documents covering different aspects of trial design, management, and data analysis: the International Maize and Wheat Improvement Center's "Introduction to Economic Analysis of On-Farm Experiments Draft Workbook", the Caribbean Agricultural Research and Development Institute's "On Farm Experimentation: A Manual of Suggested Experimental Procedures," and Hildebrand and Poey's "On Farm Agronomic Trials in Farming Systems Research and Extension," which examines the role of trials in technology development methodology. References, trainers' notes, and activity handouts are provided as well.

020

PN-AAW-162

MF \$1.08/PC \$2.60

Crop - livestock systems research in Asia : design and testing OFR

Calub, Arsenio D.; Roxas, Domingo B.; Carangal, Virgilio R.

Kansas State University. Office of International Agriculture Programs

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(Annual Farming Systems Research and Extension Symposium, 6th, Manhattan, KS, US, 5-8 Oct 1986)

Farming systems research paper series , paper no.13

Selected proceedings of Kansas State University's 1986

farming systems research symposium; farming systems research and extension : food and feed, 1986, p.578-597 : chart, statistical tables, En

Flora, Cornelia Butler; Tomecek, Martha

9311282

DAN-0000-G-SS-0092-00

The approach used by the Asian Rice Farming Systems Network in the design and testing of on-farm research in crop-livestock systems is reported. In recent years, the Network's methodology has moved incrementally from a cropping systems to a farming systems focus. After describing the Network's progress in research design, and noting the importance of livestock and increasing land constraints to smallholder production, the report analyzes three current, on-farm trials of crop-livestock systems - in the Philippines, Indonesia, and Thailand - taking both crop and animal production needs and objectives into consideration, describing research sites (e.g., rainfall patterns), and discussing

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methodology. A planning strategy for crop-livestock systems research is presented in outline form, identifying the system's objectives, socioeconomic research studies, and biological research components (food crops, perennial crops, livestock, and mixed crop/livestock).

021

PN-AAW-007

MF \$1.08/PC \$2.60

Rationale and methodology for including nutritional and dietary assessment in farming systems research / extension

Campbell, Carolyn E.

Cornell University. Dept. of International Nutrition

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

May 1985, 38p. : charts, En

CRSP working paper, no.85.3E

9311282

AID/DSAN/XII-G-0261; DAN-1155-G-SS-0108-00

A rationale and a three-stage methodology for including nutritional and dietary assessments in farming systems research and extension (FSR/E) is presented. Reasons for making such assessments include, inter alia, the importance of nutrition for infant/child health and education, the unacceptability of income as a proxy for nutritional status, and the disparity between the macro- and micro-level impacts of development projects. The paper also describes the three types of nutritional tests (biochemical, clinical, and anthropometric) and the difference between cross-sectional and longitudinal studies in measuring a population's nutritional status; outlines methods for assessing dietary status (the 24-hour recall and food frequency methods, the study of food habits); and indicates the importance of seasonality for nutrition, especially in arid lands. The methodology for including these assessments in FSR/E consists of collecting (1) secondary data, (2) information from community leaders and other expert contacts, and (3) data from study households. A discussion of the types of questionnaires to be used in the household surveys is presented along with guidelines for writing and conducting the surveys. Special attention is given to timing the interview so as not to interrupt household activities and yet obtain representative information. Suggestions are also made for choosing a research team. A 40-item bibliography (1857-1984) is appended.

022

PN-AAW-165

MF \$1.08/PC \$1.30

Maitrise du travail du sol en Marais Poitevin : nouveau point cle de la conduite des exploitations (Soil treatment in Marais Poitevin: a new key to farm management)

Capillon, A.; Pellerin, S.

Approche des problemes agronomiques en Marais Poitevin de Vendee : apports d'une typologie regionale des exploitations agricoles, 1984, p.219-228 : ill., charts, statistical tables, Fr
Manichon, Hubert

The results of a survey of soil management practices in the increasingly cultivated *Marais Poitevin* area of France are presented to illustrate the use of a diagnostic technique which matches survey methods to the techniques practiced. The paper first describes the local climate and the physical characteristics of the marais soils. Based on differences in cropping schedules identified in the survey and reflecting great variability in the interventions practiced, three types of soil management techniques are distinguished with regard to, e.g., in timing of tillage; importance and nature of surface preparation before spring planting; and weeding, furrowing, and regrowth in the fall. The performance of these practices in achieving increased maize yield is then analyzed. The conclusion emphasizes the importance of both adequate soil management techniques and of rational organization of the tillage schedule for maintenance and performance of farming systems, as well as the need for agronomists to furnish technology which responds to constraints specific to a given type of farming system.

023

PN-AAW-163

MF \$1.08/PC \$1.82

Evolution recente et diversite des exploitations agricoles du Marais Poitevin de Vendee (Recent development and diversity of farming systems in Marais Poitevin de Vendee)

Capillon, A.; Tagaux, Marie-Josephe

Approche des problemes agronomiques en Marais Poitevin de Vendee : apports d'une typologie regionale des exploitations agricoles, 1984, p.205-217 : charts, Fr
Manichon, Hubert

Application of inappropriate agricultural technologies can be ineffective or even harmful to an existing farming system. To avoid this situation, which may be caused by extrapolation from insufficient sampling, this study examines the farming systems in the *Marais Poitevin de*

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

Vendee region of France according to their "functional types". As defined herein, functional types take into account not just the farmers' technical or economic resources, but also such factors as crop combinations and intensities, level of mechanization, physical characteristics of the soil or land type (e.g., lowlands, drained or not), and the water management system employed. Wide-ranging questionnaires given in 1980-81, when compared with studies through 1960, allow several classifications and subclassifications of functional types existing then, called archetypes, and those existing now, as well as the depiction of trajectories or patterns of evolution in farming over time. Factors observed in this analysis include farmer age, years of farm ownership, capital accumulation, mechanization, and investment in soil improvement, along with the complementary or competitive raising of beans and feed crops and of several types of animals not solely for dairy purposes. Granting that even all these factors cannot fully explain the growth or decline of some farms, findings from the analysis are presented as an aid to organizations involved in regional agricultural development.

024

PN-AAW-164

MF \$1.08/PC \$1.17

Gestion des prairies naturelles en Marais Poitevin de Vendee : les difficultes d'une intensification (Management of natural meadows in Marais Poitevin de Vendee : the difficulties of one intensification)

Capillon, A.; Taguax, Marie-Josephe

Approche des problemes agronomiques en Marais Poitevin de Vendee : apports d'une typologie regionale de exploitations agricoles, 1984, p.229-237 : ill., charts, statistical tables, Fr
Manchion, Hubert

France's *Marais de Poitevin de Vendee* region has posed a difficult agricultural problem for years: despite the introduction of large-scale collective drainage works about 10 years ago, farmers continue to abandon the region because of poor development of the grasslands. An important step in solving this problem is understanding the ways in which farmers utilize the natural prairie (i.e., those areas not served by the drainage works). All farmers allow grazing on the natural prairie during the best times of year, but certain farmers rely on it all year round for feeding their herd. If these farmers could improve the productivity of the prairie, they would be able to store feed for the more difficult times of year, and could thereby increase their herd size. They face, however, two constraints: (1) the high cost of the technology needed to intensify grassland productivity; and (2) lack of compelling impetus (i.e., only larger herds require increased fodder production,

but existing low production discourages the building of large herds). Other farmers in the region (i.e., those who have benefited from the drainage and use the natural meadows only when fodder is abundant) are able to store or buy feed for times of shortage, and have little motivation to invest in the natural prairie. Awareness of this situation, the study contends, can be of great use in designing production systems, especially for farmers who are constrained to use only natural prairies.

025

PN-AAW-967

MF \$1.08/PC \$2.86

Marketing perspective in farming systems research : attempts of the Caribbean Agricultural Research and Development Institute

Chase, Vasantha; George, Calixte

University of the West Indies, St. Augustine. Caribbean Agricultural Research and Development Institute

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(Annual Farming Systems Research and Extension Symposium, 6th, Manhattan, KS, US, 5-8 Oct 1986)

Oct 1986, 22p. : chart, En

9311282

DAN-0000-G-SS-0092-00

CARDI's involvement and experiences in integrating agricultural marketing concerns into farming systems research (FSR) are described. The introductory section argues that FSR practitioners should attempt to understand how recommended technologies will perform in the existing marketing system and how the marketing system will affect present production systems - particularly in island economies like those in the Eastern Caribbean. Traditional FSR's inadequate treatment of the farm as a production/consumption unit and its tendency largely to ignore market variables in the choice and design of production alternatives is then exposed. Part three describes CARDI's objective in addressing production and marketing concerns simultaneously, and the importance of market studies in creating a substantial marketing data base which can be used to focus and guide on-farm trials toward a marketable product. A case study from St. Lucia demonstrates the implementation of the FSR marketing perspective. In conclusion, the importance of on-going, rather than quick, market studies is stressed to create an iterative production-marketing linkage.

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026

PN-AAW-321

MF \$1.08/PC \$1.04

Farming systems research (FSR) applied to fish production : capture and culture

Chong, Kee-Chai; Ilyas, Sofyan; et al.
Indonesian agricultural research and development journal, v.7(3&4), 1985, p.35-42 : ill., En

Economic and ecological factors are forcing many of the world's small-scale fishermen to consider moving from a capture to a culture orientation, a task which few are in a position to accomplish easily. Due to the situational similarities between small-scale agricultural production systems and fisheries, this paper suggests that a farming systems research (FSR) approach would be useful in fish culture development. Two aspects of the FSR methodology make it particularly beneficial for helping the myriad of fishermen and fishery methods which exist: FSR is locale-specific and multi-dimensional. FSR can be used to develop improved (but not necessarily new) technologies which are consistent with the desires and circumstances of the target group; introduce new technology as a supplemental or alternative activity to existing activities; or effect bold changes or develop new systems. These options are important as the nature of fisheries changes and better economic analysis and management methods become requisite. The development of a competent, multidisciplinary FSR team, it is concluded, is one of the first steps in guiding the evolution of the world's fisheries industry. Guidelines for adapting FSR to the analysis of tropical fisheries are included.

027

PN-AAW-166

MF \$1.08/PC \$1.30

Collecting information on rates of work to evaluate the labour productivity of possible innovations in OFR / FSP

Collinson, M.P.
Farming systems newsletter, no.24, Jan-Mar 1986, p.4-13 : charts, statistical tables, En

Eastern and Southern African farmers operating labor limited systems will use returns to labor at seasonal peaks as a dominant criterion for evaluating recommended innovations. Researchers need to use the same criterion in planning and evaluating on-farm experiments. This paper points out some of the problems involved in using labor data and gives guidance on sources and methods for collecting rate of work coefficients for labor on small farms. First, three approaches to improving productivity during seasonal labor peaks (i.e., reducing labor requirements, changing the timing of operations, or increasing labor productivity indirectly,

by increasing yields) are identified, and it is noted that each approach has its own implications for labor data requirements. Next, suggestions are given for resolving three characteristic problems in labor data collection and use - carefully describing the farm operation (e.g., planting a bean intercrop) being investigated/modified; comparing and aggregating data across households of different age/sex compositions; and dealing with variations (especially seasonal) in labor coefficients. Lastly, specific suggestions are made for utilizing five traditional farming systems research methods - secondary data sources, informal farmer surveys, formal surveys (both frequent- and single-visit), and work study on large trial plots - to obtain labor coefficient information.

028

PN-AAV-543

MF \$1.08/PC \$2.08

Recommendation domains reconsidered

Cornick, Tully R.; Alberti, Amalia M.
(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)
Farming systems research paper series, paper no.11
Farming systems research and extension : management and methodology, [1986], p.236-253 : chart, En
Flora, Cornelia; Tomecek, Martha
Kansas State University. Office of International Agriculture Programs
U.S. Agency for International Development. Bureau for Science and Technology. Office of Technical Review and Information (Sponsor)
9311282
DAN-0000-G-SS-0092-00

Recommendation domains (RD's), the focal point of farming systems research, are traditionally defined rapidly on the basis of only one or two criteria. It is argued herein that where a farming system's natural or socioeconomic conditions (or both) are highly variable, such a cursory assumption of homogeneity is unwarranted and may foreclose research opportunities springing from physical or social differences. Pursuing this reasoning, the paper suggests a refined RD definition, characterized by explicit examination of the variability of factors characterizing the target areas and groups and by a relaxation of the time frame in which RD's are finalized. This approach would permit the early conduct of on-farm field experiments concurrent with an examination of the factors potentially relevant to RD specification. Calling for explicit consideration of subsystem interactions outside the immediate research problem in order to uncover the complexity of the farming system, the paper discusses two major factors that should be considered in developing relevant RD's: (1) the fact that many small farm systems are distributed across multiple agroecological zones; and (2) the dynamic nature of farm household composition and relationships

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(e.g., labor allocation). The effects of these factors on farmers' cropping patterns, varietal selection, etc., are illustrated with examples from highland Ecuador and central Philippines.

029 **PN-AAW-972**
MF \$1.08/PC \$6.50

Maize on farm research in the District of Malang

Dahlan, Marsum; Heriyanto; Sunarsedyono; et al.
Malang Research Institute for Food Crops
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)
1987, vii, 41p. : charts, map, statistical tables, En MARIF monograph, no.3
9364099

Applying CIMMYT's approach of on-farm research with a farming systems perspective, the Malang Research Institute for Food Crops, located in East Java, Indonesia, has conducted five cycles of research, herein documented, on the production of non-rice food crops, especially maize, in the Malang District. Part one summarizes relevant information on crop production systems, physical and economic circumstances, crop-livestock interactions, and maize production practices in the District. Part two presents a diagnosis of the main problems associated with maize production (i.e., insect damage, plant population management, fertilizer management, and seed quality) and their causes. Using evidence from the on-farm trials, part three discusses possible solutions in the areas of plant protection, plant population, fertilizer management, and variety trials. Also noted are verification trials conducted on the consistency of yield responses and net benefits for the suggested practices. Brief, concluding sections discuss current research priorities, research methodology, and foci of upcoming research.

030 **PN-AAV-930**
MF \$1.08/PC \$1.30

Lugar de la investigacion en sistemas de cultivo en el tratamiento de asuntos del sorgo como alimento humano (Place of investigation on cultivation systems in the subject treatment of sorghum and human nutrition)

DeWalt, Kathleen M.
University of Nebraska, Lincoln. Institute of Agriculture and Natural Resources
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)
(Sorgo en Sistemas de Produccion en America Latina, Batan, MX, 16-22 Sep 1984)
Sorgo en sistemas de produccion en America Latina, 1985, p.168-177, Es
Paul, Compton L.; DeWalt, Billie R.
9311254
AID/DSAN/XXI-G-0149

Issues relevant to promoting sorghum for human consumption are considered based on an examination of the use of sorghum in the diet in southern Honduras. A review of the uses of sorghum in general identifies eight categories of sorghum-based products, suggesting the kinds of needs which must be satisfied by varietal research. A survey implemented in southern Honduras on the consumption of sorghum is described, and the findings are discussed specifically in terms of sorghum's acceptability and its effects on ascorbic acid and protein in the diet. The survey showed that: (1) a great variety of products are derived from sorghum, many of them equivalent to food prepared with maize (e.g., tortillas), but in general maize is preferred; (2) lack of protein is not the limiting factor in the diet in southern Honduras; and (3) the ascorbic acid provided by local fruits is adequate. Overall, the paper highlights the importance of including information on the diet and nutrition of the rural family in developing and evaluating agricultural technology.

