



OFFICE OF INTERNATIONAL  
AGRICULTURAL PROGRAMS  
U.S. AID TITLE XII  
STRENGTHENING GRANT

A FARMING SYSTEMS RESEARCH  
BIBLIOGRAPHY OF KANSAS STATE  
UNIVERSITY'S VERTICAL FILE MATERIALS:  
1991 SUPPLEMENT

Nancy H. Donoghue and Dean A. Hargett  
Compilers and Editors

Paper No. 4S3  
Supplement Three  
to the  
Revised Edition  
Fall 1991

**FARMING SYSTEMS RESEARCH**

**PAPER SERIES**



KANSAS STATE UNIVERSITY  
MANHATTAN, KANSAS 66506 U.S.A.

A FARMING SYSTEMS RESEARCH  
BIBLIOGRAPHY OF KANSAS STATE  
UNIVERSITY'S VERTICAL FILE MATERIALS:  
1991 SUPPLEMENT

Nancy H. Donoghue and Dean A. Hargett  
Compilers and Editors

Paper No. 4S3  
Supplement Three  
to the  
Revised Edition  
Fall 1991

Resources on Developing Countries  
Farrell Library  
Kansas State University  
Manhattan, Kansas 66506  
USA

2005 Digital Edition  
Kansas State University  
Digital Library Department

## **FARMING SYSTEMS RESEARCH PAPER SERIES**

Kansas State University's Farming Systems Research (FSR) Paper Series is supported by the U.S. Agency for International Development Title XII Program Support Grant. The goal of the Program Support Grant is to increase the University's ability to implement Title XII agricultural and nutritional development assistance programs in developing countries. This paper series is maintained by the FSR Program Associates -- a multidisciplinary team of professors who are aiming their activities at applied research on farming from a systems perspective.

The purpose of the FSR Paper Series is to disseminate information on FSR. Publication categories include updated bibliographies from KSU's FSR data base; proceedings from KSU's FSR Systems Symposium; selected papers presented in KSU's FSR Seminar Series; and selected papers prepared by KSU's Program Associates.

Vernon C. Larson  
Director  
International Agricultural Programs

## **NOTICE OF NON-DISCRIMINATION**

Kansas State University is committed to a policy of non-discrimination on the basis of race, sex, national origin, handicap, or other non-merit reasons, in admissions, educational programs or activities, and employment, all as required by applicable laws and regulations. Responsibility for coordination of compliance efforts and receipt of inquiries, including those concerning Title IX of the Education Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973, has been delegated to Jane D. Rowlett, Ph.D., Director, Affirmative Action Office, 214 Anderson Hall, Kansas State University, Manhattan, Kansas 66506 (913-532-6220).

## FARMING SYSTEMS RESEARCH AND THE KSU COLLECTION

Kansas State University is one of the increasing number of institutions involved in farming systems research (FSR). The Library has organized a collection of materials available to persons interested in the subject.

The Technical Advisory Committee's Review Team of Farming Systems Research has defined a farming system as:

"a complicated, interwoven mesh of soils, plants, animals, implements, workers, other inputs and environmental influences with the strands held and manipulated by a person called the farmer who, given his [or her] preferences and aspirations, attempts to produce output from the inputs and technology available to him [or her]. It is the farmer's unique understanding of his immediate environment, both natural and socio-economic, that results in his [or her] farming system."

It goes on to describe FSR as:

"research (including training) which: (1) is conducted with a recognition of and focusing towards the interdependencies and inter-relationships that exist among elements of the farm system, and between these elements and the farm environment; and (2) is aimed at enhancing the efficacy of farming systems through the better focusing of agricultural research so as to facilitate the generation and testing of improved technology."

"The major activities involved in FSR are:

- (a) The collection and analysis of base data;
- (b) The study of existing farming systems;
- (c) The design of new farming systems;
- (d) Farm systems experimentation; and
- (e) The evaluation and monitoring of new farming systems."

## THE SUPPLEMENT . . .

is the result of the KSU Farming Systems Research Program's ongoing documentation effort, and lists FSR vertical file material and selected publications with Library of Congress classification numbers found within KSU's Hale Library. A complete listing of FSR documents at KSU cited prior to this supplement can be found in the following three previously issued bibliographies:

Graham, Gretchen A., ed. A Farming Systems Research Bibliography of Kansas State University's Vertical File Materials (Revised Ed. ). Farming Systems Research Paper Series no. 4. Manhattan, Kan.: Resources on Developing Countries, Farrell Library, Kansas State University. 1986.

Young, Noel D. and Elsa Eaton, eds. A Farming Systems Research Bibliography of Kansas State University's Vertical File Materials: Some Selections from the Peter E. Hildebrand Collection, Part One. Farming Systems Research Paper Series no. 4S1 (supplement 1 to the rev. ed.). Manhattan, Kan.: Resources on Developing Countries, Farrell Library, Kansas State University. 1988.

Meyn, Tod L. and Nancy Donoghue, eds. A Farming Systems Research Bibliography of Kansas State University's Vertical File Materials: 1990 Supplement. Farming Systems Research Paper Series no. 4S2 (supplement 2 to the rev. ed.). Manhattan, Kan.: Resources on Developing Countries, Farrell Library, Kansas State University. 1990.

Two other bibliographies in the FSR Paper Series are:

Young, Noel D. and Tod L. Meyn, comps. and eds. Women in Development: Selections from Kansas State University's Vertical File Materials. Farming Systems Research Paper Series no. 21. Manhattan, Kan.: Resources on Developing Countries, Farrell Library, Kansas State University. 1989.

Young, Noel D. and Tod L. Meyn, comps. and eds. Botswana and Bechuanaland Items Held in Farrell Library: A Compendium of Books, Documents, Reports, Journal Articles, and Fugitive Literature, Part One. Farming Systems Research Paper Series no. 20. Manhattan, Kan.: Resources on Developing Countries, Farrell Library, Kansas State University. 1989.

The vertical file material includes unpublished papers, drafts, house organs and other non-conventional items. Keyword, title and primary author indices are provided. The standard for keywording is an "enhanced" CAB Thesaurus.

## **OBTAINING CITED MATERIALS**

Materials cited in this bibliography may be obtained in the following manner:

**KSUL #** indicates that the title is owned by Kansas State University Library and can be found with that call number in the KSUL collection. These titles may be borrowed by KSUL card holders or, for a remote patron, through his or her local library's interlibrary loan department.

**SuDoc #** indicates that the title is found in the Federal Documents Collection. These titles may be borrowed from any Federal Depository library that holds the title through your local library's interlibrary loan department. The SuDoc call number is the same in any Federal Depository library.

**WID, FSR or BOTSWANA VERTICAL FILE #** indicates the title is found in Kansas State University Libraries' (1) Women in Development Vertical File, (2) Farming Systems Research Vertical File or (3) Botswana Vertical File collections. Internet facsimiles of these materials may be ordered and received electronically by following this internet link:

<http://www.lib.ksu.edu/illm/farmingsystemform.html>

Items found in two different locations in KSUL are followed by both location numbers, separated by a semicolon. Example: KSUL # AA555.5.B6 C7; SuDoc # A 12.B34/3: C 5

**NOT OWNED BY KSUL** indicates these items are not locally available.

TABLE OF CONTENTS

Farming Systems Research Paper Series . . . . .	ii
Introduction . . . . .	iii
Obtaining Cited Materials . . . . .	v
Parts of the Citation . . . . .	vii
Abbreviations, Acronyms, and Initialisms . . . . .	viii
Subject Headings . . . . .	xv
Citations . . . . .	1
Keyword Index. . . . .	65
Title Index . . . . .	87
Author Index . . . . .	94



## ABBREVIATIONS, ACRONYMS, AND INITIALISMS

AAAS	American Association for the Advancement of Science
AABGA	American Association of Botanical Gardens and Arboreta
ACDI	Agricultural Cooperative Development International
ACIAR	Australian Centre for International Agricultural Research
AD	Agricultural Administration
ADB	Asian Development Bank
ADC	Agricultural Development Council
ADNP	Agricultural Development Ngamiland Project
AFTRCW/UNEC	African Training and Research Centre for Women/ United Nations Economic Commission for Africa
AHS	American Horticulture Society
AIA	Agricultor-Investigacion-Agricultor
AICRPDA	All India Coordinated Research Project for Dryland Agriculture
AID/S&T	Agency for International Development/ Bureau for Science and Technology
AID	Agency for International Development
ALDEP	Arable Lands Development Program
APCWD	Asian and Pacific Centre for Women and Development (Bangkok, Thailand)
ASA	American Society of Agronomy
ASAE	American Society of Agricultural Engineers
ASPAC/FFT	Food and Fertilizer Technology Center of the Asian and Pacific Region
ASTA	American Seed Trade Association
ATIP	Agricultural Technology improvement Project (Botswana)
AVRDC	Asian Vegetable Research and Development Center
BAEP	Bureau of Economic Analysis and Planning
BARC	Bangladesh Agricultural Research Council
BIFAD	Board for International Food and Agricultural Development
BDPA	Bureau pour le developpement de la production agricole
C	copyright
CIAT	Centro de Investigacion Agricola Tropical (Bolivia)
CAEP	Caribbean Agricultural Extension Project
CARDI	Caribbean Agricultural Research and Development Institute (U. of the West Indies)
CATIE	Centro Agronomico Tropical de Investigacion y Ensenanza
CATIE/ROCAP	Centro Agronomico Tropical de Investigacion y Ensenanza/ Regional Office for Central American Programs
CDR	Centre for Development Research
CENDA	Centro de Desarrollo Agropecuario (Zona Norte)