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031

PN-AAX-024

MF \$1.08/PC \$3.64

Quantitative model of the livestock system component of a Bangladesh farm

Dickey, James R.; Jalil, Mirxa A.; Huque, Quazi M. Emdadul

Kansas State University. Office of International Agriculture Programs

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(Annual Farming Systems Research and Extension Symposium, 6th, Manhattan, KS, US, 5-8 Oct 1986)

Farming systems research paper series, paper no.13

Selected proceedings of Kansas State University's 1986 farming systems symposium; farming systems research and extension : food and feed, Oct 1986, p.550-577 : statistical tables, En

Flora, Cornelia Butler; Tomecek, Martha
9311282

DAN-0000-G-SS-0092-00

To date, little effort has been made in farming systems research (FSR) to describe quantitative relationships among and between the components of a farming system. In this study, interrelationships within the livestock component on a traditional, totally integrated Bangladeshi farm are defined by quantifying direct linkages between animal nutrient sources (on-farm cropland and off-farm browsing areas) and animal products (draft power, meat, manure, etc.). On this farm, the cultivated area provides 87% of animal nutrients as crop residue and weeds and is almost totally dependent on livestock for draft power. Nutrient source-animal product linkages are quantified in terms of dry matter, metabolizable energy, and digestible protein, and these linkages are combined on each side to define a seasonal supply and demand balance. The study also: (1) shows what data are required for quantifying livestock system interrelationships; (2) describes alternative data collection methods; and (3) suggests ways of using the results to measure the effects of new livestock technologies, as well as the effects of crop technologies on forage supply. Twelve tables and five figures are included. (Author abstract, modified)

032

PN-AAV-931

MF \$1.08/PC \$2.21

Farming systems in areas of farmer - herder interaction in semiarid Africa : towards an appropriate model for investigation

Diop, Mamadou; Livingston, Geoffrey O.; Campbell, David J.

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.411-427 : ill., En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

The bias in farming systems research (FSR) toward cropping systems to the relative neglect of livestock systems is of critical importance in areas such as semiarid Africa where there is considerable interaction between farmers and herders. This paper proposes an FSR model which incorporates the characteristics of both cropping and livestock systems and reflects the complexity of the interactions between them. The paper first briefly describes the similarities and differences of the two systems as found in semiarid Africa. Three key types of interaction are identified: ecological (livestock benefit nutritionally from grazing in farming areas, while farmers have their fields fertilized); trade; and competition over land use. The suggested model, unlike traditional FSR, focuses on land use systems rather than production units (e.g., the farm or the herd) and analyzes interactions (social, political, economic, and environmental) over a multi-year period rather than over the annual cropping cycle. The implications of the model for research and extension are explored in conclusion. One important benefit of the model is that it would prevent the introduction of interventions which, by promoting short-term successes in one production system only, could negatively affect the interactive system as a whole over the long-term. A 6-page bibliography (1957-85) is included.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

033

PN-AAW-008

MF \$1.08/PC \$.52

Farmers' adaptations to production constraints and its implications for agricultural research : the case of rice production systems in the Dominican Republic

Doorman, Frans; Perez, Frederico Cuevas

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(Annual Meeting of the Caribbean Food Crops Society, 20th, St. Croix, VI, 1985)

Proceedings of the Caribbean Food Crops Society : annual meeting, v.20, 1985, p.96-99 : charts, statistical tables, En

Four rice production systems practiced on small farms in the Dominican Republic are analyzed, and implications are drawn for agricultural research in that country. These systems are: double cropping, which is heavily favored by the Dominican government as a means of achieving self-sufficiency in rice production; ratooning (a method of producing a crop from tillers regenerated from the rice stubble after harvesting), the practice of which the government discourages; and two marginal systems - *riso* (a kind of second generation ratoon) and *mateo* (obtained by allowing seed of the local tall variety Ingles to germinate in an already established crop) - which are used only under unfavorable conditions, when a ratoon or a second crop are not possible. The paper argues that ratooning is a rational response to the many infrastructural constraints (e.g., water shortages, lack of machinery) faced by small farmers, and under certain conditions may be more cost-effective, at both micro and macro levels, than double cropping. It is recommended that ratooning be incorporated into national rice research activities.

034

PN-AAW-167

MF \$1.08/PC \$11.44

Fonctionnement des systemes de production et utilisation de l'espace dans un village du Yatenga : Boukere (Burkina - Faso) (Functioning of the systems of production and utilization of space within the Yatenga village : Boukere (Burkina - Faso))

Dugue, Marie-Josephe

Burkina Institute for Research in Agronomy and Zoology International Center for Cooperation in Agronomy Research for Development. Dept. of Agricultural Systems

1986, 55p. + 10 annexes : charts, maps, statistical tables, Fr

Boukere, a small village in Burkina Faso's western Yatenga Province, is the focus of this farming systems study, the first in a series of papers examining Burkinabe farming. The study opens by noting that Boukere differs in one key regard from other study sites in Burkina Faso: due to a relatively sparse population, its land resources have not yet been exploited to capacity. Subsequent sections of the paper: (1) describe Boukere's environment (climate, soil, land forms) and social structure (especially migration patterns); (2) define farming operations in the region (the primary objective being wet-season production of cereals for home consumption, followed by that of increasing the animal stock) and delineate the relationships among and between specific farming activities (e.g., wet-season, dry-season, and winter cropping, animal husbandry), off-farm production (artisanry, commerce), agrarian space, and migratory patterns; (3) detail the cultural practices utilized for cereal; (4) develop a typology of Boukere's farming systems, based on production objectives and subdivided by farming strategy; (5) trace the evolution of farming systems in the area from about 1950 to the present, with particular weight given to the influence of changing environmental factors (especially soil degradation and mid-season dry periods) and migratory patterns; and finally, (6) address the capacity of Boukere farming systems to absorb innovation. The text is supplemented by numerous tables and graphs. Annexes provide further data.

035

PN-AAV-932

MF \$1.08/PC \$1.56

Programas de investigacion en produccion (PIP) : una estrategia del INIAP para llegar a los agricultores de menores recursos (Production investigation programs : an INIAP strategy to reach farmers with few resources)

Espinosa, Patricio; Moscardi, Edgardo; Palomino, Julio

Ecuador. National Institute of Agricultural Research

U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Ecuador (Sponsor)

Oct 1983, 11p. : charts, Es

Publicacion miscelanea no.45

5180032

Since 1977 Ecuador's National Institute of Agricultural Research has utilized a strategy of applied, multidisciplinary research into farm/livestock production called *Los Programas de Investigacion en Produccion* (PIP). Aimed at developing technologies appropriate to small, low-resource farmers, PIP essentially complements the Institute's innovative, on-station research with research in farmers' fields and with farmer participation; serving

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also as the Ministry of Agriculture's extension mechanism, the PIP process involves extensionsists in the final stages of technology generation. As of 1983, PIP was being used at 11 locations in Ecuador, including areas supporting Ecuador's programs in integrated rural development. This paper states PIP's objectives and outlines its methodology in terms of: (1) research focus and strategies; (2) stages in the technology development process (descriptive, diagnostic, experimental, and extension); and (3) specific research procedures (from definition of recommendation domains to economic evaluation of technologies). A final section reviews the accomplishments of PIP to date.

036

PN-AAV-933

MF \$1.08/PC \$2.34

Communications in FSR team - building : the interdisciplinary research team

Esslinger, Donald L.; McCorkle, Constance M.

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.158-175 : ill., En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

A key issue facing farming systems research (FSR) - communication among members of the interdisciplinary FSR team - is discussed. The paper begins by noting several communications problems inherent to the research team, e.g., the professional jargon of diverse disciplines, the tendency of each discipline to define FSR tasks according to its own methods and models, the failure of the academic world to reward interdisciplinary work, and even cultural and socioeconomic differences among team members. The main section of the paper suggests means of overcoming these problems. Discussed in turn are methods for improving communication in terms of quality (listening skills), frequency (regular, frequent meetings and semi-formal colloquia), intensity (retreats, workshops, conferences, and other forms of informal interaction), and a variety of written and oral channels, (regular reporting, joint authorship of articles and joint hands-on activities in the field, information sharing, use of translators, and use of visual aids and of body language). The report concludes that FSR teams would benefit from exploiting the full range of communications options available and suggests that, due to the complex nature of communications, a com-

munications expert be included on an FSR interdisciplinary team.

037

PN-AAV-934

MF \$1.08/PC \$3.25

Gender relations and technological change : the need for an integrative framework of analysis

Evans, Alison

Jan 1986, 24p., En

Farming systems research and extension (FSR/E), despite its claims to a broad understanding of small farmers' needs and of the systemic effects of technological change on the small farm household, has in practice failed to adequately consider the impacts of technological change on women producers and household members. This paper, focusing on the small farm situation in sub-Saharan Africa, suggests that an alternative analytic framework is needed to give gender issues explicit attention within FSR/E. Such a framework should treat the small farming unit as an interlocking, gendered system of market production and subsistence economic and reproductive activities. Key methodological needs within this framework are to: (1) take into account household/family forms and composition; (2) explore, both qualitatively and quantitatively, the degree of flexibility and substitutability between women's labor and capital and that of other household members; and (3) examine, during on-farm FSR/E, the economic role of household service activities, the strategies used by women to meet basic household needs, the distribution of male and female labor over the total production cycle, and the particular technological and economic needs of women. Constraints on implementation of such an FSR/E approach are outlined in a concluding section.

038

PN-AAW-984

MF \$1.08/PC \$.65

In the Basse Casamance (Senegal) : from situation agricole to recommendation domain (the Djibelor experience)

Fall, Alioune

International Livestock Centre for Africa

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

[1986], [5]p. : maps, En

936411109

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

In order to determine recommendation domains for the Djibelor area of Senegal's Basse Casamance region, a farming systems research (FSR) team first delineated the area into five *situations agricoles*- a broad term defined in terms of cropping patterns and other agricultural factors. Three main criteria were used to identify the *situations agricoles*: (1) whether labor is organized by type of field work or by type of crops; (2) the use of animal traction; and (3) the lowland rice/upland crops ratio. A table illustrates the distribution of these criteria among the *situations agricoles*; the potential for developing land preparation technology in the two *situations agricoles* in which animal traction is used is briefly addressed. The conclusion stresses the importance of sociocultural heterogeneity and physical environment in conducting FSR in West Africa.

039

PN-AAV-935

MF \$1.08/PC \$11.31

Economic role of women in a Honduran peasant community

Fordham, Miriam A.; DeWalt, Billie R.; et al.

University of Nebraska, Lincoln. Institute of Agriculture and Natural Resources

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Jun 1985, viii, 80p. : chart, map, statistical tables, En
Socioeconomic constraints to the production, distribution and consumption of sorghum in southern Honduras, a farming systems approach report, no.3

9311254

AID/DSAN-G-0149

Results are presented of research conducted on labor, time allocation, and economic roles of women in three sorghum-producing areas in Honduras in order to help assess the potential impact on women of changes in agricultural production. Background information is presented on anthropological and Marxist theories on the sexual differentiation of labor; the difficulties in measuring women's economic contributions, especially non-market oriented tasks; and family life and labor in Honduras. Site-specific ethnographic and economic data are presented and the various strategies by which women complete household, agricultural, and income-generating tasks are analyzed based on case studies of seven women from different household types and socioeconomic levels. Results show that while most of the women's time is spent in food preparation and other household maintenance activities, women also engage in several income-generating activities, the most common of which is petty trade of home-produced foods. The study's results are compared with those of similar studies in Peru and Burkina Faso, and it is noted

in conclusion that improved design of agricultural research projects will depend on further detailed investigation of women's economic roles and, specifically, of the connection between income-generating and household management activities.

040

PN-AAW-968

MF \$1.08/PC \$1.43

Future perspectives of multiple cropping

Francis, Charles A.

Multiple cropping systems, ch.15, 1986, p.351-370 : ill., En

Francis, Charles A.

The agricultural research community is becoming increasingly interested in the potentials offered by multiple cropping, a technology on which most subsistence farmers in the tropics depend. In light of evidence that intensive cropping systems are increasing in importance in much of the world, this article examines: (1) the biological potentials of a multiple cropping system, e.g., those achieved through the interactions among system components (weeds, crops, etc.); (2) the ecological and environmental consequences of multiple cropping, such as energy and nutrient cycling; and (3) the economic and social impact of multiple cropping, showing, inter alia, that multiple cropping systems provide income stability and satisfy a range of climatological, social, and biological variables for low-resource farmers. Based on the foregoing, an overview is presented of areas for future research into multiple cropping. While acknowledging the difficulty of predicting the future global importance of multiple cropping, especially given the tendency of high technology to promote monocropping, the article projects ways in which multiple cropping may be improved (especially in high-technology applications) to provide a significant part of the future food supply.

041

PN-AAW-969

MF \$1.08/PC \$3.12

Land tenure systems and agricultural innovations : the case of alley farming in Nigeria

Francis, Paul

International Livestock Centre for Africa

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Jun 1986, 22p., En

936411109

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Alley farming, the planting of arable crops between rows of fast-growing, leguminous trees which can provide fodder or mulch, is a promising alternative to shifting cultivation, a practice which is being threatened in Africa by population growth. However, alley farming requires access to land and the rights to plant, own, and utilize trees. This paper considers the implications of land tenure systems in southwest and southeast Nigeria for the acceptability and viability of alley farming. Considerable variation in the rules governing the use and control of land is seen to exist within and between the two regions, and any one tenure system may include a number of categories of land to which different patterns of use and tenure apply. Broadly speaking, tenants in the southwest may be disadvantaged as their rights over hired land do not necessarily include the right to plant trees. In the southeast, the existence of communal systems of land ownership and management on some categories of land undermines the ability to plant trees and the incentive to invest labor in the maintenance of soil fertility. (Author abstract, modified)

042

PN-AAV-535

MF \$1.08/PC \$3.12

Methodology for conducting reconnaissance surveys in Africa

Frankenberger, Timothy R.; Lichte, John L.
University of Florida. Institute of Food and Agricultural Sciences
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)
Oct 1985, 21p., En
Networking paper / Farming Systems Support Project, no.10
9364099

Due to the increased emphasis placed on time-effective diagnostic research techniques in recent farming systems projects, reconnaissance surveys have come to play a more critical role in such projects. This paper identifies the major attributes of reconnaissance surveys and outlines a stepwise procedure for conducting them. This procedure is based on the methodology used by the authors in a recent study in Liberia. Viewed as a complementary alternative to other informal survey procedures previously described in the literature, this presentation will, it is hoped, further the development and refinement of such techniques. Such fine-tuning should continue as experience with these techniques accumulates. Appendices include an 8-page list of the topics of inquiry in a farming systems reconnaissance survey for Grand Gedeh, Nimba, and Bong counties in Liberia. (Author abstract, modified)

043

PN-AAS-248

MF \$2.16/PC \$25.35

Farming systems research in three counties in Liberia : a reconnaissance survey in Grand Gedeh, Nimba, and Bong counties

Frankenberger, Timothy R.; Lichte, John A.; et al.
University of Florida
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)
Apr 1985, xv, 178p. : statistical tables, En
9364099

A research team comprising an anthropologist, 2 agroeconomists, a soil scientist, and a tree crop researcher conducted a farming system reconnaissance survey of 19 villages in 3 counties of Liberia. The team interviewed both husband and wife in 114 farm families, using a detailed outline. This report presents the major findings from the survey. The first section of the report describes the general farming systems characteristics of the three counties, addressing such topics as access to land, spatial arrangements of farmers' fields, labor patterns, cropping patterns (for upland rice, swamp rice, cassava, sugar cane, groundnut, and tree crops), animal husbandry, marketing, non-farm income, access to credit, consumption patterns, community farms, and government interventions. In the second section, the same topics are covered, but with respect to each individual county. The third section identifies crop-specific and general farming constraints, discusses the means farmers currently use to cope with these constraints, and then presents the survey team's recommendations. (Author abstract, modified)

044

PN-AAV-196

MF \$4.32/PC \$49.14

Diagnosis in farming systems research and extension

Franzel, Steve; Odell, Malcolm; et al.
University of Florida. Institute of Food and Agricultural Sciences
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)
U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)
Mar 1986, v.p. : charts, En
9364099
DAN-4099-A-00-2083-00

Presented herein is the first volume of a collection of resources assembled by the A.I.D. Farming Systems Support Project (FSSP) for use in training agricultural

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

personnel in the farming systems research and extension (FSR/E) methodology. This volume provides concepts and tools useful in the diagnostic phase of FSR/E. Nine units are included, covering: (1) the interdisciplinary interaction of the FSR team; (2) structural and process models of farming systems; (3) the interaction of the FSR team with the local farming community; (4) the development of recommendation domains; (5) data collection methods; (6) the uses of secondary data and (7) informal surveys; (8) the advantages and disadvantages of formal surveys; and (9) the link between diagnosis and design in on-farm trials. Although the units are arranged to provide a coherent training program, each can also be used independently of the others. References, trainers' notes, and activity hand-outs are provided. Appendices include a case study of on-farm trials in Paraguay, which provides a four-part practicum for hands-on use by trainees, and Volumes I and II of FSSP's "Bibliography of Readings in Farming Systems" (PN-AAR-839, PN-AAU-145).

045

PN-AAW-970

MF \$1.08/PC \$1.82

Farming systems research and extension : an approach to solving food problems in Africa

Fresco, Louise O.; Poats, Susan V.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Food in Sub-Saharan Africa, ch.20, 1986, p.305-331 : charts, En

Hansen, Art; McMillan, Della
9364099

The suitability of farming systems research and extension's (FSR/E) for generating the technology needed to relieve the stagnation of agricultural development in Africa is explored. Basic FSR/E concepts and methods are explained, and the historical development of FSR/E in Africa is outlined in a discussion which traces the roots of two, sometimes conflicting, sometimes complementary FSR/E perspectives: Francophone (French and Belgian initiatives) and Anglophone (contributions of the International Center for Maize and Wheat Improvement and other international agricultural research centers). National initiatives in FSR/E and their sources of donor funding, if applicable, are also described. The major obstacles facing FSR/E in Africa are then identified: an insufficiency of shelf technologies, trained personnel, and infrastructural support; institutional separation between research and extension; and a tendency in existing FSR/E programs and projects to neglect women farmers. A final section explores the possible future of FSR/E in Africa.

046

PN-AAV-936

MF \$1.08/PC \$1.56

New model for technology transference within FSR/E

Fumagalli, Astolfo; Ortiz, Ramiro; Castillo, Manlio
(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.111-122 : ill., En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

Guatemala's Institute of Agricultural Science and Technology (ICTA) has undertaken a new project, in cooperation with the national crop and livestock extension services, to generate and transfer appropriate technology to small family farms. The project is based on a model known as the Modular System for Technology Transference, which originated in ICTA experience in Guatemala's highlands. The opening sections of this paper describe Guatemala's research and extension system, ICTA's development, and its commitment to promoting both appropriate technology among farmers and research-extension linkages. The remainder of the paper is devoted to ICTA's new project, which will effect a wider diffusion of new technologies by replacing the farmer education approach of agricultural extension with the joint participation of farmers, extensionists, and researchers in technology innovation. Basic features of the transference effort are outlined, the model for technology transference described and illustrated, and the project's implementation strategy detailed with a focus on the role of rural technology promoters. Essential conditions for the success of interinstitutional projects such as this are noted in conclusion.

047

PN-AAW-988

MF \$1.08/PC \$3.90

Process of on - farm trial design : the Honduran experience of 1978

Galt, Daniel L.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

27 Sep 1985, iv, 26p. : maps, statistical tables, En

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

A farming system research (FSR) team's design of a series of on-farm trials in the Comayagua Valley of Honduras in 1978 is documented. Discussion of the design process covers, inter alia: "pre-analysis" surveys of the region; the design and administration of formal and informal farmer surveys; technical design issues, such as problems in defining the "real" cropping systems being used in farmer's fields; and political (or institutional) design issues, centering around relationships between the FSR team and national commodity researchers. Detailed discussions of specific design problems encountered in each of three recommendation domains are provided, together with a series of recommendations on farm sample size, trial replication, plot size, and the logistics of dividing the FSR team into sub-teams by domain. Factors cited as key to a successful design effort include, inter alia, compromise among members of the FSR team and proper prioritization of the problems to be solved.

048

PN-AAW-987

MF \$1.08/PC \$2.99

Farmer participation in farming systems research

Galt, Daniel L.; Mathema, S.B.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

1986, 20p., En

Networking paper / Farming Systems Support Project, no.15

9364099

Farming systems research (FSR) needs to develop quicker, more cost-effective methods for including farmers as co-participants in the research and extension processes, according to this discussion paper, which examines issues pertinent to farmer participation by addressing a series of oft-raised questions about the role of the farmer in FSR. These questions include: (1) why has interest in including the farmer in research decisionmaking increased?; (2) can farmers be viewed as equal partners in FSR?; (3) do farmers really perform research?; (4) what can researchers learn from farmers?; (5) can extensionists work effectively if they take time to learn from farmers?; (6) is it enough to involve farmers in the design of field trials?; (7) should farmer participation and agreement be sought at the individual, the group, the village, or at some higher political sub-group level?; (8) do all levels of household decisionmaking need to be monitored?; and (9) how

does farmer participation affect the roles of formal researchers and extensionists? The paper concludes with a case study of the development of farmer participation in FSR in Nepal's Integrated Cereals Project. References (1978-86) are included.

049

PN-AAV-544

MF \$1.08/PC \$4.29

Appropriate technology for smallholders : some implications of social stratification for farming systems research

Garrett, Patricia

Cornell University. Dept. of Rural Sociology

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Feb 1984, 29p., En

CRSP working paper, no.84.1E Spanish version: PN-AAV-578

9311310

AID/DSAN/XII-G-0261

Agricultural technologies have salient socioeconomic characteristics which make them appropriate or inappropriate. This becomes clear when, instead of viewing smallholders as a homogeneous group, as is usually done in farming systems research (FSR) literature, we delineate three strata of smallholders: peasants, petty commodity producers, and semiproletarians. Conceptualizing this stratification on the basis of family labor power and how its deployment affects the reproduction (or replacement) of household resources, we find that technologies aimed at peasant systems, in which returns to (mostly family) labor are used for subsistence, are not appropriate for petty commodity producers who use hired labor and who produce for cash income, or for semiproletarians, who depend mostly on income from off-farm labor. The policy implications of this social stratification for FSR programs are studied in general and then for each type of smallholder. A summary of viable FSR objectives for the three strata, presented in tabular form and separated into production, marketing, and storage activities, concludes the report. A 48-item bibliography (1956-84) is appended.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

050

PN-AAV-545

MF \$1.08/PC \$3.12

Some methodological issues in preintervention farming systems research : selecting appropriate techniques for data collection

Garrett, Patricia; Goldstein, Donna
Cornell University. Dept. of Rural Sociology
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)
1984, 44p. + attachment : statistical table, En
CRSP working paper, no.84.4E
9311310

Farming systems research currently employs one of two methodologies at the pre-intervention stage: (1) rapid diagnostic research, which is practical but unprincipled; and (2) sample surveys, which are principled but unrealistic. This paper, based on fieldwork in Ecuador, suggests an alternative approach: different methodologies should be used for different units of analysis. Specifically, regional variation can be tapped by analyzing secondary data, followed by judicious use of informant interviewing, while socioeconomic variation can be measured by random surveys with an appropriate questionnaire design. The paper first considers methods of identifying regional variation, discussing the preparation for and conduct of structured interviewing in subzones which have been identified through prior analysis of secondary data. Survey research techniques are discussed in the second section, which begins by considering the universe from which one might sample and proceeds to the design of questionnaires for specific social strata; this section argues that survey research allows one to identify with precision which social strata exist in a subregion. General methodological issues are analyzed in a concluding section which summarizes the strengths and weaknesses of informant interviewing and survey research, and identifies some implications for staffing and multidisciplinary collaboration. A 26-item bibliography (1922-84) is included.

051

PN-AAX-025

MF \$1.08/PC \$4.42

Market interactions of select *Baggara* transhumants during drought and post drought periods : the case of south Kordofan, Sudan in 1985

Gillard-Byers, Thomas E.; Azrag, Bakheit A.; Speece, Mark
Kansas State University. Office of International Agriculture Programs
U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)
(Annual Farming Systems Research and Extension Symposium, 6th, Manhattan, KS, US, 5-8 Oct 1986)
Farming systems research paper series, paper no.13
Selected proceedings of Kansas State University's 1986 farming systems research symposium; farming systems research and extension : food and feed, Oct 1986, p.652-685 : charts, map, statistical tables, En
Flora, Cornelia Butler; Tomecek, Martha
9311282
DAN-0000-G-SS-0092-00

The *Baggara* transhumants (migratory cattle herders) of southern Kordofan Province have been the major source of livestock production in Sudan for many years. The relative value of livestock and animal products produced by the *Baggara* transhumants, however, varies greatly over time and space as they travel from one part of the province to the next. This paper studies the complex relationship of the *Baggara* transhumants to the marketplace, using household- and market-level data collected during 1985, a year of severe drought - i.e., an extreme case of the seasonal changes in prices which are the norm for the *Baggara*. Specifically, the paper: (1) documents trends in prices at the sub-regional and regional marketing levels to measure price differentials for both livestock and non-livestock staple food commodities; (2) uses this information to describe the effects of reductions in purchasing power on the nutritional levels of the typical *Baggara* household; and (3) identifies a method and timetable for intervention in the market to ensure stable prices without increasing market risk. The study concludes that a 3-year program providing education in market trends and encouraging *Baggara* transhumants to sell cattle and buy non-livestock food commodities during the mid dry season will help protect prices and increase nutritional levels. Included are a list of references (1963-86), 8 tables, and 10 figures.

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052

PN-AAW-971

MF \$1.08/PC \$.91

Plant interactions in multiple cropping systems

Gliessman, Stephen R.

Multiple cropping systems, ch.5, 1986, p.82-95 : ill., chart, statistical tables, En

Francis, Charles A.

Understanding interactions among plants in natural ecosystems can be helpful in designing and managing multiple cropping systems which conserve resources and are ecologically balanced. As a guide for research in this area, this paper proposes the concept of plant interference interactions and adopts a mechanistic approach to understanding how these interactions function. Three types of interactions are delineated. (1) A removal interaction is characterized by one plant's ability to remove (and utilize) some factor from the environment, e.g., sunlight, nitrogen, or water, more efficiently than do surrounding plants. (2) An addition reaction occurs when a plants adds something to the environment, e.g., through the release of allelopathic chemicals. (3) In contrast to purely additive or removal interactions, mutualisms (often called symbiosis) can combine several components of interference. Information derived from studies in Tabasco, Mexico, is used to illustrate plant interactions in the traditional corn/bean/squash polyculture used throughout mesoamerica.

053

PN-AAW-009

MF \$1.08/PC \$.52

Weed control in small farm systems

Hammerton, John L.

University of the West Indies, St. Augustine. Caribbean Agricultural Research and Development Institute

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(Annual Meeting of the Caribbean Food Crops Society, 20th, St. Croix, VI, 1985)

Proceedings of the Caribbean Food Crops Society : annual meeting, v.20, 1985, p.133-136 : statistical table, En

5380099

East Caribbean small farmers spend about 30% of total crop labor on land preparation and 30% on post-planting weed control, depending mostly on hand labor, using cutlasses, hoes, forks, and pulling of weeds. Constraints to adopting improved weed control technologies such as herbicides include limited cash availability, the practice of mixed- or inter-cropping, and the complexity of many farm systems. The only her-

bicide used in any quantity is paraquat, which, while ineffective against many weeds, is economically attractive. While herbicides can ease the labor of land preparation and extend the critical period of weed competition, many are susceptible to rain and their species spectrum is often limited. Under its Farming Systems Research and Development Project, CARDI is testing integrated weed control systems for small farmers, focusing on economically and ecologically sound production environments, into which integrated weed control can be incorporated with minimal disruption and cost, and where soil and weather factors present a low risk of failure. The CARDI program includes component testing and system evaluation both at experimental stations and on-farm. Basic to the program is a weed control survey currently underway in several countries. Four recommendation domains have been identified, based on the amount of rainfall during both the dry and wet seasons.

054

PN-AAR-620

MF \$1.08/PC \$12.09

On - farm experimentation : a manual of suggested experimental procedures

Hammerton, John L.; Lauckner, F.B.

University of the West Indies, St. Augustine. Caribbean Agricultural Research and Development Institute

U.S. Agency for International Development. Bureau for Latin America and the Caribbean. Regional Development Office (Sponsor)

Apr 1984, iii, 87p. : ill., charts, En

5380099

Based on experience in the Eastern Caribbean, this manual provides guidelines in the use of experimental designs and techniques capable of solving the problems endemic to on-farm, as distinct from field station, research. After briefly defining the terminology used in on-farm experimentation, the manual discusses the experimental designs that are particularly useful in on-farm research. Based on the arrangement of plots and the allocation of treatments, these designs include the randomized complete block (the simplest design), the incomplete block, and the factorial. The designs' pros and cons and related topics such as replication and variability are discussed; examples illustrate the use of each design. The final sections summarize the unique problems encountered in on-farm research (including those due to physical, biological, and technical factors; farmer participation; missing plots or blocks; and planning, design, management, and data collection requirements) and suggest methods for their resolution. Appended are an explanation of variance analysis and a 5-item reference list (1957-83).

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055

PN-AAV-938

MF \$1.08/PC \$2.73

Management system design and implementation in the CARDI farming systems research and development project

Hart, Robert D.; Ingle, Marcus D.

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.17-37 : ill., En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

The design and installation of a management system capable of meeting the multidisciplinary and complex needs of farming systems research (FSR) projects are discussed. Section one systematically assesses the need in FSR to manage: (1) inputs (human and physical resources, project methodology, financial resources, technology inputs); (2) the research program (the analysis-design-evaluation research cycle, the related yearly review-plan-budget-monitor cycles, and life-of-project model-building); (3) outputs (alternative technologies and improved methodologies); and (4) overall project coordination (the need for a central system is argued). Section two describes a general FSR project management system that meets the needs identified in section one, while section three describes the management system of the Caribbean Research and Development Institute's (CARDI) FSR project in order to illustrate the characteristics described in section two. A final section describes an approach to the development of appropriate management systems and the identification of principles that can guide their installation.

056

PN-AAV-939

MF \$1.08/PC \$.52

Farming systems research : an evolutionary approach to implementation

Heinemann, Edward; Biggs, Stephen D.