CENDERCO	Centro para el Desarrollo Rural y Cooperativo
CENDHRRA	Center for the Development of Human Resources in Rural Areas (San Juan, Rizal, Philippines)
CENTA/BID	Centro Nacional de Tecnologia Agropecuaria/? (El Salvador)
CENTA	Centro Nacional de Tecnologia Agropecuaria
CEPAL	Economic Commission for Latin America (Santiago, Chile)
CES	Cooperative Extension Service (U.S.)
CGIAR	Consultative Group on International Agricultural Research
CIAR	Centro Internacional de Agricultura Tropical
CIARLA	Centro de Investigaciones Agropecuarias Region Los Andes
CIAT	Centro Internacional de Agricultura Tropical
CID	Consortium for International Development
CIDA	Canadian International Development Agency
CILSS	Comite permanent interetat du lutte contre le secheresse dans le Sahel- Permanent Interstate Committee for Drought Control in the Sahel)
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
CIP	Centro Internacional de la Papa
CIPEA	Centre international pour l'elevage en Afrique
CLADES	Latin American Centre for Economic and Social Documentation
CLSR	Crop-Livestock Systems Research
CLSU	Central Luzon State University
comp., comps.	compiler, compilers
CRDI	Centre de recherche pour le developpement international
CRIA	Central Research Institute for Agriculture (Indonesia)
CRIFC	Central Research Institute for Food Crops
CRSP	Collaborative Research Support Program
DAI	Development Alternatives, Inc.
Dept.	Department
DESFIL	Development Strategies for Fragile Lands
ed., eds.	editor, editors
EFSAIP	Evaluation of Farming Systems & Agricultural Implements Project Sebele, Botswana)
EMBRAPA	Empressa Brasileira de Pesquisa Agropecuaria
et al.	(used when there are more than 3 authors)
FAO	Food and Agriculture Organization of the United Nations
FAO/SID	Food and Agriculture Organization of the United Nations/ Swedish International Development Agency
FONAIAP	Fondo Nacional de Investigaciones Agropecuarias
FSDP-EV	Farming Systems Development Project - Eastern Visayas (Philippines)
FSIP	Farming Systems Improvement Project (Rwanda)
FSR	farming systems research
FSR/E	Farming Systems Research/Extension
FSR/D	Farming Systems Research/Development

FSSP	Farming Systems Support Project (University of Florida, Gainesville)
FSSP/GARD	Farming Systems Support Project (University of Florida, Gainesville)/Gambia Agricultural Research and Diversification
FSSR	Farming Systems Southern Region
FY	fiscal year
GARD	Gambia Agricultural Research and Diversification
GERDA	Groupement d'études et du recherches pour le developpement de l'agronomietropical
GIS	geographic information systems
HYVs	high yielding varieties
IAAE	International Association of Agricultural Economists
IADS	International Agricultural Development Service
IAF	Inter-American Foundation
IAFP	International Agricultural and Food Program (Cook College, Rutgers University)
IARCs	International Agricultural Research Centers
IARI	International Agricultural Research Institute
IBPGR	International Board for Plant Genetic Resources
ICA	Instituto Colombiano Agropecuario
ICAR	Indian Council of Agricultural Research
ICARDA	International Center for Agricultural Research in the Dry Areas
ICLARM	International Centre for Living Aquatic Resources Management
ICMRD	International Center for Marine Resource Development
ICRAF	International Center for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICRW	International Center for Research on Women
ICTA	Instituto de Ciencia y Tecnologia Agrícolas-Institute of Agricultural Science and Technology (Guatemala)
IDIAP	Instituto de Investigaciones Agropecuarias de Panama
IDRC	International Development Research Centre
IDS	Institute for Development Studies
IDS	international development strategy
IDWSSD	International Drinking Water Supply and Sanitation Decade
IE&R, IPIA	International Education and Research, International Programs in Agriculture (Purdue U.)
IFAD	International Fund for Agricultural Development
IFDC/IRA	International Fertilizer Development Center/Institute du recherche agronomique
IFOAM	International Federation of Organic Agricultural Movements
IFPP	Integrated Farming Pilot Project (Pelotshetlha)
IFPRI	International Food Policy Research Institute
IIAP	Instituto de Investigaciones Agropecuarias de Panama

IICA/INR	Inter-American Institute for Cooperation on Agriculture/ Institute national de recherches agronomiques
IICA/CIDIA	Inter-American Institute for Cooperation on Agriculture -Instituto Interamericano de Ciencias Agricolas de la Organizacion-de Estados Americanos/Centro Inter- americano de Documentacion e Informacion Agricola
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Center for Africa
ILO	International Labour Organisation
INCAP	Instituto de Nutricion de Centroamerica y Panama
INIA	Instituto Nacional de Investigaciones Agrarias
INIAP	Instituto Nacional de Investigacion Agropecuaria
INRA	Institute national de la recherche agricole
INRAN	Institute national de recherches agronomiques des Niger
Inst.	Institute
INSTRAW	International Research and Training Institute for the Advancement of Women
INTERPAKS	International Program for Agricultural Knowledge Systems (U. of Illinois, Urbana-Champaign)
INTSORMIL/CRSP	International Sorghum/Millet/Collaborative Research Support Program
INTSORMIL	International Sorghum/Millet
IPIA	International Programs in Agriculture (Purdue University)
IPM	integrated pest management
IRAEN	International Rice Agro-Economic Network
IRAT	Institute des recherches agronomiques tropicales et des cultures vivrieres
IRCs	International Research Centers
IRCT/Mali	Institutderechercheducotonetdestextilesexotiques(Mali)
IRRI	International Rice Research Institute
ISA	Investigacion de Sistemas Agropecuarios
ISAR	Institute for Agricultural Research (Rwanda)
ISNAR	International Service for National Agricultural Research
ISRA	Institut Sénégalais de Recherche Agricole - Senegal Agricultural Research Institute
ISS	Institute of Social Studies
IUFS&T	International Union of Food Science & Technology (Goteborg, Sweden)
IUNS	International Union of Nutritional Sciences (Zurich)
KKU	Khon Kaen University, Thailand
KKU/FCSP	Khon Kaen University/Ford Cropping Systems Project
KSU	Kansas State University (Manhattan, Kansas)
LASA	Lesotho Agricultural Sector Analysis Project
MAFC	Ministry of Agriculture, Food and Consumer Affairs (Barbados)
MARC	Monitoring and Assessment Research Centre
MARIF	Malang Research Institute for Food Crops

MDP	Molapo Development Project (Maun)
MF	microfiche
MIAC	MidAmerica International Agricultural Consortium
MIDAS	Managed Inputs and Delivery of Agricultural Services
MP	miscellaneous papers
MSTT	Modular System for Technology Transference
MSU	Michigan State University (East Lansing, Michigan)
n.d.	no date of publication
NADP	Ngamiland and Agricultural Development Project (Gomare)
NARS	national agricultural research systems
NERAD	Northeast Rainfed Agricultural Development Project (Thailand)
NGA	National Grains Authority (Quezon City, Philippines)
NGO	non-governmental organization
NIEO	new international economic order
NOAA	National Oceanic and Atmospheric Administration
NRDP	National Rural Development Project (Malawi)
NSW/ACT	New South Wales/Australian Capital Territory
OAS	Organization of American States
OAU/STRC	Organization of African Unity/Scientific Technical Research Commission
OAU	Organization of African Unity
ODA	Overseas Development Administration
ODI	Overseas Development Institute
OECD	Organization for Economic Cooperation and Development
OLC	Overseas Liaison Committee (American Council on Education)
ORD	Organisme regional de developpement
ORSTOM	Office de la recherche scientifique et technique outre-mer
PACO	Projet Agricole du Centre-Ouest (Ivory Coast)
PAR	planning-centered approach to research
PARC	Pakistan Agricultura Research Council
PASITA	Program of Advanced Studies in Institution Building and Technical Assistance Methodology
PC	paper copy
PCARR	Philippine Council for Agriculture and Resources Research
PCARRD	Philippine Council for Agriculture and Resource Research and Development
PCCMCA	Programa Cooperativo Centroamericano para el Mejor- amiento de Cultivos Alimenticios
PGRCE	Plant Genetic Resource Center for Ethiopia
PN	publication number
PR	progress report
PRC	People's Republic of China
PROTAAL	Proyecto Cooperativo de Investigacion sobre Tecnologia Agropecuaria en America Latina

PSCPA	Proyecto de Sistemas de Cultivo para Pequeños Agricultores y del Istmo Centroamericano
PTPA	Proyecto de Tecnología para Pequeños Agricultores
RD	reporting documents
ROC	Republic of China
ROCAP	Regional Office of Central American Programs
RPO	Rural Producer Organization (World Bank)/International Finance Corporation
RRFH	regular research field hearings
RTN	Research and Training Network
s.l.	no location of publisher/printer
s.n.	no name of publisher/printer
S&T/AGR/AP	Bureau for Science and Technology/Office of Agriculture/?
SACUC	Swaziland Agricultural College and University Centre
SADCC	Southern African Development Coordination Committee
SADDC	Southern African Development Coordination Committee
SAFGRAD	Semi-Arid Food Grains Research and Development Program
SAREC	Swedish Agency for Research Cooperation with Developing Countries
SAT	semi-arid tropics
SEADAG	Southeast Asian Development Advisory Group
SEARCA	Southeast Asian Regional Center for Graduate Study and Research in Agriculture
SIRDO	Integrated System for Recycling Organic Wastes
SOA	School On-The-Air
SR-CRSP	Small Ruminant-Collaborative Research Support Program (Germany)
SSRC/SERP	Social Science Research Centre/Socio-Economic Research Project
STRC/OAU	Scientific Technical Research Commission/Organization of African Unity
SURIF	Sukamandi Research Institute for Food Crops (Subang, West Java, Indonesia)
T&V	training and visit system
TARO	Tanzania Agricultural Research Organization
TES	typical (Developing Country) extension systems
TFNC	Tanzania Food and Nutrition Centre
TIF	Technological Improvement File
Trans.	translation
U.	University
UN	United Nations
UN/ESCAP	United Nations/Economic and Social Commission for Asia and the Pacific
UNAZA	Université Nationale du Zaïre
UNDP/FAO	United Nations Development Programme/Food and Agriculture Organization of the United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNU	United Nations University (Tokyo)
US	United States

USAID	United States Agency for International Development
USDA	United States Department of Agriculture
var.	various (paging)
VITA	Volunteers in Technical Assistance
VLS	village level studies
vol., vols.	volume, volumes
WA	West Africa
WARDA	West Africa Rice Development Association
WHO	World Health Organization
WIADP	Women in Agriculture (Development Project)
WIDRIC	Women and International Development Research and Information Center (U. of Minnesota, Minneapolis, Minnesota)
Winrock	Winrock International Institute for Agricultural Development
WIP	Winrock International publication
WIRFS	Women in Rice Farming Systems
WP	working papers
WSARP	Western Sudan Agricultural Research Project

## SUBJECT HEADINGS

	<b>Page</b>
FARMING SYSTEMS: DESCRIPTIVE (General and Inclusive).....	1
Cropping Patterns.....	1
Polyculture.....	2
Double or triple crops.....	3
Fallowing and cover cropping, tillage systems.....	3
Crop rotations.....	3
Shifting cultivation.....	3
Plantations and agro-silviculture.....	4
Animal Systems.....	4
Mixed Systems (animals and plants).....	6
Aquaculture and Agriculture.....	7
PHYSICAL AND BIOLOGICAL FACTORS.....	8
Physical Factors.....	9
Land, soils, and fertilizer.....	10
Agroclimatology.....	11
Water and water management.....	11
Biological Factors.....	13
Crops.....	13
Crop protection.....	16
Weeds.....	16
Animal kingdom.....	16
Fungi and bacteria.....	16
Animals.....	16
Animal parasites.....	16
HUMAN ELEMENT: EXOGENOUS FACTORS.....	17
Social Organization and Community Structure.....	18
Physical Environment (built environment).....	18
Community Norms and Beliefs.....	19
Population, Nutrition, and Health.....	20
External Institutions.....	21
Infrastructure, support systems.....	23
Input.....	24
Input distribution.....	24
Extension.....	25
Credit.....	26
Output.....	26
Marketing.....	26
Post harvest storage.....	26
Processing.....	27
Policies and structural reform programs.....	28
Technological and Mechanical Factors.....	31
Mechanization (animal traction falls in Mixed Systems).....	31
Energy.....	32
Technology transfer.....	32
Appropriate Technology.....	33
Recommended technology.....	35

**SUBJECT HEADINGS** (cont.)

	<b>Page</b>
HUMAN ELEMENT: ENDOGENOUS FACTORS (Household).....	35
Goals and Risks.....	37
Economic Inputs.....	38
Land.....	39
Labor management.....	39
Capital, finance.....	40
Economic Output.....	40
Income.....	40
Food.....	40
FARMING SYSTEMS RESEARCH METHODOLOGY.....	41
Survey Techniques (descriptive and diagnostic methods)...	45
Design of Improved Technology.....	49
Testing.....	52
FSR Methodology Extension and Transfer.....	54
Systems Analysis.....	56
INSTITUTIONAL FACTORS IN IMPLEMENTATION OF.....	58
FARMING SYSTEMS RESEARCH	

**FARMING SYSTEMS RESEARCH BIBLIOGRAPHY:  
1991 SUPPLEMENT**

**FARMING SYSTEMS: DESCRIPTIVE (GENERAL AND INCLUSIVE)  
CROPPING PATTERNS**

- 3013            **COMPARISON OF THE ECONOMIC PERFORMANCE OF CROPPING PATTERN TRIALS AND FARMERS' PATTERNS.** (n.d.) s.l.: s.n. 13p. KEYWORDS: cropping patterns, trials, innovation adoption, economic analysis, comparative analysis FSR VERTICAL FILE # 3013
- 3014            **CROPPING SYSTEMS RESEARCH AND DEVELOPMENT IN INDONESIA.**  
IN: Report of the Cropping Systems Working Group: 10th Cropping Systems Working Group Meeting sponsored by the Dept. of Agriculture, Nepal, and the International Rice Research Institute (IRRI), May 28-31, 1979. Ismail, I.G. (1980) s.l.: s.n. (p.48-60) 13p. KEYWORDS: Indonesia, IRRI, self-sufficiency, objectives, national programs and projects, intensification, rice, diversification, cropping systems, target selection, technology development, irrigated farming, swamps, extension            KSUL # S602.5 .C76a
- 3015            **ECONOMICS OF IRRIGATED CROPPING PATTERNS.** (Paper prepared for IRRI Saturday Seminar, September 1, 1973) Banta, G.R. (1973) s.l.: s.n. 26p. KEYWORDS: Asia, economic analysis, labor requirements, cost effectiveness, cropping patterns, field tests, agricultural economics, intercropping FSR VERTICAL FILE # 3015
- 3016            **EXPLANATION AND IMPLEMENTATION OF MULTIPLE CROPPING.** (Material taken from 1974-75 plan of work of the Cropping Systems Project) McIntosh, J.L. [1975?] Bogor, Indonesia: Dept. of Agriculture, Central Research Institute for Agriculture. 37p. KEYWORDS: Indonesia, multiple cropping, mixed cropping, intercropping, interplanting, rice, relay cropping, sequential cropping, problem identification, implementation of research, recommendations, small farmers, annual crops, perennial crops, economic evaluation, objectives, labor, projects            FSR VERTICAL FILE # 3016
- 3017            **FARMING SYSTEMS OF SOUTHEAST ASIA.** Norman, M.J. (1979) IN: Proceedings of the Seventh Asian-Pacific Weed Science Society Conference, Sydney, Australia, November 26-30, 1979. Australia: Council of Australian Weed Science Societies. 5p. KEYWORDS: Southeast Asia, research methodology, shifting cultivation, weeds, weed science, weed control, cropping systems, rice, agricultural development, rain-fed farming, perennial crops, annual/perennial cropping, vegetables, Imperata FSR VERTICAL FILE # 3017

3018           **REPORT ON PRELIMINARY RESULTS OF CROSS-SITE COMPARISONS.**  
Price, E.C.(1979) IN: Proceedings of the 1979 Workshop on  
the Economics of Cropping Systems. s.l.: s.n. 40p.  
KEYWORDS: Asia, Philippines, Thailand, cropping systems,  
cropping patterns, rice, economic analysis  
FSR VERTICAL FILE # 3018