Journal of agricultural economics, v.36(1), 1985, p.59-65 : chart, En

Evidence suggests that many farming systems research (FSR) programs have "institutional problems", that is, difficulties in working effectively with local research institutions. The authors of this paper argue that these problems are largely the result of the way in which FSR programs are planned. Too much emphasis has been attached to developing an FSR methodology and too little given to understanding the research en-

vironment for which the FSR program is supposedly designed. An alternative FSR planning approach is proposed, one which is based on a dialogue between FSR planners and researchers and which takes explicit account of the needs, capabilities, and characteristics of the client research institution. In this way, administrative and institutional issues of implementation are given consideration from the outset. Such an approach implies that there is no one way to implement FSR programs. It also implies the need for donors to place the contribution of FSR into perspective; only with the active and constructive support of local institutional staff and farmers can there be self-sustaining, problemsolving research systems. (Author abstract, modified)

057

*PN-AAU-997

MF \$1.08/PC \$7.93

Technology and research considerations in ICRAF's "diagnosis and design" procedures

Huxley, P.A.; Wood, P.J.

International Council for Research in Agroforestry

[1984], 49p. : charts, En

Working paper / International Council for Research in Agroforestry, no.26

* Also available from: International Council for Research in Agroforestry, P.O. Box 30677, Nairobi, Kenya

Step-by-step guidelines are presented for the design, planning, and implementation stages of ICRAF's approach to developing appropriate agroforestry interventions. Picking up after the pre-diagnosis/diagnosis stages, which analyze key constraints in a land use system and outline the kinds of changes which may be needed (see "Resources for Agroforestry: Diagnosis and Design" [PN-AAU-998] and its companion volume "Guidelines for Agroforestry Diagnosis and Design"), this paper briefly explains and provides examples for each of the following 9 steps. The design stage (steps 7-11) identifies possible technologies which could help to overcome land use constraints ("leverage" points) and produces a prioritized list of specific technical proposals for species to be used and management practices to be tried. The planning stage (steps 12-13) summarizes what can immediately be put into practice while providing, at the same time, an annotated list of research needs; plans for parallel research and extension activities are also formulated. Implementation (steps 14-15) involves preparing specific plans for each of the proposed technologies regarding objectives, experimental designs, resource allocation, and methods of data evaluation. The full procedure concludes with evaluation (step 16). The paper supplements the narrative with extracts from related writings and with detailed

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charts to guide the practitioner in the application of the methodology.

058

PN-AAV-536

MF \$1.08/PC \$1.43

Recognizing structural constraints on implementation of a farming systems approach within a national agricultural program : some views from Thailand

Infanger, Craig L.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

[1985], 10p., En

Networking paper / Farming Systems Support Project, no.9

9364099

The economic and environmental problems constraining farming systems research (FSR) in the Northeast Rainfed Agricultural Development Project (NERAD) in Thailand are analyzed. Major environmental problems are infertile soils (a fertility classification for Asian soils is provided) and sparse, erratic rainfall stemming from a dry monsoon climate. The major economic problems are a highly risky agricultural situation resulting from price fluctuations and market volatility, the negative effect on farmgate prices of Thailand's trade policies, and the high cost of credit. Farmer strategy in this situation is to minimize risk by implementing a low-input, low-output production scheme that focuses first on subsistence food production and secondly on cropping or off-farm employment for cash income. Unfortunately, this rational strategy is not endorsed by many agricultural scientists, FSR advocates, or Thai ministry officials. FSR projects can only succeed, it is concluded, if they work within the limits of their situation by concentrating on changes that are biologically feasible, economically viable, and socially acceptable.

059

*PN-AAU-998

MF \$4.32/PC \$47.84

Resources for agroforestry : diagnosis and design

International Council for Research in Agroforestry Draft ed.

Nov 1983, x, 383p. : ill., charts, statistical tables, En
Working paper / International Council for Research in Agroforestry, no.7 Also in: Diagnostic and design methodology manual series no.2

* Also available from: International Council for Research in Agroforestry, P.O. Box 30677, Nairobi, Kenya

Intended as a resource book to be used in conjunction with the more skeletal "Guidelines for Agroforestry Diagnosis and Design", this handbook presents detailed methodological guidelines, suggested procedures, analytical tools, and resource materials for use by agroforestry workers in the field. The book is organized in three sections which provide: (1) detailed step-by-step guidelines for each stage in the application of ICRAF's diagnosis and design (D&D) methodology - prediagnosis, diagnosis, design, and follow-up planning; (2) twelve worksheets to facilitate the acquisition and processing of D&D information (the worksheets provide a defined set of output targets which give concrete form and direction to the sequence of interdisciplinary D&D team activities); and (3) the "heart" of the handbook - a lengthy appendix containing a variety of tools and materials corresponding to each of the four stages in agroforestry-oriented D&D, with further step-by-step instructions which are either optional or too lengthy for inclusion in part one. It is expected that the methodology will need to be adapted somewhat to fit particular applications and the needs of the user.

060

PN-AAW-322

MF \$1.08/PC \$1.95

Problems of understanding and communication at the interface of knowledge systems

Jiggins, Janice

University of Florida

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(Conference on Gender Issues in Farming Systems Research and Extension, Gainesville, FL, US, 26 Feb - 1 Mar 1986)

Jan 1986, 13p. + appendix : chart, En

Using examples from Lesotho and northern Zambia, this paper explores the dichotomy which often exists be-

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tween the rationality of a farmer and that of a farming systems researcher or extensionist. Because communication failures are greatest between male researchers and female farmers - who are also responsible for household management - the paper confines its analysis to the strategies used by female farmers to manage seasonal stress. The example from Lesotho illustrates researchers' problems in measuring women's activities to maintain an adequate fuel supply (a key to both cropping choices and household food availability), while that from Zambia underlines the need for researchers to recognize the importance of traditional local vegetables, which in this case provide certain dietary benefits not available from modern varieties of major crops, no matter how abundant. In conclusion, the paper stresses the importance of methodologies for: (1) determining key field-household interactions early on in the diagnostic process; and (2) mutual communication of key concepts across the boundaries of researchers' and female producers' distinct knowledge systems. Two useful diagnostic instruments are described: situation analysis based on the critical incident technique; and peer group workshops.

061

PN-AAW-169

MF \$1.08/PC \$2.08

Extension's role in adapting and evaluating new technology for farmers

Johnson S.H. III; Kellogg, E.D.

U.N. Food and Agriculture Organization

Agricultural extension : a reference manual, 2nd ed. , 1984, p.40-55 : charts, map, statistical tables, En

Swanson, B.E.

The role of extensionists in new approaches to the development, adaptation, and evaluation of agricultural technologies are identified in this paper. Problems which inhibit successful technology adaptation and evaluation are discussed, and a four-stage approach designed to alleviate many of these problems is outlined: (1) diagnosis of farmers' circumstances and actions in the target area; (2) planning and design of technological adaptation; (3) on-farm testing and verification; and (4) multi-locational field trials and dissemination. Specific extension activities in implementing each of the four stages are identified. A brief concluding section on organizational arrangements suggests that national research and extension departments share staffing, budgetary, and operational responsibilities for on-farm trials.

062

PN-AAV-546

MF \$1.08/PC \$1.17

Temporal land resource concerns and farming systems research : Chiang Mai Valley, northern Thailand

Johnson, Sam H. III

Land economics, v.60(2), May 1984, p.202-210 : charts, statistical tables, En

Farming systems research (FSR), particularly as it is currently practiced at international agricultural research centers, concentrates on short-term issues and usually does not address questions concerning the long-term sustainability of production increases. The traditional FSR approach has been depicted as a mathematical equation in which increased agricultural production over the short term, the goal of FSR, is dependent on two variables: farm management and the environment. This equation, however, ignores the interactions between the two variables and thus does not include a mechanism to determine if production increases resulting from new management practices are, in fact, sustainable. This point is illustrated with data from an FSR project to introduce high-yielding varieties (HYV's) of rice in the Chiang Mai Valley in Northern Thailand. Although the HYV's were successful in the short term, over the long term they effected marked increases in soil acidity. This environmental change required farmers to alter their management techniques (e.g., crop rotation, use of fertilizer, labor inputs) and, in turn, negatively affected farmers' income. It is concluded that more attention must be paid to the agroecological dynamics of farming systems, including the long-term effects of technologies.

063

PN-AAW-973

MF \$1.08/PC \$1.56

Use of action variables in determining recommendation domains

Jolly, C.M.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(Annual Farming Systems Research and Extension Symposium, 6th, Manhattan, KS, US, 5-8 Oct 1986)

1986, 11p. : statistical tables, En

9311282

DAN-0000-G-SS-0092-00

The use of recommendation domains (RD's) has not facilitated the transfer of technology in farming systems research (FSR) as well as originally hoped. This report explains why and offers an alternative methodology for identifying RD's. In explaining RD's rather disappointing results, the report notes that methods previously used

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to determine RD's have been subjective and descriptive; farmers have been categorized on the basis of their use of inputs and other sociological factors rather than, as is suggested here, on objective, mathematical analysis of three factors, i.e., output (production level), measurable inputs, and farming practices. Of these, the latter two are considered "action variables" because they can be manipulated to alter the farmers' level of self-sufficiency. The methodology is illustrated by applying cluster and discriminant analysis to data from Senegal's Ziguinchor region on area planted, yield, use of inputs, cultural practices, food consumption and marketing, and revenue from off-farm activities. The results, presented in two tables, show farmers grouped into four distinct clusters, based on factors including herbicide use, level of fertilizer use, and labor per area cultivated. This method, it is concluded, not only allows researchers to objectively group farmers into RD's, but permits greater insights into relationships between input use, cultural practices, and outputs.

064

PN-AAW-974

MF \$1.08/PC \$1.56

Evaluation of technological alternatives for small farmers in Central America

Jones, Jeffrey R.

Social sciences and farming systems research, ch.9, 1986, p.171-193 : map, statistical tables, En

Jones, Jeffrey R.; Wallace, Ben J.

5960089

In certain farming systems research (FSR) contexts, it is necessary to conduct on-farm trials of an alternative technology that is not completely ready for validation. This occurs in complex, slowly reproducing systems where the technology being considered will not have time to mature within the timeframe of the FSR project. In such cases, the technology must be "evaluated" rather than "validated," using indirect measures such as comments by farmers or observations of farm resources. This paper describes the technology evaluation process used in a mixed animal-crop project implemented by CATIE in Cariari, Costa Rica, and in Comayagua, Honduras. The technologies developed by the project (e.g., new forage crops) required increased capital and labor, and it was hypothesized that there could be conflicting demands on these resources arising from farmer's alternative goals for their farms and families. Farmers' goals were determined by using a "paired comparison" methodology to analyze the changes in resource use that would be necessary were the technologies adopted. The report concludes that: (1) somewhat surprisingly, poorer farmers were more receptive than wealthier ones to changes requiring financial risk and sacrifice; and (2) Honduran farmers would much

rather invest in their children's education than in their farms.

065

PN-AAW-170

MF \$1.08/PC \$0.78

Comparaison d'itneraires techniques : une methode d' experimentation agronomique en milieu reel(Comparison of technical sequences : an approach to agronomic research in the field)

Jouve, Philippe , [6]p. : statistical table, Fr, Summaries in Fr, En, Es

Field experience in Morocco provides the basis for this analysis of key problems encountered in research aimed at improving cultivation techniques. These problems include: (1) the selection of research priorities and the formulation of prior assumptions in order to select research themes; (2) the advantages and disadvantages of pursuing research at an experimental station and via agricultural surveys aimed at revealing actual field conditions; (3) the design of experiments comparing technical sequences; and (4) the complementary nature of statistical and agronomic analyses of the results. The three phases of an experimental program are summarized. In conclusion, the paper stresses the importance of developing cultivation techniques that are appropriate to target farmers' resource levels and of involving extension units early on in the process of adapting the techniques to local conditions. (Author abstract, modified)

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

066

*PN-AAV-682

MF \$3.24/PC \$28.86

Livestock in mixed farming systems : research methodologies and priorities

Kearl, Steve

University of Florida. Institute of Food and Agricultural Sciences

International Livestock Centre for Africa

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

(Workshop on Livestock in Mixed Farming Systems : Research Methodologies and Priorities, Addis Ababa, ET, 24-27 Jun 1985)

Jul 1986, vi, 220p. : charts, statistical tables, En

FSSP network report, no.2

9364099

DAN-4099-A-00-2083-00

* Also available from: *International Livestock Center for Africa, P.O. Box 5689, Addis Ababa, Ethiopia*

Papers given at a workshop to explore methodologies and priorities in studying the livestock component of small farms are presented. Participants were expected to identify the major constraints in mixed farming systems, rank them according to their potential economic importance and amenability to research, and develop methodological recommendations. Ten papers are presented, dealing with farming systems research techniques for, inter alia: alley farming; station work with draft animals; evaluating on-farm experiments with livestock in the Ethiopian highlands; dairy systems in smallholdings in Sudan's Gezira area; mineral requirements in animal feeding; socioeconomic methodologies in studying goat husbandry; and the use of and issues in on-farm research to improve fodder for agropastoralists' livestock in the Nigerian subhumid zone. Also presented is a paper on correlating the constraints of the farming and research systems as a prelude to farming systems research. Summary statements of small group discussions on on-station and on-farm research are also included.

067

PN-AAW-010

MF \$1.08/PC \$2.34

Methodologies for conducting on - farm livestock research within mixed farming systems

Kujawa, Mark A.; Oxley, James W.

Kansas State University. Office of International Agriculture Programs

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(Annual Farming Systems Research and Extension Symposium, 6th, Manhattan, KS, US, 5-8 Oct 1986)

Selected proceedings of Kansas State University's 1986 farming systems research symposium; farming systems research and extension : food and feed, paper, no.13, Oct 1986, p.532-549, En

Flora, Cornelia Butler; Tomecek, Martha

9311282

DAN-0000-G-SS-0092-00

Methodologies considered important by researchers in conducting on-farm livestock research (OFLR) are presented. The areas discussed include: the selection of the research site and farms; farmer participation and the use of compensation and incentives; experimental design (e.g., selection of the livestock sample, control of environmental effects, replication, and data collection methods and procedures); and the analysis of research results (biological, economic, and the use of empirical data and estimates of acceptability). While these topics do not represent all the components of OFLR using the farming systems research approach, they reflect areas from past experiences which have been emphasized and well documented. Since OFLR is relatively new, its methodologies are still developing, and several areas (e.g., sampling techniques, farmer survey methods, and site selection) need further development. It is recommended that researchers: modify experimental procedures to fit the particular research environment; limit OFLR to farmer-managed trials and use measures of acceptability as test parameters; and provide explicit descriptions of all methodologies in their published accounts of OFLR. Thirty-two references (1979-86) are provided.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

068

PN-AAV-940

MF \$1.08/PC \$1.69

Inclusion of time factors in the design of on - station and on - farm trials : a case study from Kilosa District, Tanzania

Lev, Larry S.

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.577-589 : ill., map, En Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

On-farm trials conducted in 12 villages in Tanzania's Kilosa District are cited as evidence of the importance of including time factors in farming systems analyses. An initial section identifies relevant time elements and criteria for screening proposed innovations, and lists a variety of short- and long-term time considerations (noting those commodity researchers are likely to ignore). Described next are the study area's environmental features, the local agricultural calendar, traditional farming practices, and the design and implementation of the on-farm trials, which introduced two new maize varieties - Kito and Staha. Results showed that participating farmers unanimously preferred the quick-maturing Kito over the higher-yielding Staha for various time-related reasons. (1) Most farmers chose not to plant maize during the long rains (when Staha produces best) because they concentrate on cotton and rice at that time. (2) Planting with Kito during the short rains permitted farmers to better achieve their main production goals - hastening their maize harvest to a period when family supplies are low and market prices are high, and freeing family labor from February onward when the rice and cotton crops require much attention. (3) Farmers felt that Kito's short maturity would allow it to provide a more stable yield in years when the short rains are poor.