**POLY CULTURE**

3019           **BREEDING FOR MULTIPLE CROPPING SYSTEMS.** Smith, M.E.(1986)  
IN: Multiple Cropping Systems, C. Francis, ed. (1986) New  
York: Macmillan Co. (p.219-49) KEYWORDS: multiple  
cropping, plant breeding, polyculture, genetic diversity, heat  
resistance, drought resistance, insect resistance, disease  
resistance, yield factors      KSUL # S603.7.M85 1986

3020           **CEREALS IN MULTIPLE CROPPING.** Rao, M.R. (1986) IN:  
Multiple Cropping Systems, C. Francis, ed. New York:  
Macmillan Co. (p.96-131) KEYWORDS: multiple cropping,  
cereals, feed crops, intercropping, appropriate technology,  
fertilizers      KSUL # S603.7.M85 1986

3021           **ECONOMICS AND RISK IN MULTIPLE CROPPING.** Lynam, J.K.  
IN: Multiple Cropping Systems, C. Francis, ed. (1986)  
New York: Macmillan Co. (p.250-65) KEYWORDS: small  
farmers, cropping systems, multiple cropping, risk analysis,  
economic analysis, intercropping, cereals, legumes, rice,  
cropping patterns      KSUL # S603.7.M85 1986

3022           **INTERCROPPING WITH SWEET POTATO (IPOMOEA BATATAS) IN  
CENTRAL AMERICA.** Moreno, R.A. (1982) IN: Sweet Potato:  
Proceedings of the First International Symposium, (AVRDC  
Publication No. 82-172) R.L. Villarreal and T.D. Griggs, eds.  
Tainan, Taiwan: Asian Vegetable Research and Development  
Center(AVRDC). (p.243-254) KEYWORDS: Central America  
CATIE, sweet potatoes, cropping systems, intercropping,  
small farmers, appropriate technology, on-farm research, beans,  
maize, cassava      KSUL # SB211.S9 S94 1982

3023           **MULTIPLE CROPPING WITH LEGUMES AND STARCHY ROOTS.** Davis, J.C  
(1986) IN: Multiple Cropping Systems, C. Francis, ed.  
New York: Macmillan Co. (p.133-160) 28p. KEYWORDS: multiple  
cropping, root crops, legumes, cereals, intercropping,  
innovation adoption, appropriate technology, fertilizers,  
genotypes, on-farm research      KSUL # S603.7 .M85 1986

3024           **STATISTICAL METHODS FOR MULTIPLE CROPPING.** Mead, R. (1986)  
IN: Multiple Cropping Systems, C. Francis, ed.      New York:  
Macmillan Co. (p.317-349) KEYWORDS: cropping patterns,  
multiple cropping, polyculture, statistical analysis,  
intercropping, yield factors      KSUL # S603.7.M85 1986

- 3025 **VARIETY DEVELOPMENT FOR MULTIPLE CROPPING SYSTEMS.** Francis, C.A.(1986) CRC Critical Reviews in Plant Sciences (Vol.3 no.2 p.133-168) KEYWORDS: multiple cropping, polyculture, varietal improvement, intercropping, genetic diversity, genetic variation, plant breeding KSUL # QK1 .C77

**DOUBLE OR TRIPLE CROPS**

- 3026 **CROPPING SYSTEMS RESEARCH IN FOUR RESEARCH SITES IN THAILAND 1977.** Chandrapanya, D. (1977) IN: ? Bangkok, Thailand. Dept. of Agriculture, Rice Division. (p.204-31) KEYWORDS: Thailand, cropping systems, rain-fed farming, rice, mung beans, groundnuts, maize, cucumbers, pumpkins, fertilizer, beans, cowpeas, soybeans, on-farm testing, climatic factors, double cropping, triple cropping FSR VERTICAL FILE # 3026
- 3027 **PROGRESS TOWARD TRIPLE CROPPING IN CHINA.** Leeming, F. (1977) Leeds, U.K.: Univ. of Leeds, School of Geography. (Working Paper 172) 18p. KEYWORDS: China, Vietnam, cropping systems, manures, labor supply, mechanization, fertilizer, triple cropping, rice, pigs FSR VERTICAL FILE # 3027
- 3028 **RICE-WHEAT PATTERN IN THE NEPAL TERAI: ISSUES IN THE IDENTIFICATION AND DEFINITION OF SUSTAINABILITY PROBLEMS.** (Paper presented at the FSR/E Symposium, Fayetteville, Ark., Oct. 9-12, 1989) Harrington, L. (1989) Bangkok, Thailand: CIMMYT Economics Program. 12p. KEYWORDS: Nepal, rice, wheat, cropping patterns, sustainability, problem identification, soil fertility FSR VERTICAL FILE # 3028

**FALLOWING AND COVER CROPPING, TILLAGE SYSTEMS**

- 3029 **SHORT METHODOLOGICAL ACCOUNT OF A DYNAMIC SYSTEMS FIELD EXPERIMENT: THE CASE OF LEGUME ENRICHED FALLOWS FOR THE RESTORATION OF SOIL FERTILITY, ERADICATION OF IMPERATA, IMPROVEMENT OF PASTURE, AND REDUCTION IN LABOR FOR CULTIVATION IN THE PHILIPPINES.** (Draft of a paper for the Farming Systems Symposium, Kansas State Univ., Manhattan, Kan., Oct. 5-8, 1986) Lightfoot, C. (1986) Ithaca, N.Y.: Cornell Univ. 23p. KEYWORDS: Philippines, Eastern Visayas, fallow, legumes, soil fertility, on-farm testing, Imperata, pastures, labor, cultivation, weed control FSR VERTICAL FILE # 3029

**CROP ROTATIONS**

- 3030 **EVALUATION OF WHEAT AND OTHER ALTERNATIVE CROPS IN RICE-BASED CROPPING SYSTEM IN PUNJAB.** Amir P. (1985) Science Technology and Development. (Vol.4 no.2 p.1-8) Mar.-Apr. KEYWORDS: Pakistan, Punjab, wheat, rice, cropping systems, crop rotations, sunflowers, mung beans, yields, weed control, economic analysis, policy, appropriate technology, protein, oilseeds FSR VERTICAL FILE # 3030

- 3031           **SUNFLOWER: THE NEW ENTERPRISE IN A RICE-BASED FARMING SYSTEM OF THE PUNJAB.** Aslam, M.M.(1986)(Paper presented at the Regional Farming Systems Workshop for West Asia and North Africa held at NARC, Islamabad, Pakistan, April 7-10, 1986) Islamabad Pakistan: Pakistan Agricultural Research Council. 48 p.  
KEYWORDS: Pakistan, Punjab, sunflowers, oilseeds, economic development, trade, marketing, income, socioeconomic factors, data analysis, environment, social environment, production strategies, cropping systems, crop rotations  
KSUL # SB299.S9 A85 1986

**PLANTATIONS AND AGRO-SILVICULTURE**

- 3032           **STRATEGIES AND DESIGNS FOR AFFORESTATION, REFORESTATION AND TREE PLANTING.** Wiersum, K.F., ed. (1984)(Proceedings of an International Symposium on the Occasion of 100 Years of Forestry Education and Research in the Netherlands, Wageningen, Sept. 19-23, 1983), Wageningen, Netherlands: Center for Agricultural Publishing and Documentation (Pudoc).438 p.  
KEYWORDS:Bangladesh, Brazil, Sahel, Thailand, Burkina Faso, Indonesia, forestry, sustainability, tropics, rainforests, soil management, semiarid tropics, traditional farming, agroforestry, national programs and projects, international cooperation, community forestry, community development  
KSUL # SD118 .S77 1984

**ANIMAL SYSTEMS**

- 3033           **STUDY OF SOCIOECONOMIC ISSUES IN BRUCELLOSIS CONTROL USING ELEMENTS OF A FARMING SYSTEMS RESEARCH METHODOLOGY.** Voth, D.E. (n.d.) Fayetteville, Ark.: University of Arkansas, Dept. of Agricultural Economics and Rural Sociology. 49p. KEYWORDS: FSR, brucellosis, socioeconomic conditions, sociological analysis, multidisciplinary research, livestock production, animal health, diffusion of information, research methodology, recommendations FSR VERTICAL FILE # 3033
- 3034           **ANIMAL INDUSTRY POTENTIAL IN MONSOONAL AND EQUATORIAL ASIA.** Whyte, R.O. (1975) (Prepared for the Asian Productivity Organization-sponsored Symposium of Diversification of Agriculture - Livestock and Poultry Production, December 2-8, 1975) Whyte, R.O. s.l.: s.n. 28p. KEYWORDS: Asia, livestock systems, protein, nutrition, socioeconomic conditions, milk production, agricultural development, recommended technology, climatic factors, animal diseases, animal husbandry, feed production, cattle, pigs, range management, poultry, small ruminants FSR VERTICAL FILE # 3034

- 3035        **ECONOMIC CONSIDERATIONS FOR SMALLHOLDER CATTLE MILK AND MEAT PRODUCTION AND MARKETING.** Brokken, R.F. (1988) (Paper prepared for Proceedings of the Founding Workshop of the Cattle Research Network in West and Central Africa, Ibadan, Nigeria, Oct. (1988) s.l.: Little Rock, Ark. Heifer Project International. 39 p. KEYWORDS: Africa, livestock production, milk production, meat production, marketing, constraints, agricultural policy, institutions, appropriate technology, risk, livestock nutrition FSR VERTICAL FILE # 3035
- 3036        **FAR-OUT FEEDS: DAIRY BIOMASS, FOREST PRODUCTS AND AQUATIC PLANTS.** May, T. (1989) Large Animal Veterinarian. July/Aug. p.6-8, KEYWORDS: waste utilization, byproducts, dairy biomass, livestock feeding, poultry feeding, ruminants, forest products, aquatic plants FSR VERTICAL FILE # 3036
- 3037        **FIELD DATA COLLECTION OF LIVESTOCK FEED.** Calub, A.D. (1987) IN: Proceedings of the 2nd Monitoring Tour of Crop-Livestock System in Nepal and Indonesia. s.l.: Rice Farming Systems Network. (p.630-634) KEYWORDS: data collection livestock feeding, ruminants FSR VERTICAL FILE # 3037
- 3038        **FODDER TREES AND LIVESTOCK PRODUCTION UNDER HARSH ENVIRONMENT.** Nitis, I.M. (1989) Asian Livestock. (Oct. p.116-120) KEYWORDS: fodder crops, livestock production, environmental factors, livestock feeding, tree crops, shrubs FSR VERTICAL FILE # 3038
- 3039        **GOAT NUTRITION AND MANAGEMENT IN DEVELOPING AREAS.** Stanton, T. (n.d.) Little Rock, Ark.: Heifer Project International. 7p. KEYWORDS: livestock, goats, livestock nutrition, livestock management FSR VERTICAL FILE # 3039
- 3040        **MODEL TO EVALUATE THE ECONOMIC MERITS OF DRY SEASON FEEDING OF GROWING/FATTENING CATTLE IN THE SUB-HUMID TROPICS.** Wadsworth, J. (1985) Agricultural Systems. (Vol.16 p.85-107), KEYWORDS: subtropics, savanna, cattle, cost benefit analysis, livestock feeding, livestock production, livestock management, appropriate technology, rain-fed farming, productivity, stocking rate KSUL # S3 .A45
- 3041        **MOUNTAIN PASTORALISTS OF THE SULTANATE OF OMAN: REACTIONS TO DROUGHT.** Birks, S. (1978) Development and Change. (Vol.9 p.71-86,) KEYWORDS: Oman, pastoralism, drought, adaptation, social change, socioeconomic conditions, goats, sheep, herd size, migration FSR VERTICAL FILE # 3041

- 3042           **POTENTIAL FOR LIVESTOCK SMALLHOLDER FARMING SYSTEMS IN SOUTHEAST SULAWESI.** Levine, J. (1981?) s.l.: Resources Management International, Inc. (SESTADP Occasional Paper No.2) 33p. KEYWORDS: Indonesia, tropics, national programs and projects, livestock production, draft animals, development strategies, appropriate technology, livestock diseases, animal health, feed supply, cattle, chickens, goats, ducks, food prices, small farms, transmigration, resource management, mixed farming, baseline data   FSR VERTICAL FILE # 3042
- 3043           **WOMEN'S CONTRIBUTION TO ANIMAL PRODUCTION AND HUSBANDRY.** Oxby, C. (1983) World Animal Review. (Vol.48 p.2-11), 10p. KEYWORDS: women, animal production, animal husbandry, households, women's status, pastoralism, education, training  
KSUL # SF1 .W6
- MIXED SYSTEM**
- 3044           **AGRIBAR OPERATOR'S MANUAL: FIELD OPERATIONS.** Bansal, R.K. (1989) Patancheru, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). 57p. KEYWORDS: implements, Agribar, ICRISAT, cultivation, sowing, plowing, fertilizer application, appropriate technology, animal traction   FSR VERTICAL FILE # 3044
- 3045           **BETTER BEAST OF BURDEN.** Lawrence, P. (1988) New Scientist. (Vol.118 no.1609 p.49-53,) KEYWORDS: animal traction, draft animals, appropriate technology, energy use, energy efficiency, feed requirements, herd size, cost benefit analysis  
KSUL # Q1 .N52
- 3046           **BUFFALOES: THE BACKBONE OF SMALL FARM ECONOMY IN ASIA.** Ranjhan, S.K. (1989) Asian Livestock. (p.68-71, June) KEYWORDS: Asia, buffalo, draft animals, production systems, meat production, milk production, manures  
FSR VERTICAL FILE # 3046
- 3047           **PLANT BREEDING AND THE NUTRITIVE VALUE OF CROP RESIDUES.** (Proceedings of a workshop held at ILCA, Addis Ababa, Ethiopia, Dec. 7-10, 1987) Reed, J.D. (1988) Addis Ababa, Ethiopia: International Livestock Centre for Africa (ILCA). 334p. KEYWORDS: crop residues, animal nutrition, livestock feeding, plant breeding, small farms, mixed farming, nutritional value, genotypes, environment, research   KSUL # SF99.C73 P53 1988

3048           **STATUS OF THE BANGLADESH LIVESTOCK INDUSTRY IN RELATION TO FODDER SUPPLY AND TO CONSUMPTION OF ANIMAL PRODUCTS.** Dickey, J.R. (1986) s.l.: Bangladesh Agricultural Research Council/Winrock International Institute for Agricultural Development. (Bangladesh Agricultural Research Project Phase-II, USAID Project 388-0051) 40p. KEYWORDS: Bangladesh, livestock, livestock production, mixed farming, productivity, statistics, data evaluation, livestock management, animal products, cattle, poultry, buffalo, goats, feed supply, fodder, animal nutrition, nutrition       FSR VERTICAL FILE # 3048

**AQUACULTURE AND AGRICULTURE**

3049           **FARMING SYSTEMS RESEARCH (FSR) APPLIED TO FISH PRODUCTION: CAPTURE AND CULTURE.** Chong, K.C. (1985) Indonesian Agricultural Research and Development Journal. (Vol.7 no.3&4 p.35-42) KEYWORDS: fishing, fish farming, aquaculture, socioeconomic conditions, technology transfers, technological change, technology analysis, appropriate technology, mechanization, national programs and projects, recommendation domains, recommendations, farming systems theory, target selection  
KSUL # S3 .I53

3050           **INLAND FISHERIES AND AQUACULTURE IN PAKISTAN; A REVIEW.** Lone, K.P. (1983) Islamabad, Pakistan: Pakistan Agricultural Research Council (PARC). 69p. KEYWORDS: Pakistan, PARC, aquaculture, fisheries, history, fish farming, national programs and projects, fish, shrimp  
KSUL # SH117.P3 L66 1983

3051           **SOCIAL ECONOMY OF COASTAL RESOURCES: SHRIMP MARICULTURE IN ECUADOR.** Meltzoff, S.K. (1986) Culture and Agriculture. (Vol.28, p.1-10), KEYWORDS: Ecuador, shrimp, Panaeus Vannamei, aquaculture, fishing, mariculture, business conditions, cultural environment, management, food supply, land use, community structure, labor supply  
FSR VERTICAL FILE # 3051

3052           **SORJAN CROPPING SYSTEM AS A METHOD OF GROWING A DRYLAND AND WETLAND CROP SIMULTANEOUSLY.** Hagerman, H.H. (n.d.), East Lansing, Mich.: H.H. Hagerman, Michigan State Univ., Lyman Briggs School. 17p. KEYWORDS: Indonesia, cropping systems, technology, crop management, sorjans, wetlands, rain-fed farming, fertilizer application, tomatoes, onions, garlic, soybeans, cowpeas, beans, rice, Tilapia, aquaculture  
FSR VERTICAL FILE # 3052