069

PN-AAW-976

MF \$1.08/PC \$2.34

Statistical analysis for on - farm agronomic data

Lightfoot, C.

Jul 1985, 18p. : statistical tables, En

To counter the popular belief that statistical analysis is neither easily understood nor especially useful, this lecture demonstrates, in a step-by-step manner, its use in interpreting yield data from an on-farm corn experi-

ment. The paper first demonstrates the meaning of descriptive statistics, constructing a scatter diagram to display yield patterns and deriving several measures of the data: (1) statistical mean, or a measure of the middle value, which best characterizes data which are not highly variable; (2) range, the simplest measure of variation in the data (spread from the lowest to highest value); and (3) variance, or how closely observations are grouped around the mean. For interpretation (for which variance is not always as helpful as it is for statistical tests), use is made of standard deviation (the square root of the variance), which can be plotted with the mean for a more complete statistical picture. Statistical analysis is then demonstrated in (1) calculating likely yield outcomes for a given practice at the farmers' desired level of confidence, and (2) isolating the real effects of treatments from random chance in the data. Several assumptions upon which the analyses are based are noted.

070

PN-AAV-941

MF \$1.08/PC \$1.30

Farmer participation in on - farm trials

Lightfoot, Clive

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.525-534 : ill., statistical tables, En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

Few would deny that farmer participation is mandatory in quality farming systems research (FSR), but where on-farm testing is concerned researchers have often simply transplanted conventional on-station research designs onto farms, hindering meaningful farmer participation. This paper argues that combining conventional and indigenous research methods exploits farmer participation in adapting technologies to specific farm conditions and providing feedback on basic research needs. Two cases are cited in which farmers have participated in on-farm research. In the first, small farmers in Bangladesh successfully adapted an upland variety of rice (which had performed poorly in experimental plots) to lowland flooded conditions; in the second, Brazilian farmers tested 16 varieties of sweet potatoes, and their preferences revealed that conventional breeding objectives (e.g., high yield, taste) were inappropriate, and that different objectives (vigorous vining, extended underground storage, and sequential harvesting) and a greater range of types for different strategies

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were demanded. Both examples highlight the difficulties - and the potential values - of increasing farmer participation in on-farm research. Data from the two experiments are appended.

071

PN-AAU-332

MF \$1.08/PC \$1.43

Conducting on - farm research in FSR : making a good idea work

Lightfoot, Clive; Barker, Randolph

(Farming Systems Research Symposium on Farming Systems Research and Extension: Implementation and Monitoring, Manhattan, KS, US, 7-10 Oct 1984)

Farming systems research paper series, paper no.9

Selected proceedings of Kansas State University's 1984 farming systems research symposium; farming systems research and extension : implementation and monitoring, Feb 1986, p.445-455, En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

U.S. Agency for International Development. Bureau for Science and Technology. Office of Technical Review and Information (Sponsor)

9311282

To increase the adoption of agricultural technologies developed through farming systems research (FSR), this report suggests a 3-part methodology incorporating on-farm research and farmer participation. The first step is to diagnose the existing farming system and its production constraints by combining a quick interdisciplinary team survey (the sondeo) with detailed monitoring and measurement in specific problem areas that offer potential for research. The second phase is to select and design innovations for on-farm investigation using a five-step process in which farmers and researchers prioritize technical options in terms of their political impact, potential for adoption, and research costs. The final step is to have farmers conduct on-farm trials of the innovations (each field trial should include 20-30 farmers) while researchers focus on collection and analysis of data; development of site team research capabilities is a related task. In conclusion, farmer participation in FSR, especially in the early phases, is critical to the adoption of new technologies.

072

PN-AAW-977

MF \$1.08/PC \$1.69

Indigenous technology and farming systems research : agroforestry in the Indian desert

Mitchie, Barry H.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Social sciences and farming systems research, ch.11, 1986, p.221-244 : maps, chart, statistical tables, En

Jones, Jeffrey R.; Wallace Ben J.

9311254

DSAN/XII-G-0149

An appreciation of locally developed agricultural practices is an underlying tenet of farming systems research (FSR). This case study describes an FSR project conducted in an arid-to-semiarid area in Rajasthan State, India, whose most significant findings arose not from its stated focus (pearl millet, pulse, and pest control trials), but from an anthropological inquiry into indigenous farming systems. What was discovered was a rainfed agroforestry system which combined trees, crops, animal husbandry, and links to fuel and timber concerns. Numerous previous studies (focusing on crops, crop combinations, and infrastructural development) had explored the problems of arid land production in Rajasthan without realizing the potential value of the agroforestry technology. Such a technology (i.e., one developed by relatively poor farmers working marginal lands and utilizing low-cost, locally available inputs) helps farmers overcome a major problem accompanying agricultural development - unequal access to agricultural inputs. The case discussed here shows that the inclusion of anthropological methods can help FSR discover existing systems which may then become targets of further research aimed at their improvement or propagation.

073

PN-AAV-942

MF \$1.08/PC \$2.73

Gender roles in Caribbean small scale agriculture

Momsen, Janet Henshall

University of Florida

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(International Conference on Women and Development: Gender Issues in Farming Systems Research and Extension, Gainesville, FL, US, 26 Feb - 1 Mar 1986)

Jan 1986, 12p. + 6 attachments : chart, statistical tables, En

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

Ester Boserup, in her analysis (1970) of Jamaican agriculture, posited that the high proportion of women farmers in Jamaica stemmed from the preservation of African farming traditions by a population mainly descended from African slaves. This paper analyzes Boserup's hypothesis using both historical sources and contemporary field data. Examined from a historical perspective are women's roles in the "formal" and "informal" plantation economy and the post-emancipation division of labor. Current issues which are discussed include women's economic roles (i.e., as peasant farmers, and in the agricultural labor force) and the gender divisions of labor. The paper highlights a growing conflict in the lives of rural West Indian women (i.e., they remain tied to home-based tasks, despite increased educational and non-farm employment opportunities) and concludes that the efficiency of West Indian peasant agriculture, which relies so heavily upon women, requires the resolution of this conflict.

074

PN-AAV-537

MF \$1.08/PC \$3.90

Decade of on-farm research in lowland rice - based farming systems : some lessons

Morris, Richard A.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(Annual Conference on Farming Systems Research, 4th, Manhattan, KS, US, Oct 1984)

Oct 1984, 27p. : charts, statistical tables, En

Networking paper / Farming Systems Support Project, no.6

9364099

While rice is and must remain the dominant food crop in tropical Asia, efforts to increase cropping frequency by growing other species in sequence with rice is a promising means of increasing both food production and rural employment. The four sections of this paper: (1) provide the *raison d'être* for on-farm, rice-based cropping systems research (CSR) in tropical Asia, as practiced by the International Rice Research Institute (IRRI); (2) describe the on-farm CSR methods used by IRRI; (3) summarize agronomic research findings from three lowland rice environments; and (4) discuss organizational issues important to on-farm CSR which appear to require a few years of experience before they are recognized. The lessons discussed in Section 4 primarily relate to project relationships with farmers, extensionists, community leaders, and with research station-oriented scientists who are responsible for generating appropriate technology. (Author abstract, modified)

075

PN-AAV-276

MF \$1.08/PC \$5.07

Technology evaluation, policy change and farmer adoption in Burkina-Faso

Nagy, Joseph; Ames, Linda L.; Ohm, Herbert

Purdue University. School of Agriculture. Division of International Programs in Agriculture

Purdue University. International Education and Research

Purdue University. Farming Systems Unit of the Semi-Arid Food Grain Research and Development Program

U.S. Agency for International Development. Bureau for Africa. Office of Regional Affairs (Sponsor)

(Farming Systems Symposium, Manhattan, KS, US, 13-16 Oct 1985)

Oct 1985, 26p. + attachments : map, statistical tables, En

French ed.: PN-AAV-277

6980393

AID/AFR-C-1472

Two major constraints to increased agricultural production in Burkina Faso are poor soil fertility and inadequate water retention. This paper presents the results of field trials and socioeconomic analyses of the benefits of tied ridges and fertilizer for sorghum cropping. After a researcher-managed trial using commercial fertilizer and tied ridges constructed 30-35 days after planting resulted in a 195% yield increase over traditional practices, a series of farmer-managed trials was conducted in five different villages to compare traditional practices, tied ridges, low levels of fertilizer, and combinations of all three, both with and without animal traction. Linear programming was used to analyze the technology interventions in a whole farm context. Tied ridges and fertilizer, when used alone, showed good results (although fertilizer alone carried high risk), but the combination of the two produced superior yields. Both technologies showed poor adoption rates, however, due on the one hand to lack of cash resources to buy fertilizer and on the other to lack of sufficient labor to construct and maintain tied ridges. The introduction of mechanical ridge tiers reduced labor, but required animal traction and still more cash. In short, the improved technologies are likely to be adopted only by families with sufficient access to credit and animal traction.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

076

PN-AAW-171

MF \$1.08/PC \$1.43

Farming systems research model in Zimbabwe

Ndimande, B.N.; Avila, M.
International Rice Research Institute
Nepal. Ministry of Agriculture
U.S. Agency for International Development. Bureau for
Science and Technology. Office of Agriculture (Sponsor)
Proceedings of the second monitoring tour : crop - livestock systems research, Nepal and Indonesia, [1985], p.126-136 : chart, statistical table, En
936411102

The Farming Systems Research Unit (FSRU) established in 1980 within Zimbabwe's Department of Research and Specialist Services is delineated. An initial section reviews the Unit's evolution, organizational structure, objectives, and major programmatic thrusts and activities. Attention is then turned to crop/livestock systems research, an FSRU subprogram as of 1984. Key aspects of such research in general and in the Zimbabwe model are discussed - the design of crop/livestock systems research, the structure and function of the farming system, research team composition and interaction, objectives, and on-farm experimentation with animals. This model, it is remarked in conclusion, was developed in accordance with circumstances prevailing in Zimbabwe, and was left unchanged after a first year assessment.

077

PN-AAW-978

MF \$1.08/PC \$2.73

Potential role of farmer - field days in the integration of research and extension programs : the experience of adaptive research planning team in Western Province, Zambia

Ndiyoi, Mukelabai
U.S. Agency for International Development. Bureau for
Science and Technology. Office of Agriculture (Sponsor)
(Annual Farming Systems Research and Extension Symposium, 6th, Manhattan, KS, US, 5-8 Oct 1986)
1986, [21]p. : charts, En
9311282
DAN-0000-G-SS-0092-00

Close and continuous interaction between research and extension workers is now seen as a key activity in the generation and dissemination of appropriate agricultural technologies. This paper argues that farmer field-days can effectively demonstrate research and extension activities to farmers, and provide researchers and

extensionists with a needed interaction based on the interests of the farmer. The Adaptive Research Planning Team in Western Province, Zambia, has sponsored three farmer field-days; based on this experience, the paper discusses issues important to the conduct of a successful field-day: planning the field-day, within the larger research program and for a single session; presenting unfamiliar and complex technical and statistical information to farmers; and leading discussions with farmers that permit them to share their experience and articulate specific problems. The paper concludes that, in addition to being an effective communication tool, farmer field-days can help refocus program formulation for greater integration of research and extension efforts to address specific farmer problems. Appended is a detailed description of a February 1983 field-day.

078

PN-AAW-011

MF \$1.08/PC \$3.12

Soil tillage and water conservation in semi-arid west Africa

Nicou, R.; Charreau, C.
Purdue University. School of Agriculture. Division of International Programs in Agriculture
U.S. Agency for International Development. Bureau for Africa. Office of Regional Affairs (Sponsor)
Appropriate technologies for farmers in semi-arid west Africa, 1985, p.9-32 : charts, statistical tables, En
Ohm, Herbert W.; Nagy, Joseph G.
6980393

Root development of annual crops in semiarid West Africa often suffers due to poor soil conditions and to erosion and runoff caused by irregular, intense rainfall. This study surveys the physical properties of West African soils (which are generally characterized by sandy-clayey upper horizons) and examines the advantages of tillage for improving soil properties (porosity, water retention, and microbial activity) and for increasing root growth and crop yields. The difficulties in extending tillage to farmers in semiarid West Africa are also considered, after which specific tillage and other water conservation techniques are discussed at some length. These include tillage with tines, dry deep plowing, ridging and mounding, the use of tied ridges, and mulching. It is concluded that no one technique is universally effective; rather, results depend on a number of variables, such as climate, soil chemistry, vegetation and farming practices. Also, socioeconomic factors (e.g., the expense of motorization needed for deep plowing, or the amount of hand labor required by tied ridges) limit the number of workable options. Four figures and nine tables are included.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

079

PN-AAV-943

MF \$1.08/PC \$4.94

Integrating intra-household dynamics into farming systems projects

Norem, Rosalie Huisinga
University of Florida

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(International Conference on Women and Development: Gender Issues in Farming Systems Research and Extension, Gainesville, FL, US, 26 Feb - 1 Mar 1986)

1986, 23p. + appendix : statistical tables, En
9311282

DAN-1282-G-SS-0101-00

As a first step in developing guidelines for the systematic use of household data in farming systems projects, a survey was conducted of 17 projects which had collected household-level data. This preliminary analysis of survey results identifies: (1) the extent to which the projects collected and used data on household members' demographic characteristics, participation in activities and decisionmaking, and access to production resources, as well as on household income, expenditures, benefits from farm production, and food consumption and nutrition; and (2) the data collection methods used by the projects (e.g., pre-existing or project-conducted formal surveys, community informants, team members' personal knowledge, observation, and *sondeos*). The analysis indicates that there is a wide variation in the kinds of data being collected. Data are most often collected from heads of households, a fact which may make it difficult to use the household as a unit of analysis in some cases. The need for standardized data collection sensitive enough to capture information from a variety of respondents is noted. Appended are a copy of the survey questionnaire and tables identifying the projects surveyed and presenting findings in statistical form.

080

PN-AAR-868

MF \$1.08/PC \$1.56

Some problems in the implementation of agricultural research projects with a farming systems perspective

Norman, David W.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

[1984], 11p., En

Networking paper / Farming Systems Support Project, no.3

9364099

Design, start-up, and implementation problems in farming systems research (FSR) projects are discussed in this report, based on the author's experience in Botswana. To avoid problems at the design stage, national, donor, and contract personnel must understand the nature of FSR and their respective roles in the FSR project. At the start-up stage, it is essential to set up suitable administrative procedures and support systems, ensure interagency linkages within national programs, and bring together FSR teams and initiate a relevant and effective work program. During implementation, the key needs are to produce useful results and to institutionalize the FSR process within a national setting. The former depends mostly on the dissemination of improved and farmer-acceptable technologies, the use of proper data collection and analysis techniques, and the FSR team's adaptability to unexpected events. The likelihood of institutionalizing FSR depends on the project's credibility, the availability of trained and motivated nationals to continue the work, and the ability to produce results with a minimum of research resources. Also required is a conscious effort early on to integrate the project with other groups and projects within the country setting.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

081

PN-AAW-012

MF \$1.08/PC \$2.73

Limits of farming systems research and development : should development administrators be interested?