## PHYSICAL AND BIOLOGICAL FACTORS

- 3053           **DIVERSITY IN CROPS AND CROPPING SYSTEMS.** Francis, C. (1985)  
(Presented at Marriage of Conservation and Agriculture  
Conference, Rodale Research Center, March 26-28, 1985)  
Kutztown, Pa: C. Francis, Rodale Research Center. 13p.  
KEYWORDS: cropping systems, mixed cropping, genetic diversity,  
polyculture, research philosophy, pest management, economic  
performance, ecology, crops, diversification, varieties  
FSR VERTICAL FILE # 3053
- 3054           **RESOURCE EFFICIENT SYSTEMS FOR THIRD WORLD FARMERS.**  
(Seminar presented at Kansas State Univ., Manhattan, Kan., April  
18, 1986) Francis, C.A. (1986) Lincoln, Neb.:  
Univ. of Nebraska, Dept. of Agronomy. 16p. KEYWORDS:  
agricultural development, alternative technology, policy,  
problem identification, production systems, appropriate  
technology, food production, self-sufficiency, recommendations,  
resource conservation, multiple cropping, crop rotations, mixed  
farming FSR VERTICAL FILE # 3054
- 3055           **RESOURCE USE AMONG RICE FARMERS IN PAKISTAN: A PRODUCTION  
FUNCTION ANALYSIS.** (Paper submitted to Applied Agricultural  
Research, 1986?) Amir, P. (1985?) Morrilton, Ark.:  
Winrock International Institute for Agricultural Development.  
19p. KEYWORDS: Pakistan, rice, Basmati rice, yields, surveys,  
resource use, land tenancy, intensification, planting dates,  
water availability, crop rotations, extension FSR VERTICAL  
FILE #3055
- 3056           **RICE YIELD CONSTRAINTS RESEARCH: SIND, PAKISTAN.** (Paper  
prepared for IRRI Saturday Seminar, October 23, 1982) Flinn,  
J.C. (1982) Los Baños, Philippines: International Rice  
Research Institute (IRRI). (Ag. Economics Dept. Paper 82-15)  
41p. KEYWORDS: South Asia, Pakistan, IRRI, rice, yields,  
constraints, irrigation, background, national programs and  
projects, mechanization, on-farm research, recommended tech-  
nology, evaluation, farmers' attitudes FSR VERTICAL FILE # 3056
- 3057           **SEVENTEENTH CENTURY ORGANIC AGRICULTURE IN CHINA.**  
Dazhong, W. (1986) Human Ecology. (Vol.14 no.1 p.1-28)  
28p. KEYWORDS: China, sustainable agriculture, agroecology,  
history, rice production, land use, mulberry trees, livestock  
production, energy flows, manures, green manures, cropping  
systems, traditional farming KSUL # GF1 .H84

3058           **SMALLHOLDER FARMING SYSTEMS IN TRANSMIGRATION AREAS OF SOUTHEAST SULAWESI.** Levine, J. (1981?) s.l.: Resources Management International, Inc. (SESTADP Occasional Paper No.1) 30p. KEYWORDS: Indonesia, village level studies, development planning, transmigration, surveys, families, crop production, livestock production, rice, corn, cassava, soybeans, cattle, goats, pigs, chickens, ducks, horses, buffalo, yields, irrigation, rats, problem identification, ethnic groups, economic performance, soil fertility, baseline data FSR VERTICAL FILE # 3058

3059           **SORGHUM PRODUCTION IN THE SMALL-FARMER SECTOR OF SINALOA, MEXICO.** Adelski, E. (1987) Lexington, Ky.: Univ. of Kentucky, College of Agriculture, Dept. of Sociology. (INTSORMIL Contract No. AID/DSAN-G-0149) 26p. KEYWORDS: Mexico, INTSORMIL, sorghum, small farms, infrastructure, constraints, rain-fed farming, irrigated farming, resource allocation, economic analysis, pests, yields KSUL # HD9049.S59 M6 1987

#### PHYSICAL FACTORS

3060           **CROP INTENSIFICATION IN RAINFED PADDY AREAS IN INDONESIA.** (Paper presented at the Workshop for South and Southeast Asia Cropping Systems Network, IRRI, Los Baños, Philippines, March 18-20, 1975) Sjahri, S. (1975) Jakarta, Indonesia: S. Sjahri, Directorate General of Agriculture Food Crops, Directorate of Production Development, Rice Division. 14p. KEYWORDS: Indonesia, rice production, rain-fed farming, national programs and projects, cropping systems, intensification, extension, yields, multiple cropping FSR VERTICAL FILE # 3060

3061           **ECONOMICALLY OPTIMAL PLANT DENSITY AT DIFFERENT LEVELS OF FERTILIZER USE FOR IRRIGATED RICE IN THE PUNJAB.** Amir, P. (1984) Pakistan Journal of Agricultural Research. (Vol.5 no.2 p.71-78), KEYWORDS: Pakistan, rice, fertilizer, extension, yields, production, irrigated farming, plant density, economic evaluation FSR VERTICAL FILE # 3061

3062           **LAND AND WATER MANAGEMENT IN RAINFED FARMING SYSTEMS.** (Paper for presentation at the IRAT-ICRISAT workshop on Water Management and Crop Production, Montpellier, France, May 3-6, 1982) Srivastava, K.L. (1982) s.l.: s.n. 25p. KEYWORDS: semiarid zones, rain-fed farming, research methodology, data evaluation, recommended technology, technology analysis, soil management, water management, conservation, vertisols, alfisols FSR VERTICAL FILE # 3062

3063           **MULTIPLE USE OF MEDITERRANEAN RANGE LANDS: NEW APPROACHES TO OLD PROBLEMS.** Naveh, Z. (1968) Annals of Arid Zone. (Vol.7 no.2 p.163-76),           **KEYWORDS:** Mediterranean countries, Israel, arid regions, range management, pastures, livestock production, water use, pastoral systems, forestry, recommended technology, intensive production, goats, cattle, sheep, recreation, conservation, burning, land use  
KSUL # S613 .A5

**LAND, SOILS, AND FERTILIZER**

3064           **ANCIENT RAISED FIELD AGRICULTURE IN THE MAYA LOWLANDS OF SOUTHEASTERN MEXICO.** Gliessman, S.R. (1985) Prehistoric Intensive Agriculture in the Tropics, I.S. Farrington, ed. Oxford, England: B.A.R. (p.97-111) **KEYWORDS:** Mexico, traditional farming, wetlands, agroecosystems, bed tillage, water management, intensive farming, land preparation, prehistoric agriculture       FSR VERTICAL FILE # 3064

3065           **APPROACH TO IMPROVED PRODUCTIVITY ON DEEP VERTISOLS.** Kampen, J. (1982) Patancheru, India: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). (ICRISAT Information Bulletin No.11) 16p. **KEYWORDS:** India, vertisols, soil management, erosion, fallow, tillage systems, appropriate technology, animal traction, plowing, productivity, cropping systems, water management, multiple cropping, monsoon, rain-fed farming, seasonality       FSR VERTICAL FILE # 3065

3066           **FERTILIZER IN LES CAYES, HAITI: ADDRESSING MARKET IMPERFECTIONS WITH FARM-BASED POLICY ANALYSIS.** Yates, M. (1988) México, D.F., México: Centro Internacional de Mejoramiento de Maiz y Trigo (CIMMYT). (CIMMYT Economics Program Working Paper 88/01) 28p. **KEYWORDS:** Haiti, CIMMYT, decision making, on-farm research, research methodology, case studies, fertilizer, fertilizer application, share cropping, maize, nitrogen, inputs, marketing       FSR VERTICAL FILE # 3066

3067           **LAND CLASSIFICATION FOR LIVESTOCK FARMING SYSTEMS RESEARCH AND DEVELOPMENT IN JAVA.** Petheram, R.J. (1985) Indonesian Agricultural Research and Development Journal. (Vol.7 no.1&2 p.11-24) **KEYWORDS:** Indonesia, Java, land evaluation, land classification, land use planning, livestock systems, recommendation domains, research development objectives, methodology, diffusion of information, surveys  
KSUL # S3 .I53

- 3068 **SOILS AND ENVIRONMENTAL CONDITIONS OF IDIAP AGRICULTURAL RESEARCH STATIONS IN PANAMA.** Jaramillo, S. (1985) Ithaca, N.Y.: Cornell Univ., College of Agriculture and Life Sciences, Dept. of Agronomy. (Agronomy Mimeo 85-2) 118p. KEYWORDS: Panama, IDIAP, soils, crops, soil types, soil fertility, surveys, field tests, fertilizer, rice, maize, sorghum, potatoes, nitrogen KSUL # S599.23.P2 S65 1985

#### AGROCLIMATOLOGY

- 3069 **AGROCLIMATIC SERVICE UNIT: 1978 INTERNAL PROGRAM REVIEW.** Manalo, E.B. (1979) Los Baños, Philippines: International Rice Research Institute (IRRI). 16p. KEYWORDS: Philippines, agroclimatology, national programs and projects, data collection, equipment, climatic factors FSR VERTICAL FILE # 3069
- 3070 **PRINCIPLES OF CLIMATE/CROP YIELD MODELING AND AGROCLIMATIC ASSESSMENT TOOLS WITH OPERATIONAL PROCEDURES FOR AGRICULTURAL BELIZE: FINAL REPORT.** Smith, D.T. (1980) (Report prepared for Agency for International Development, Office of U.S. Foreign Disaster Assistance and National Oceanic and Atmospheric Administration, Climatic Impact Assessment Division - Models Branch) Belize City, Belize: National Meteorological Service. (USAID Doc. No. PN-AAM-608) 95p. KEYWORDS: Belize, USAID, NOAA, weather, agroclimatology, food security, meteorological factors, cropping patterns, planting, harvesting, precipitation, models FSR VERTICAL FILE # 3070
- 3071 **VARIABILIDAD DE LOS RENDIMIENTOS DE MAIZ EN EL AREA DEL PLAN PUEBLA: UNA ESTIMACION DE EFECTOS DE CLIMA Y TECNOLOGIA.** Esquivel Alvarez, C. (1986) Puebla, Mexico: Centro de Enseñanza, Investigacion y Capacitacion para el Desarrollo Agricola Regional (CEICADAR), Colegio de Postgraduados. 21p. KEYWORDS: Mexico, maize, yields, Plan Puebla, climatic factors, technology transfers, evaluation, yield factors FSR VERTICAL FILE # 3071

#### WATER AND WATER MANAGEMENT

- 3072 **ENHANCING IRRIGATION THROUGH WATER USER ASSOCIATIONS: ECUADOR.** Anderson, D.C. (1984) Agricultural Administration. (Vol.16, p.55-66, KEYWORDS: Ecuador, irrigation, water use, water management, farmers' associations, national programs and projects, private sector KSUL # HD1401 .A36

- 3073           **FARMER PARTICIPATION IN TERTIARY IRRIGATION DEVELOPMENT:  
THE MUDA II PROJECT IN WEST MALAYSIA.** Othman, Y. (1985)  
IN: Irrigation Management: Research from Southeast Asia;  
Investment Decisions to Further Develop and Make Use of  
Southeast Asia's Irrigation Resources Conference, August  
1981, Kampangsaen, Thailand. New York: Agricultural  
Development Council, Inc. (p.217-29) KEYWORDS: Malaysia, farmer  
participation, irrigation, irrigation systems, development,  
cultural environment, technology, communication, development  
strategies, constraints, case studies   FSR VERTICAL FILE # 3073
- 3074           **FARMING SYSTEMS RESEARCH IN A WATERSHED FRAMEWORK:  
EXPERIENCE RELATIVE TO VERTISOL MANAGEMENT IN SEMI-ARID TROPICAL  
INDIA.** Srivastava, K.L. (1983) (Draft of paper for presentation  
at the FSR Symposium, Kansas State Univ., Manhattan, Kansas,  
Oc. 31-Nov. 2, 1983) Patancheru, Andhra Pradesh, India:  
International Crops Research Institute for the  
Semi-Arid Tropics (ICRISAT). 28p. KEYWORDS: India, semiarid  
tropics, development strategies, technology transfers,  
watersheds, water management, land use, economic evaluation,  
development planning, case studies, rain-fed farming, vertisols  
FSR VERTICAL FILE # 3074
- 3075           **IMPROVING IRRIGATION SYSTEM MANAGEMENT THROUGH  
FARMER-TO-FARMER TRAINING: EXAMPLES FROM NEPAL.** Pradhan, N.C.  
(1989) Colombo, Sri Lanka: International Irrigation Management  
Institute (IIMI). (IIMI Working Paper No.12) 18p. KEYWORDS:  
Nepal, IIMI, irrigation, farmer participation, training, water  
management, management training, diffusion of information,  
farmers' attitudes   FSR VERTICAL FILE # 3075
- 3076           **IRRIGATION AND RICE PRODUCTION IN THE PHILIPPINES: STATUS  
AND PROJECTIONS.** Ongkingco, P.S. (1982) (Revised versions of  
papers presented at Workshop on Rice Policy in Southeast  
Asian Countries, Los Baños, Philippines, May 22-25, 1979)  
Washington, D.C.: International Food Policy Research Institute  
(IFPRI). (Working Paper No. 3/ Rice Policies in Southeast Asia  
Project) 37p. KEYWORDS: Philippines, rice production,  
irrigation, yields, consumption, projections  
KSUL # SB191.R5 0464 1982
- 3077           **SMALL WATERSHED HYDROLOGY.** (Summary Proceedings of a  
Workshop on the Role of Small Watershed Hydrology in Rainfed  
Agriculture, ICRISAT Center, India, November 22-24, 1988)  
ICRISAT (1988) Patancheru, India: International Crops  
Research Institute for the Semi-Arid Tropics (ICRISAT). 44p.  
KEYWORDS: India, ICRISAT, abstracts, recommendations, natural  
resources, human resources, watersheds, conservation, soil  
management, land use, models, appropriate technology, databases  
FSR VERTICAL FILE # 3077

3078           **STATUS AND PERFORMANCE OF IRRIGATION IN INDONESIA AND THE PROSPECTS TO 1990 AND 2000.** Nyberg, A.J. (1982) (Revised versions of papers presented at the Workshop on Rice Policy in Southeast Asian Countries, Los Baños, Philippines, May 22-25, 1979), s.l.: International Food Policy Research Institute (IFPRI), International Rice Research Institute (IRRI) and International Fertilizer Development Centre (IFDC) (Rice Policies in Southeast Asia Project Working Paper No.4) 62p. KEYWORDS: Indonesia, IRRI, IFPRI, IFDC, irrigation, irrigation systems, cropping systems, rice production, intensive production, yields, water management, surveys, fertilizer, projections, alternative technology KSUL # HD1741.I5 N93 1982

3079           **TANK IRRIGATION IN SEMI-ARID TROPICAL INDIA.** von Oppen, M. (1987) Patancheru, India: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). (ICRISAT Research Bulletin No.10) 38p. KEYWORDS: India, semiarid tropics, irrigation systems, tank irrigation, cost benefit analysis, water management, watersheds, technology analysis, national programs and projects, erosion KSUL # TC903 .0662 1987

#### CROPS

3080           **BREEDING OAT CULTIVARS SUITABLE FOR PRODUCTION IN DEVELOPING COUNTRIES - 1989.** (Annual Research Report) Brinkman, M.A. (1991) Madison, Wis.: Univ. of Wisconsin, College of Agricultural and Life Sciences, Dept. of Agronomy. 106p. KEYWORDS: Latin America, Brazil, Argentina, Chile, oats, cultivars, germplasm, disease resistance, commercial farming KSUL # SB191.02 A56

3081           **CASSAVA CULTIVATORS AND THEIR CULTIVARS: PRELIMINARY RESULTS OF CASE STUDIES IN THE SIERRA REGION OF THE DOMINICAN REPUBLIC.** Box, L. (1983) (Paper submitted to the 6th Symposium of the International Society for Tropical Root Crops, Lima, Peru, Feb. 21-26, 1983) Wageningen, The Netherlands: Wageningen Agricultural Univ. 16p. KEYWORDS: Dominican Republic, cassava, varieties, varietal improvement, cultivars, farmer testing, research methodology, social science, agronomy FSR VERTICAL FILE # 3081

3082           **DEVELOPING NUTRITIONALLY SUPERIOR CULTIVARS.** Bates L. (1981) (Paper prepared for the International Agriculture Farming Systems Seminar, Manhattan, Kan., February, 1981) s.l.: s.n. 5p. KEYWORDS: crops, hunger, nutrition, protein, genetics, alleles, hybrids, maize, wheat, oilseeds, legumes, innovation adoption, political attitudes FSR VERTICAL FILE # 3082