Oasa, Edmund K.; Swanson, Louis E.
Agricultural administration, v.23, 1986, p.1-21, En
9311254
AID/DSAN-G-0149

The assumptions of farming systems research (FSR) are similar to those of the alternative (or appropriate) technology movement (ATM), and much of the criticism of ATM is applicable to FSR as well. ATM and FSR have tended to ignore macroeconomic and social structures that limit "bottom-up" development efforts, and both have therefore accepted, at least implicitly, the principle of technological determinism. However, the simple introduction of alternative technologies is not sufficient to achieve FSR's goal of providing sustained socioeconomic benefits to small farmers. Technological advances tend in practice to be uneven in their benefits to farmers and relatively short-lived in their ability to provide a comparative advantage to early adopters. As the experience of the Green Revolution and of agricultural technology development in the United States indicates, commercial commodity and capital markets inevitably expropriate much if not all of the value created by new technologies. In sum, FSR can be a useful research method, but it has serious shortcomings as a development strategy. Unless FSR can develop market structures that distribute technological benefits equally, it, like the Green Revolution, will fail. A 35-item bibliography (1971-85) is included.

082

PN-AAW-979

MF \$1.08/PC \$2.47

Study of farmer's adaptation of upland rice to rainfed banded conditions

Ocado, Francisco D.; Jumaday, Antonio D.; et al.
U.S. Agency for International Development. Bureau for Asia and Near East. Philippines (Sponsor)
Jan 1986, 19p. : charts, statistical tables, En
Working paper / Farming Systems Development Project, Eastern Visayas, no.3
4920356

Flash flooding during November of 1983 destroyed much of the lowland rice crop of farmers in Bangladesh, leaving them short of standard lowland variety seed supplies (typically IR36 and IR42). To solve this problem, farmers decided to try the upland rice variety UPL-RI5 in their lowland banded plots. This study analyzes the results of this experiment in terms of crop yield and quality. At the conclusion of the tradition-

al lowland growing season in April, farmers generally assessed the performance of the UPL-RI5 as comparable with standard lowland varieties. Although the upland variety produced on the average fewer tillers, all farmers commented favorably on its panicle exertion and good head fill, and its maturity period of between three to five months was comparable with the lowland varieties. Overall grain yields were comparable as well. These favorable assessments were supported by continued use of UPL-RI5 in lowland banded conditions, especially in the driest parts of the parcel due to the variety's lesser tolerance of waterlogging. A total of 15 charts and figures are provided.

083

PN-AAW-013

MF \$1.08/PC \$1.69

Complementary effects of tied ridging and fertilization with cultivation by hand and donkey and ox traction

Ohm, Herbert W.; Nagy, Joseph G.; Sawadogo, Sibiri
Purdue University. School of Agriculture. Division of International Programs in Agriculture
U.S. Agency for International Development. Bureau for Africa. Office of Regional Affairs (Sponsor)
Appropriate technologies for farmers in semi-arid West Africa, 1985, p.61-73 : statistical tables, En
Ohm, Herbert W.; Nagy, Joseph G.
6980393

Three farmer-managed trials were conducted on fields of subsistence farmers in one to five agronomically diverse villages in Burkina Faso, using combinations of tied ridges (TR), fertilization, and human and animal traction to increase production of maize, sorghum, and millet. Results, which were evaluated in terms of crop yields and cash and labor needed to produce the crop in order to determine economic returns from investment in TR and fertilizers, were as follows. (1) Construction of TR's can significantly increase cereal crop yields throughout the Central Plateau. Since the large amount of labor involved constrains TR construction, the mechanical tied ridger offers a promising - but still untested - alternative. (2) Fertilization with minimal amounts of cotton fertilizer (100 hg/ha) plus 50 kg/a urea can significantly increase yield. However, sorghum response to fertilization without TR is variable and risky. The inconsistent responses to fertilization with VP1, UV5, and urea compared to the more consistent responses from cotton fertilizer suggests that more research is needed to characterize soils for concentrations of a broad range of nutrient elements essential for crop growth. Farmers with larger than average land holdings - and more capital - are best able and more likely to adopt the new technologies.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

084

PN-AAV-944

MF \$1.08/PC \$2.08

Small ruminant production in mixed farming systems : case studies in research design

Okali, C.; Knipscheer, H.C.

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.428-443 : ill., En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

Methodological problems encountered when designing on-farm mixed farming experiments are examined herein. First, the paper describes two small ruminant production systems, one in Java, Indonesia, the other in the humid zone of West Africa, to highlight key features of small farm systems that should determine the way in which on-farm research is designed. Second, the experiences of small ruminant research teams working in these areas, and of other research programs working in similar farming system contexts, are used to demonstrate problems in conventional trial designs and the value of a broader view. Specifically, discussion is given to four methodological problems which derive primarily from viewing on-farm research as the trial of technologies by individual producing units. These problems concern: (1) identifying the units of production which will be the focus of research; (2) collecting data sufficient for conventional statistical analysis where small ruminants are a secondary or minor enterprise; (3) classifying producers for the purposes of sampling and trials given the variability in producers' livestock, management, and type and use of labor; and (4) designing on-farm trials to ensure that results can be replicated by farmers. A 38-item list of mainly post-1980 references is appended.

085

PN-AAV-945

MF \$1.08/PC \$2.73

Role of women farmers in the choosing of species for agroforestry farming systems in rural areas of Ghana

Owusu-Bempah, Kofi

University of Florida

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(International Conference on Women and Development : Gender Issues in Farming Systems Research and Extension, Gainesville, FL, US, 26 Feb - 1 Mar 1986)

1986, 19p. : charts, map, statistical tables, En

9311282

DAN-1282-G-SS-0101-00

Choosing species that satisfy food, nutrition, fuelwood, and health problems of farm families is an important factor in promoting acceptability of an agroforestry package. Ghanaian farmers have a rich tradition of conserving certain trees on their traditional agroforestry farms in order to provide for basic forest products. This paper reviews a case study survey conducted to identify useful local species for an ongoing research and development program on agroforestry farming systems in the forest-savannah transitional zone of Ghana. Analysis of the data showed that women farmers are better conservators and more resourceful than their male counterparts. It is recommended that researchers consider directly involving women, especially during formal and informal surveys for collecting data on agroforestry species. Traditional subsistence agroforestry farmers, mostly women, capable of selling between 45-50% of their surplus products, acknowledged the benefits of agroforestry and suggested the most useful trees for new agroforestry systems. Briefly described is a proposal for an on-farm research effort involving some selected species to be conducted jointly by women and "barefoot" agroforesters - i.e., agriculturist-foresters with basic training who have settled within a rural farming community as full-time farmers, as on-farm researchers, and as extension agents who use local farms to demonstrate agroforestry technology. (Author abstract, modified)

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

086

PN-AAW-980

MF \$1.08/PC \$2.21

Research methods for multiple cropping

Parkhurst, Anne M.; Francis, Charles A.

Multiple cropping systems, ch.12, 1986, p.285-316 : ill., charts, statistical tables, En
Francis, Charles A.

The development of adequate research methodologies for multiple cropping systems has been hampered by researchers' tendency to experiment within monocrop systems. In farming systems research (FSR), this tendency is further complicated by the need to integrate cultural and socioeconomic factors related to the farm environment into agricultural research. This paper discusses at length the problems involved in designing multicrop experiments by: (1) describing the complexity of multicropping research questions (which involve genetic, cultural, and climatic factors); (2) discussing different strategies for identifying factors that most constrain production; (3) establishing research priorities (use of a matrix to organize information and quantify priorities is proposed and exemplified); (4) explaining various experiment design options for component research and evaluation; and (5) treating the role of interdisciplinary FSR in validating technologies. Examples are used from both monocrop and multicrop experiment designs. References (1967-85), seven tables, and seven figures are included.

087

PN-AAV-538

MF \$1.08/PC \$2.60

Introduction a l'approche recherche / developpement des systemes de production et a la methode de recherche en milieu paysan (Introduction of the research and development approach to production systems and a method of research in a rural setting)

Pascal, Fotzo Tagne

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

[1985], 18p. : chart, Fr

Networking paper / Farming Systems Support Project, no.11
9364099

The recent turn to on-farm research in developing countries stems from the inability of traditional western research models to effect improved agricultural productivity or well-being among poor farmers. This report describes the objectives of on-farm research, emphasizing

ing its interdisciplinary nature, and describes its 5-stage process of: problem diagnosis; identification of possible solutions; on-farm testing, both researcher-managed and farmer-managed; evaluation of the acceptability of the technology within the entire farm household; and transfer of the technology through extension. Practical guidelines are offered for the selection of test sites and participating farmers, the design of the data collection instrument and supervision of data collection, and data analysis. A final section presents four ideas which together reinforce the paper's theme that the multi-faceted aspects of a farmer's situation (i.e., social, economic, and environmental) require a comprehensive agricultural research methodology. A 21-item (1976-85) bibliography of French and English titles is appended.

088

PN-AAW-323

MF \$1.08/PC \$3.51

Farming systems research at Khon Kaen University, Thailand

Patanothai, Aran

International Rice Research Institute

Indonesia. Ministry of Public Works. Directorate General of Water Resources Development. Directorate of Rivers

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Proceedings of the second monitoring tour : crop - livestock systems research, Nepal and Indonesia, [1985], p.88-114 : chart, En
936411102

Agriculture in the undulating lands of northeast Thailand typically consists of monocropping dryland rice as a subsistence crop in depression areas and field crops (cassava, kenaf, and corn) as a cash crop in upland areas; livestock raising is also an important feature. The three-stage evolution of a farming systems research (FSR) project begun in 1975 in northeast Thailand by Khon Kaen University is described in this paper. (1) In its early stage (1975-80), Khon Kaen focused on the mini-watershed agroecosystem of the Korat Triangle to develop discrete cropping patterns for upland, upper paddy, and lowland paddy areas. A large number of patterns were tested, initially on the university farm and/or rented farmers' fields and later by farmer cooperators. (2) With the limited adoption of promising cropping patterns, Khon Kaen began in 1981 to expand its FSR approach by studying farmers' actual practices and to employ the methods and concepts of human ecology, agroecosystem analysis, and rapid rural appraisal. (3) With the 1984 inclusion under the AID-supported Rainfed Farming Systems Research Project of the animal subsystem, Khon Kaen research

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now integrates crop, animal, and social science into full-scheme FSR.

089 **PN-AAV-632**
MF \$1.08/PC \$.65

Livestock component farming systems research in Java : the case for work with women

Petheram, R.J.; Basuno, Edi
Agricultural administration, v.21, 1986, p.119-127, En

The potential for improving the productivity of Javanese livestock has been demonstrated under research station conditions, yet little improvement in village production has been achieved. Slow progress to date may be partly associated with practical difficulties in achieving the degree of farmer contact needed in livestock research while working mainly with male stock-rearers; most male rearers spend daylight hours working away from home and from their stock, and feel too busy to become involved in trials of new livestock technology. One approach to increasing progress in livestock development would be to promote research which involves women rearers or the wives of rearers. The advantages of involving women in village livestock research include ease of communication during daylight working hours; interest (and some training) among women in nutrition, health, and reproductive physiology; and the ability of women to manage animals in farm trials requiring constant supervision. In some villages women are already involved in group activities, which can form a ready basis for communicating ideas on livestock improvement. A livestock program based on contact with women rearers may require special efforts to encourage women scientists to work in villages. (Author abstract, modified)

090 **PN-AAV-946**
MF \$1.08/PC \$1.69

Farm trials with madura cattle : supplements for village diets

Petheram, R.J.; Prawirodigdo, Susanto; Prasetyo, Hardi
Research Institute for Animal Production
U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)
[1985], 13p. : chart, statistical tables, En
9311328

Trials of dietary supplements for cattle in two contrasting villages in Madura, Indonesia proved unsuccessful. Results showed no significant growth response, regardless of treatment regime, although a higher growth rate was seen in Peltong than in Sopaah village (even in con-

trol animals). Moreover, 4 of the 58 sample animals died from urea poisoning during the trial, despite the low levels of urea in the supplements and the careful instructions provided to farmers. This article, after essaying several possible explanations for the lack of growth response and for the large difference in growth rates between villages, identifies problems not resolved in the design of the trial itself, including baseline variations among farmers in the ordinary diet fed, the danger of urea poisoning among less capable farmers, and difficulties in: controlling the quality of the materials in the supplement (even when mixed, as in this case, at a central location); controlling the frequency of feeding; and ensuring that cattle in the control group are not fed supplements. While some of these problems can be remedied, the problems concerned with achieving proper control raise serious questions about the validity of farm trials of this nature. In any case, particular attention should be given to the selection of participating farmers.

091 **PN-AAW-981**
MF \$1.08/PC \$1.82

Land classification for livestock farming systems research and development in Java

Petheram, R.J.; Thahar, Ashari
Indonesian agricultural research and development journal, v.7(1&2), 1985, p.11-23 : maps, statistical tables, En

A means of classifying land use for livestock research and development is presented. The proposed system is a hierarchical classification in which land area is categorized through a step-by-step process based on three criteria known to influence livestock distribution, farming systems, or productivity. The criteria - altitude, rainfall, and land use - were selected after a literature review and an analysis of national livestock and land use data in Java, and were tested in the field in West Java. The first half of the article justifies the use of these criteria, and not others, for land classification. The second half outlines the practical application of the land classification as a basis for: (1) sampling designs for livestock-related surveys; (2) selection of sites which are representative of important land units or systems; (3) dissemination of research results or development opportunities; and (4) planning of regional livestock research and development priorities. A list of 37 references (1944-84) is provided; among the six appendices are altitude and rainfall keys and a definitions of major land use types.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

092

PN-AAV-681

MF \$2.16/PC \$22.75

Animal traction in a farming systems perspective : a farming systems support project networkshop

Poats, Susan V.; Lichte, John; et al.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

(Animal Traction in a Farming Systems Perspective Networkshop, 1st, Kara, TG, 4-8 Mar 1985)

Mar 1985, 187p. : charts, maps, statistical tables, En

FSSP network report, no.1

9364099

DAN-4099-A-00-2083-00

The proceedings from a March 1985 "networkshop" on Animal Traction in a Farming Systems Perspective held in Lama Kara, Togo, are presented. Section one provides an overview, background, and summary of the networkshop and outlines its five major themes--animal feeding, technology management, technology adoption, on-farm research methodologies, and monitoring and evaluation. Section two contains 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 of highlights from a previous animal traction networkshop in Swaziland. Section three reports on the networkshop's field trip to animal traction projects in the Lama Kara region and presents the country reports of non-Togolese participants. Section four summarizes small group discussions on the five major themes, while section five provides concluding statements, a summary of the participant evaluation, and an outline of the year's networking plans, to culminate in a second workshop in 1986. Appendices include a 30-page bibliography, an inventory of animal traction projects, and a paper on livestock technologies for mixed farms. (Author abstract, modified)

093

PN-AAW-172

MF \$1.08/PC \$2.08

Role of women in household production systems and rice farming in Nepal

Pradhan, Bina

International Rice Research Institute

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(Conference on Women in Rice Farming Systems, Manila, PH, 20-30 Sep 1983)

Women in rice farming : proceedings of a conference on women in rice farming systems, 1985, p.257-286 : charts, statistical tables, En

9364111

The economic importance of women as primary agricultural producers in family farm and household production systems in rice growing areas of Nepal is discussed. An initial section analyzes the relative participation of women and men, and the variables affecting women's participation, in the three sectors of the rural economy: family farm enterprises, the local market economy, and migration for employment. Section two presents an analysis, supported by several statistical charts, of women's role in family rice farming in terms of the use of fertilizer, labor systems and the division of labor in agriculture, the cycle of male/female agricultural work patterns, and the decisionmaking role of women in agriculture. Sections three and four discuss, respectively, the impact of new technology on women and women's access to institutional credit. Recommendations for improving women's ability to compete in the market by increasing their access to technology, credit, and extension conclude the report.

094

PN-AAV-947

MF \$1.08/PC \$2.08

Farm labor by age and sex in northwestern Syria : implications for two proposed technologies

Rassam, Andree

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research paper series, paper no.11

Farming systems research & extension : management and methodology, Aug 1986, p.272-287 : statistical tables, En

Flora, Cornelia Butler; Tomecek, Martha

Kansas State University. Office of International Agriculture Programs

9311282

DAN-0000-G-SS-0092-00

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

An assessment was made of the potential effects on household labor of two legume cultivars being considered for introduction in northwest Syria: (1) lentil cultivars suitable for mechanical harvesting and (2) chickpea cultivars resistant to ascochyta blight, and thus suitable for early sowing. Data were gathered from 47 households from two agroclimatic zones in the Azaz district, north of Aleppo; the zones differed mainly in that one zone had virtually no chickpea production. Information was collected from both the husband and wife of each household regarding the composition of the household, cropping systems and practices (including division of labor), livestock activities, harvesting operations, household income, and attitudes towards the proposed technologies. It was concluded that women would be most affected by the new cultivars. The mechanized harvesting of lentils would displace female laborers who have little opportunity for non-agricultural employment. Chickpeas, if added to the cropping system, would require more weeding, which is generally a woman's task. Six tables are appended.

095

PN-AAW-982

MF \$1.08/PC \$1.56

Getting marketing into farming systems research : a case study from western Sudan

Reeves, Edward B.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Social sciences and farming systems research, ch.6, 1986, p.99-121 : statistical tables, En

Jones, Jeffery R.; Wallace, Ben J.

9311254

The role of the economic anthropologist in integrating marketing concerns into farming systems research (FSR) is discussed. The anthropologist's contribution lies in an emphasis on direct observation and behavioral analysis of farmer strategies for adapting to macro-level market conditions. How such observation may contribute to FSR is illustrated using the partial budget analysis procedure advocated by CIMMYT. Partial budget analysis is a type of marginal economic analysis which analyzes not the profit or loss to the farm as a whole, but the net increase or decrease in farm income resulting from the adoption of a new technology. The analysis, described herein, consists of: (1) calculating average net benefits for each agronomic treatment, estimating variable costs and subtracting them from gross field benefit to obtain the net benefit; (2) selecting a recommended treatment using marginal analysis; and (3) checking the suitability of the recommendation with respect to yield and price variability. The procedure is critiqued with reference to a case study of farmer marketing strategies in the el-Obeid

area of Western Sudan. The paper concludes that an anthropologist's concern with understanding farmer marketing strategies can tie together the micro-level, technical concerns of agriculturalists and the macro-level, institutional concerns of agricultural economists.

096

*PN-AAU-999

MF \$1.08/PC \$5.20

Women, trees and tenure : implications for agroforestry research and development

Rocheleau, Dianne E.

International Council for Research in Agroforestry (International Workshop on Tenure Issues in Agroforestry, Nairobi, KE, 26-30 May 1985) 1985, 28p. + attachment, En

* Also available from: International Council for Research in Agroforestry, P.O. Box 30677, Nairobi, Kenya

Lack of political will and of information on the constraints to women's access to productive resources impedes women's potentially large contribution to agroforestry and social forestry. Focusing on land tenure as a key information and action point, this report first identifies differences in men's and women's status - especially in terms of access to land - according to statutory, civil, and customary law and in land reform and resettlement programs. The disparity between women's *de jure* and *de facto* rights is also examined. Next, the male-female division of space (land), time allocation, labor, expertise, and decisionmaking is evaluated for its impact on agroforestry and social forestry projects. Specific courses of action are recommended in regard to agroforestry and social forestry policy, technology research and development, and women's participation in rural development. A concluding note cites larger development programs as a structure capable of integrating these recommended approaches and urges that women be allowed to determine or create the organizations best able to represent their interests and mediate their participation in agroforestry and social research efforts.

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097

PN-AAV-949

MF \$2.16/PC \$15.60

Evaluation des essais en milieu reel sur les Cultures Associees Mil-Niebe : resultats de la campagne de 1985 (Evaluation of on - farm trials of millet - cowpea cropping systems : results from the 1985 season)

Samba, Ly; Deuson, Robert; et al.

Kansas State University. Office of International Agriculture Programs

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(Symposium de la Recherche sur Systemes de Production Agricole, Manhattan, KS, US, 5-8 Oct 1986)

Oct 1986, 108p. : ill., charts, map, statistical tables, Fr 9311282

DAN-0000-G-SS-0092-00

On-farm trials were conducted on 75 Nigerien farms in three distinct recommendation domains to test the performance of improved and traditional varieties of millet under variable conditions. Using a randomized bloc design, the millet varieties were intercropped with cowpeas at two density levels with and without fertilizer. The results show that recommended densities with improved varieties and fertilizer performed best in terms of yield. When fertilizer was not used, improved millet varieties planted at the farmers' traditional density level performed better than with the recommended density. For cowpeas, there was no pod yield due to a late season drought, but hay yields at all sites were significantly higher with the recommended densities, with and without fertilizer, than the traditional low density. Economic analyses were conducted and the following results were noted: partial budget and dominance analysis showed the high density, fertilized treatment to be superior in two of the sites. In the third, where rainfall was poor, the treatment with low density, no fertilizer, and improved millet variety was most profitable. Also, partial budget results were shown to be very sensitive to the price of cowpea hay. (Author abstract, modified)

098

PN-AAV-547

MF \$1.08/PC \$2.34

Farming systems research : clarification of terms and concepts

Sands, Deborah Merrill

Experimental agriculture, v.22, 1986, p.87-104, En

Farming systems research (FSR) has emerged as a major theme in international agricultural research in the past decade. However, despite widespread use of the

term, its meaning and the types of research objectives, approaches, activities, and methods to which it applies remain ambiguous. The lack of precision in concepts and terms will discredit FSR and jeopardize donor support. This paper seeks to clarify and define the major types of research approaches and activities encompassed by the general term FSR. Six subspecies of FSR are distinguished: farming systems analysis; farming systems adaptive research; farming system component research; farming systems baseline data analysis; new farming systems development; and farming systems research and agricultural development. Examples of each are provided. It is proposed that a new term - research with a Farming Systems Perspective (FSP) - replace FSR as the generic term for research which uses the farming system as the framework for analysis. (Author abstract, modified)

099

PN-AAV-548

MF \$1.08/PC \$1.69

Food consumption analysis and related parameters for Ouagadougou, Burkina [Faso]

Sawadogo, Kimseyinga

Appropriate technologies for farmers in semi-arid West Africa, [1985], p.338-350 : statistical tables, En

Ohm, Herbert W.; Nagy, Joseph G.

Purdue University

Wealthier urban populations in Burkina Faso show an increasing preference for imported rice and wheat over the locally produced cereals (e.g., millet and sorghum) that form the basis of the traditional rural diet. Through a series of economic analyses, this paper estimates the implications of this change in urban food preferences for domestic grain production. To facilitate analysis, the report aggregates data gathered weekly from 73 urban households between 9/82 and 8/83 into monthly statistics and combines the 63 products studied into 5 food and 1 non-food groups. A Linear Expenditure System is used to estimate income and price effects on the marginal budget shares of each item studied. Results show that both traditional and newer, imported cereals are very responsive to changes in income and their own prices, although newer cereals take up a greater marginal budget share. This suggests that: (1) urban demand for sorghum is far from decreasing with increasing income (a similar conclusion is expected to prevail at the rural household level); and (2) urban demand for sorghum and millet can be increased even further by lowering cereal prices and transferring income to lower-income households.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

100

PN-AAW-986

MF \$1.08/PC \$5.72

Draught animal power in Africa : priorities for development, research and liaison

Starkey, Paul H.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

Feb 1986, 40p., En

Networking paper / Farming Systems Support Project, no.14

9364099

Factors important to the successful and appropriate promotion of animal traction for small farms in Africa are discussed. Following an overview of the history of draught animal power in Africa, the paper identifies preconditions for its success: suitable land and climate; adequate population density and labor deployment; the availability of adapted animals and cultivation systems; a market for produce; sociocultural acceptance; farmer knowledge; credit; and support services. Discussion of the implications of these preconditions for policies at both the national and project levels stresses the need for a farming systems approach that will identify the overall profitability of animal traction as well as key limiting factors. The implications for research methodology are briefly discussed, after which research priorities are suggested in the areas of: animal breeding, nutrition, and health; farm equipment; harnessing techniques; diversification of operations; and social and economic factors. Finally, the potential roles of national programs, study tours and workshops, aid agencies, international research organizations, newsletters, and a draught animal power network are appraised.

101

PN-AAW-985

MF \$1.08/PC \$8.97

Integrated livestock systems in Nepal and Indonesia : implications for animal traction programs in West Africa

Starkey, Paul H.; Apetofia, Kossivi

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

Mar 1986, v, 64p. : ill., En

Network report / Farming Systems Support Project, no.3 9364099

While there are great social, economic, cultural, and historical differences between Asia and West Africa, there are many similarities in the farming systems of the two regions. This paper, prepared by members of the West African Animal Traction Workshop Committee on the basis of their participation in the Second Crop-Livestock Systems Research and Monitoring Tour of Nepal and Indonesia, reports the lessons African farmers can learn from their Asian counterparts. These include, inter alia, that: (1) animal traction can be profitably used in highly intensive farms of small area, even when population pressures are high; (2) expensive metal plows are not required for successful animal traction; (3) work oxen and milking animals can be effectively zero grazed where free grazing may result in crop damage; and (4) forage trees can provide a valuable contribution to the feeding of draft animals and other ruminants while helping to control erosion and contributing to fuelwood production. Detailed discussions of animal traction procedures in Nepal and Indonesia are included. A 57-item bibliography (1978-86) and 19 illustrations are appended.

102

PN-AAW-173

MF \$1.08/PC \$3.90

Gender factor and technology options for Zambia's subsistence farming systems

Sutherland, Alistair J.

University of Florida

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(Conference on Gender Issues in Farming Systems Research and Extension, Gainesville, FL, US, 26 Feb - 1 Mar 1986)

1986, 30p., En

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

The increasing concern in farming systems research (FSR) with integrating women's interests into the larger context of rural development warrants focused, empirical, socioeconomic studies on women's roles in agriculture and an emphasis on the treatment of gender as a social variable, according to this report. Using FSR as the framework for in-country comparative studies of women's contribution to the farming system, the report examines subsistence agriculture in three of Zambia's eight provinces to analyze the relationship of gender to the development of recommendation domains and research priorities. The case studies examine the farming practices of female-headed households in Luapula, Lusaka, and, less directly, Western Provinces in comparison with male-headed households; the studies highlight, in particular, the variability of women's roles in Zambia's subsistence farming. The conclusion summarizes the range of factors that influence gender roles and outlines four tentative recommendations regarding the treatment of gender issues in identifying recommendation domains and setting priorities for FSR in Zambia.

103

PN-AAV-539

MF \$1.08/PC \$2.08

Adaptive research and pre-extension testing : the case of upland rice in West Africa

Tagne P., Fotzo; Spencer, D.S.C.; Sandhu, A.S.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(International Upland Rice Conference, 2nd, Jakarta, ID, Mar 1985)

Mar 1985, 15p. : statistical table, En

Networking paper / Farming Systems Support Project, no.7

9364099

Difficulties with the direct importing of high-yielding rice varieties taught researchers from the West African Rice Development Association (WARDA) an important lesson: programs to introduce improved rice varieties must take into account farmers' socioeconomic situation and must pre-test promising technologies on farmers' fields. In response, WARDA developed a technology assessment and transfer (TAT) model which was implemented at special project sites in Sierra Leone, Mali, Senegal, and the Ivory Coast. This report: (1) describes the objectives and methodology of the TAT program; (2) lists the major constraints to increasing upland rice production in West Africa, both the general problems affecting the land (soil erosion and lack of sufficient water and, in some countries, inputs) and the specific problems affecting paddy yield (poor extension, mechanization, and credit facilities); and (3) lists the

technologies for upland rice which WARDA has developed in collaboration with Savannah Research Institute (IDESSA) and is currently subjecting to verification trials under TAT. Results of research in four major rice ecologies (mangrove swamp, deep water/flooded, upland, and irrigated rice) and issues raised by this farming systems approach to technology generation in upland rice-based cropping systems are briefly discussed.

104

PN-AAW-983

MF \$1.08/PC \$2.08

Training tropical plant pathologists and the farming systems approach

Thurston, H. David

(Meeting of the Sociedad Mexicana de Fitopatología and the Caribbean Division of the American Phytopathological Society, Guanajuato, MX, 11-14 Sep 1985)

1985, 8p. + 2 attachments, En, Es

Using examples from his personal experience, the author of this report illustrates how plant pathologists trained in temperate zones are often ill-prepared to conduct research in tropical climates. In addition to a lack of technical knowledge of tropical ecosystems, many Western researchers are limited by an inadequate understanding of the nature of small farmers and their farming systems in the tropics. To overcome these difficulties, plant pathologists (and other agricultural scientists) need to become familiar with the farming systems research (FSR) approach and to consider incorporating some of its methodology and philosophy into the design of disease management strategies. The author argues that researchers must receive special training for a career in the tropics, covering not only technical subjects, but also the language and cultural and socioeconomic characteristics of the area in which they will be working. The positive side of the author's experiences, and the one most beneficial to FSR, is his belief that gaps in researchers' knowledge can be filled with the understanding that participating farmers have of their own situation.

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

105

PN-AAW-174

MF \$1.08/PC \$1.43

Intra-household resource allocation constraints in the implementation of the banana - coffee development program in the Kagera region, Tanzania

Tibaijuka, Anna Kajumulo

Kansas State University. Office of International Agriculture Programs

U.S. Agency for International Development. Bureau for Science and Technology. Office of Research and University Relations (Sponsor)

(Annual Farming Systems Research and Extension Symposium, 5th, Manhattan, KS, US, 13-16 Oct 1985)

Farming systems research and extension : management and methodology, paper no.11, Aug 1986, p.288-298: statistical tables, En

Flora, Cornelia Butler; Tomecek, Martha

9311282

DAN-0000-G-SS-0092-00

The consequences of having excluded intra-household variables in designing banana-coffee development programs for smallholder farms in Tanzania's Kagera region are examined. The paper argues that the programs' socioeconomic benefits have been significantly limited by the insecurity of land tenure rights for women, who, though performing most of work to maintain the plantations, are denied direct access or control over these farms by the prevailing patrilineal land inheritance system derived from customary law. Tenure insecurity prevents women from fully benefiting from their labor and from taking an active role in the development of the plantations; granting land tenure rights to women is seen as a prerequisite for maximizing socioeconomic benefits from future research and extension interventions. Linear programming is used to analyze the economic costs of the division of labor. It is established that under a traditional sex-based division of labor, household incomes are lower than under a generalized division of labor regime; labor and capital productivity could improve by 15% and 44%, respectively, if the traditional division of labor were replaced by the generalized regime. It is strongly recommended that educational campaigns to promote liberalization of the division of labor supplement the ongoing, purely technical interventions. (Author abstract, modified)

106

PN-AAV-948

MF \$1.08/PC \$3.90

Aspectos metodologicos sobre la tecnologia local de produccion y los proyectos de ajuste tecnologico en el programa DRI en Colombia (Methodological aspects of local technology production and technological contract projects in the DRI program in Colombia)

Torres, Fabio Rodriguez

Colombian Agrarian Reform Institute

(Seminario Taller sobre Sistemas de Produccion, Santiago, CL, 30 Jul - 3 Aug 1984)

1984, 24p. + 3 annexes : statistical tables, Es

Technology packages recommended to farmers by the Colombian Agricultural Institute (ICA), the agency responsible for research and extension within the government's Integrated Rural Development Program (DRI), are based not only on research center results, but also on data concerning farmers' production systems and the local technology of production. Data on the latter two factors, gathered through observation and representative sample questionnaires, are expressed as a mathematical formula which takes into account physical factors such as topography, weather and soil type, other conditions such as diseases and pests, and cultivation practices such as family labor and multiple cropping. The technology packages developed by ICA include recommendations for such factors as seed variety, planting date, and fertilizer, pesticide, and herbicide use. The packages are subject to continual on-site testing and adjustment through pilot projects and studies of the results achieved by individual farmers. Actual adoption of a package depends not only on test results, however, but also on the cost and availability of credit. The process of generating appropriate livestock technology is similar, but testing is constrained by the prohibitive cost to individual farmers of raising statistically significant numbers of livestock. Appended are statistical tables for one region and district.

107

PN-AAP-529

MF \$1.08/PC \$6.63

Task force report on livestock in mixed farming systems

University of Florida

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

Feb 1984, 36p. + appendices, En

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

Results are presented of a task force study of the livestock component of A.I.D.'s Farming Systems Support Project. The report discusses: the role and importance of livestock in integrated farming systems; the training, orientation, and roles of disciplinary specialists in farming systems research (FSR) and extension; methodologies relating to approaches to FSR, project management, extension, institutionalization, policy, models, and case studies; and training and communications needs. Sixteen recommendations are presented concerning training requirements for U.S. and host country personnel, appropriate strategies, research methodologies, and communication network development. A 98-item bibliography (1974-83) is attached.

108

PN-AAV-534

MF \$2.16/PC \$18.33

Project handbook : research and extension (emphasizing farming systems research and extension)

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Feb 1985, v.p. : charts, statistical tables, En Working draft no.3 9364099

The fruit of over a quarter century of field experience, this handbook presents guidelines for donor personnel and contractors involved in agricultural research and extension (AR/E) projects, with particular emphasis on the need to give farming systems research and extension (FSR/E) a rightful but not exclusive place within the general AR/E process. The handbook is organized around the typical project process, beginning with a chapter describing the operational principles of FSR/E and following with four chapters corresponding to the four phases of a project's lifecycle - development, design, implementation, and evaluation. While each of these four chapters is oriented to a specific situation and is relevant to a specific team or group, each chapter builds on those that precede it; material common to more than one phase is contained in appendices. Great emphasis is placed on models, such as the Technology Innovation Process model, and the need for host country institutional development is a continuing theme. A final section provides annotated citations of four key references.

109

PN-AAR-839

MF \$1.08/PC \$4.81

Bibliography of readings in farming systems : 1984, volume 1

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

1984, 34p., En French ed.: PN-AAS-690; Spanish ed.: PN-AAS-691 9364099

Presented herein is the first in a series of bibliographies of selected readings in farming systems research (FSR). The bibliography, a product of A.I.D.'s Farming Systems Support Project, includes complete bibliographic information for each of its 100 entries, together with an abstract of the reading and notes on its availability. Over 24 countries and 50 separate institutions are represented in this compendium of FSR thinking garnered from around the globe. Major subjects include agricultural extension, production, and technology; data collection; mixed farming; multiple cropping; farm management; tropical agriculture; and livestock. Emphasis is placed on the role of the small farmer in FSR activities in semiarid and tropical Africa and Central America. Subject, geographic, institution, author, and document number indexes are provided, together with complete ordering information and an order blank.

110

PN-AAU-145

MF \$1.08/PC \$4.68

Bibliography of readings in farming systems : 1985, volume 2

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

1985, 33p., En French ed.: PN-AAU-987; Spanish ed.: PN-AAV-301 9364099

A bibliography of select readings in farming systems research (FSR) is presented. The bibliography, the second in a series produced by A.I.D.'s Farming Systems Support Project, contains standard bibliographic

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

information plus an abstract for 100 citations, together with a note on the latter's availability. Among the areas of FSR covered in the bibliography are agricultural surveys, agricultural technology, crop production, cropping systems, data collection, dryland farming, economic analysis, family farms, interdisciplinary research, livestock, multiple cropping, and research design. Readings are presented on FSR projects on mountains, savannas, and small farms and in the semiarid and tropical zones of countries in Africa, Asia, Central America, and the Eastern Caribbean. Indexes by subject, geographic area, author, and sponsoring institution are included, as are document ordering instructions and an order form.

111

PN-AAV-904

MF \$1.08/PC \$4.68

Bibliography of readings in farming systems, 1986 volume III

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Rural and Institutional Development (Sponsor)

1986, 33p., En
9364099

A selective, annotated bibliography of readings in farming systems research and extension (FSR/E), the third in a series produced by A.I.D.'s Farming Systems Support Project, is presented to help practitioners locate and access relevant literature in their efforts to establish and develop national FSR/E programs. In addition to an abstract and bibliographical data, each of the 100 entries features information on microfilm/paper copy availability and price. A total of 106 authors, 37 institutions, and 22 countries are represented. Subjects covered in the bibliography include, inter alia, animal husbandry and crop-animal systems, cropping patterns and systems, data collection, interdisciplinary and on-farm research, research management and methodology, small farms, socioeconomic aspects, and technology adoption. Ordering instructions, an order form, and subject/geographic and author/institution indexes are provided.

112

PN-AAW-175

MF \$1.08/PC \$0.78

Courants de pensee en matiere de theorie de la diffusion des innovations (Trends of thought regarding the theory of innovation diffusion)

Van Den Ban, A.W.

Economie rurale, no.159, 1984, p.31-36, Fr

An abundant scientific literature shows that technology transfer is a complex activity, requiring coordinated action. In agriculture, the adoption of technological innovations often requires not only the dissemination of information, but also changes in attitudes. This report discusses some of the conditions which must be satisfied if rapid agricultural technology transfer is to be successful. Discussed in turn are: the full use of research in technology transfer; the consequences of technology adoption; whether individuals or the system itself is at fault if the process fails; and communication strategies. It is argued that while the adoption of innovations may increase inequalities in agricultural income and/or reduce the active farm population, neither is inevitable. An example from the Netherlands illustrates that good agricultural extension can increase competitiveness and market shares and thus slow the decline in farm population.

113

PN-AAR-867

MF \$1.08/PC \$1.82

Synopsis : the MARIF maize on - farm research programme 1984; development of an on - farm research programme with a farming systems perspective

Van Santen, C.E.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

Oct 1984, (14p.), En

Networking paper / Farming Systems Support Project, no.2
9364099

A synopsis of the 1984 maize on-farm research program at the Malang Research Institute for Food Crops (MARIF) in eastern Java is presented, summarizing interim results of the informal survey, a round of on-farm trials implemented in the first dry season, and proposals for further research (currently being undertaken). Diagnostic observations on the maize crop

BIBLIOGRAPHY OF READINGS IN FARMING SYSTEMS

revealed spindly development with discolored leaves, despite intensive management; some interplant competition; less than optimal application of high quantities of nitrogen fertilizer; and some use of impure seed. During the farm trials, farmer seed was compared to certified MARIF seed, and crops were raised under varying plant density and timing and quantity of fertilizer applications. The average trial yield of 3900 kg dry grain per hectare was at least 25% below the yield potential that should be obtainable from the varieties selected and the level of management applied; data suggest that low yields are caused by fertility problems in the young, dry volcanic soils. Attached is a reprint of a colleague's letter which comments on the synopsis, thereby demonstrating the dialogue that can be initiated by networking papers.

114

PN-AAW-324

MF \$1.08/PC \$1.30

How small farm households adapt to risk

Walker, Thomas S.; Jodha, N.S.

Crop insurance for agricultural development, 1986, p.17-34 : chart, statistical tables, En

Hazell, Peter; Pomareda, Carlos; Valdes, Alberto

To help determine whether a public policy such as crop insurance would improve farmers' adjustment to risk and contribute to social welfare, this paper examines: (1) how well small farmers manage yield risk without crop insurance and (2) the possible social and economic costs of farmers' risk management (RM) measures. First, the paper cites experience from India, El Salvador, and Tanzania to illustrate two types of traditional RM - routine risk prevention or minimization (usually adjustments to production and resource use before and during a production season) and loss management (e.g., farmer's later responses to lower-than-expected crop income). Next, a review is made of the effectiveness of three traditional RM techniques in stabilizing income: spatial diversification of farm plots, intercropping, and tenancy arrangements. Lastly, the possible benefits of crop insurance in reducing the efficiency costs and adverse-equity impacts of traditional RM are considered, including greater use of modern inputs and greater adoption of modern technology, stabilizing the income of the landless laborers to whom farmers frequently shift the burden of RM, and reducing asset depletion and land fragmentation. The paper concludes that while it may appear that crop insurance could alleviate some of the adverse effects of traditional RM methods, available data are insufficient even to determine if it would be a step in the right direction.

115

PN-AAW-325

MF \$1.08/PC \$1.43

Women's role in the improvement of rice farming systems in coastal swamplands

Watson, Greta A.

International Rice Research Institute

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

(Conference on Women in Rice Farming Systems, Manila, PH, 20-30 Sep 1983)

Women in rice farming : proceedings of a conference on women in rice farming systems, 1985, p.187-207 : map, statistical tables, En

Rice farming systems (RFS) in tidal and coastal swamplands demand specific methods of labor-intensive cultivation in which women's participation is of paramount importance. This paper examines RFS in tidal swamp areas of Kalimantan, Indonesia, and women's role in their improvement. The tidal and inland coastal swamp environments and their agricultural potential, settlement patterns, general methods of rice cultivation, and other aspects of the RFS are described first. Next, an analysis of data from 60 households on women's labor participation in RFS and in auxiliary activities reveals that women provide at least 50% of the work force in all major aspects of rice cultivation except land preparation, have primary responsibility for cultivating vegetables and other secondary crops and for household management tasks, and participate in marketing, fishing, and livestock raising as well. The possible effects of changes in labor and technology on women's roles are then considered. It is concluded that to improve women's role in coastal swamp systems, extension training in rice cultivation, secondary crop production, and marketing is essential; women's credit and labor cooperatives are advisable.

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116

PN-AAP-446

MF \$1.08/PC \$2.08

Institutional assessment for implementing a systems approach to agricultural research and extension

Waugh, Robert K.; Meiman, J.; McDermott, James K.
University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

1983, 14p., En

Farming systems and support project working paper, no.101

Characterization and analysis of existing national programs and institutions are useful in determining the potential for implementing a systems approach to agricultural research and extension. In this paper, guidelines are presented for inventorying a given program or institution in such a way as to identify changes and modifications that might make research and extension more effective while making maximum use of existing structures, resources, and other organizational characteristics. Criteria for assessment are provided in Part I, which consists of three sets of questions directed toward determining (a) the general conditions of an institution and its environment, (b) management and operational aspects, and (c) the nature of the technological functions and methodologies of research and extension. Part II provides ideas as to which institutional elements should be continued and which should be changed. This section focuses on the functions of specific types of organizational units in implementing farmer-oriented research and extension.

117

PN-AAW-176

MF \$1.08/PC \$3.64

Socio-cultural effects on the farming systems research and development approach

Wilson, Kathleen K.; Philipp, Perry F.; Shaner, W.W.

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

Agricultural systems, v.19, 1986, p.83-110 : chart, En

9311006

AID/DSAN-C-0054

Lessons learned over the past decade about the sociocultural aspects of farming systems research and development (FSR/D) are reviewed. This paper first describes FSR/D as a concept and as a process, iden-

tifies the presumptions underlying the FSR/D approach, and provides a basis for viewing FSR/D as a form of technology with its own cultural attributes (i.e., values, beliefs, expectations, and rules of behavior). Key areas where FSR/D differs from more traditional agricultural research and development work are identified. The paper then explores ways in which FSR/D's inherent cultural attributes may be in conflict with those of a host country, using as a framework Hofstede's four dimensions of "national culture" - power distance, uncertainty avoidance, individualism versus collectivity, and masculinity versus femininity. In conclusion, suggestions are made as to what a team might do to make FSR/D methodologies compatible with the host culture. (Author abstract, modified)

118

PN-AAV-951

MF \$1.08/PC \$2.34

Evaluacion agronomica de ensayos a nivel de finca (Agronomic evaluation of experiments on the ranch level)

Woolley, Jonathan

University of Nebraska, Lincoln. Institute of Agriculture and Natural Resources

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sorgo en Sistemas de Produccion en America Latina, Batan, MX, 16-22 Sep 1984)

Sorgo en sistemas de produccion en America Latina, 1985, p.232-249 : charts, statistical tables, Es

Paul, Compton L.; DeWalt, Billie R.

9311254

AID/DSAN/XXI-G-0149

Based on the experience of the International Center for Tropical Agriculture (CIAT), guidelines are presented for the design of experiments to be conducted at the farm level rather than in the laboratory or at research stations. Topics include the selection of sites representative of the region, data collection and analysis, and the presentation of research results in concise form. Difficulties which may be encountered during analysis are exemplified; emphasis is placed on assessing the relative importance of site-specific differences. Special cases - the presence of an array of variable factors, the inclusion of sites whose results would bias the analysis, and the problem of variation between years because of climatic changes - are discussed and resolved. Six tables and two figures are included.

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119

PN-AAV-952

MF \$1.08/PC \$2.08

Design and testing of improved livestock technology for mixed farms

Zandstra, Hubert G.

University of Florida. Institute of Food and Agricultural Sciences

U.S. Agency for International Development. Bureau for Science and Technology. Office of Agriculture (Sponsor)

U.S. Agency for International Development. Bureau for Science and Technology. Office of Multisectoral Development (Sponsor)

(Animal Traction in a Farming Systems Perspective Networkshop, 1st, Lama, Kara, TG, 4-8 Mar 1985)

FSSP networking report, no.1

Animal traction in a farming systems perspective, 1986, p.165-179, En

Poats, S.V.

Using experience from Latin America and Asian researchers, this paper discusses the design and testing of alternatives for producing livestock - especially large ruminants - in mixed farm enterprises. Stress is laid on sedentary mixed farms in which livestock are kept for all or most of the year within farm boundaries, although the approaches discussed are meant to apply to, or to be readily modified to suit, other types of animal production systems. The paper first reviews the interventions typically used in livestock systems (including cropping interventions to support livestock production) and then presents a nine-step procedure for designing alternative production systems and guidelines for on-farm testing of the systems. It is concluded that testing of crop-livestock systems presents the greatest methodological challenges to farming systems research, due to the systems' variability and farmers' concern for their animals. *Ex ante* analyses at the design phase may have to replace part of the research process which in cropping systems research is realized by cropping pattern trials.

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