- 3083        **DISTRIBUTION OF HIBISCUS L. SECTION FURCARIA IN TROPICAL EAST AFRICA.** Edmonds, J.M. (1991) Rome: International Board for Plant Genetic Resources (IBPGR); International Jute Organisation (IJO). (Systematic and Ecogeographic Studies on Crop Genepools 6) 60p. KEYWORDS: Africa, East Africa, hibiscus, jute, kenaf, rosella, genetic diversity, ecogeography, germplasm, fiber plants    KSUL # QK495.M27 E36 1991
- 3084        **HERBARIUM SURVEY OF AFRICAN CORCHORUS L. SPECIES.** Edmonds, J.M. (1990) Rome: International Board for Plant Genetic Resources (IBPGR). (Systematic and Ecogeographic Studies on Crop Genepools 4) 284p. KEYWORDS: Africa, genetic diversity, corchorus, jute, wild varieties, ecogeography, vegetation mapping, genetic resources    KSUL # SB257.E32 1990
- 3085        **LESSER-KNOWN PLANTS OF POTENTIAL USE IN AGRICULTURE AND FORESTRY.** Vietmeyer, N.D. (1986) Science. (Vol.232 p.1379-84, 1986), KEY WORDS: research philosophy, consumer preferences, crops, food crops, legumes, cereals, fruits, genetic resources, varieties, tree crops    KSUL # Q1. S35
- 3086        **PIGEONPEAS (CAJANUS CAJAN MILLISP): A VALUABLE CROP OF THE TROPICS.** Morton, J.F. (1982) Mayaguez, Puerto Rico: Univ. of Puerto Rico, College of Agricultural Sciences, Dept. of Agronomy and Soils (Contract AID/DSAN-G-0101; AID Doc. No. PN-AAL-668); [poor photocopy] 123p. KEYWORDS: tropics, crops, pigeon peas, leguminosae, cajanus cajan, nutritional value, crop production    FSR VERTICAL FILE # 3086
- 3087        **POSTHARVEST PROBLEMS OF VEGETABLES AND FRUITS IN THE TROPICS AND SUBTROPICS.** Liu, M.S. (1983) Shanhua, Taiwan, Republic of China: Asian Vegetable Research and Development Center (10th Anniversary Monograph Series) 14p. KEYWORDS: tropics, subtropics, postharvest systems, vegetables, fruits, storage, handling, transport, technology development    FSR VERTICAL FILE # 3087
- 3088        **POTENTIAL FOR BREEDING HEAT TOLERANT VEGETABLES FOR THE TROPICS.** Chandler, R.F. (1983) Shanhua, Taiwan, Republic of China: Asian Vegetable Research and Development Center. (10th Anniversary Monograph Series) 10p. KEYWORDS: tropics, humid tropics, heat resistance, tomatoes, potatoes, Chinese cabbage    FSR VERTICAL FILE # 3088
- 3089        **SEED POTATO SYSTEMS IN ECUADOR: A CASE STUDY.** Crissman, C.C. (1989) Lima, Peru: International Potato Center (CIP). 70p. KEYWORDS: Ecuador, potatoes, seed potatoes, cropping systems, improved varieties, innovation adoption, national programs and projects, seed production, small farmers, production, consumption, marketing, credit, farmers' associations, plant breeding    FSR VERTICAL FILE # 3089

- 3090           **SILAGES MADE FROM TROPICAL AND TEMPERATE CROPS: PART 1:  
THE ENSILING PROCESS AND ITS INFLUENCE ON FEED VALUE.**  
Wilkinson, J.M., World Animal Review. (1983) (Vol.45 Jan.-Mar.,  
p.36-40), 7p. KEYWORDS: livestock feeding, silage  
making, fodder crops, nutritional value, tropics, temperate  
zones KSUL # SF1 .W6
- 3091           **SILAGES MADE FROM TROPICAL AND TEMPERATE CROPS: PART 2:  
TECHNIQUES FOR IMPROVING THE NUTRITIVE VALUE OF SILAGE.**  
Wilkinson, J.M., World Animal Review. (1983) (Vol.46 Apr.-Jun,  
p.35-40), 6p. KEYWORDS: livestock feeding, silage  
making, fodder crops, nutritional value, tropics, temperate  
zones KSUL # SF1 .W6
- 3092           **TRIALS ON SOYBEANS AT TIRUPATI.** Mader, E.L. (1972)  
Manhattan, Kan.: Kansas State Univ. 74p. KEYWORDS: India,  
USAID, soybeans, planting dates, planting methods, varietal  
trials, field tests, fertilizer, optimization, diseases, insect  
pests KSUL # SB205.S7 M323 1972
- 3093           **VEGETABLES AND THE QUALITY OF LIFE IN THE YEAR 2000.**  
Choudhury, B. (1984) Shanhua, Taiwan, Republic of China:  
Asian Vegetable Research and Development Center (10th  
Anniversary Monograph Series) 7p. KEYWORDS: vegetables, food  
production, malnutrition, population growth, nutritional value  
FSR VERTICAL FILE # 3093
- 3094           **WILD PHASEOLUS ECOGEOGRAPHY IN THE SIERRA MADRE  
OCCIDENTAL, MEXICO: AREOGRAPHIC TECHNIQUES FOR TARGETING AND  
CONSERVING SPECIES DIVERSITY.** Nabhan, G.P. (1990) Rome:  
International Board for Plant Genetic Resources (IBPGR).  
(Systematic and Ecogeographic Studies on Crop Genepools 5) 35p.  
KEYWORDS: Latin America, Mexico, genetic diversity, phaseolus,  
wild varieties, ecogeography, areography, chorography,  
vegetation mapping, genetic resources KSUL # SB327 .N321 1990
- 3095           **WORLD NEEDS FOR IMPROVED NUTRITION AND THE ROLE OF  
VEGETABLES AND LEGUMES.** Bressani, R. (1983) Shanhua,  
Taiwan, Republic of China: Asian Vegetable Research and  
Development Center (10th Anniversary Monograph Series) 22p.  
KEYWORDS: nutrition, vegetables, legumes, agricultural  
production, malnutrition, food supply FSR VERTICAL FILE # 3095

## CROP PROTECTION

- 3096 **FARMERS' LOCAL AND TRADITIONAL RICE CROP PROTECTION TECHNIQUES: SOME EXAMPLES FROM COASTAL SWAMPLANDS, KALIMANTAN, INDONESIA.** Watson, G.A. (1985) Indonesian Agricultural Research and Development Journal. (Vol.7 no.1&2 p.25-30) KEYWORDS: Indonesia, rice production, pests, pest management, indigenous knowledge systems, farmer participation, extension, appropriate technology, cropping systems, weeds, rats, birds, insects, diseases, swamps  
KSUL # S3 .I53

## WEEDS

- 3097 **USE OF THE "NON-WEED" CONCEPT IN TRADITIONAL TROPICAL AGROECOSYSTEMS OF SOUTH-EASTERN MEXICO.** Chacón, J.C. (1982) Agro-Ecosystems. (Vol.8 p.1-11) KEYWORDS: Mexico, tropics, weeds, traditional farming, lowland areas, ecology, weed control, agroecosystems, indigenous knowledge systems, wild plants, sustainability  
KSUL # QH540 .A36

## ANIMAL KINGDOM

- 3098 **ECONOMICS OF INSECT CONTROL ON RICE IN THE PHILIPPINES.** (Prepared for the FAO/IRRI Workshop on Judicious and Efficient Use of Insecticides on Rice, Los Baños, Philippines, Feb. 21-23, 1983) Herdt, R.W. (1983) Manila: International Rice Research Institute (IRRI). (IRRI Ag. Ec. Paper No. 83-05) 34p. KEYWORDS: Philippines, IRRI, rice, yields, insects, pest control, integrated pest management, pest resistance, economic analysis, risks, recommended technology  
NOT IN KSU LIBRARIES
- 3099 **METHODOLOGY FOR ENTOMOLOGICAL RESEARCH IN CROPPING SYSTEMS PROGRAMS.** IN: Report of a Meeting of Asian Rice-based Cropping Systems Entomologists, 18-22 May 1981, Bogor, Indonesia. (1981) Manila, Philippines: International Rice Research Institute (IRRI). (Eleventh Cropping Systems Working Group Meeting, p.6-35) 29p. KEYWORDS: Asia, cropping systems, IRRI, insect pests, entomology, pest control, insecticide application, surveys, yields, field tests, farmer participation, experimental design, technology analysis, recommendations, rice, mung beans, soybeans, maize, cowpeas, sorghum, integrated pest management  
FSR VERTICAL FILE # 3099

**HUMAN ELEMENT: EXOGENOUS FACTORS**

- 3100 **ACCELERATED MAHAWELI PROGRAMME (AMP) AND DRY ZONE DEVELOPMENT.** Scudder, T. (1983) Worcester, Mass./Binghamton, N.Y.: Clark Univ./Institute for Development Anthropology. (AMP Report No.4; Cooperative Agreement on Human Settlements and Natural Resource Systems Analysis) 35p. KEYWORDS: Sri Lanka, USAID, research methodology, sondeos, rapid rural appraisal, policy, resettlement, subsistence farming, infrastructure, living conditions, development projects  
FSR VERTICAL FILE # 3100
- 3101 **ACCELERATED MAHAWELI PROGRAMME (AMP) AND DRY ZONE DEVELOPMENT: SOME ASPECTS OF SETTLEMENT.** Scudder, T. (1981) Binghamton, N.Y.: Institute for Development Anthropology (IDA). (AMP Report No.3) 36p. KEYWORDS: Sri Lanka, USAID, national programs and projects, evaluation, project design, regional planning, resettlement, diversification, income, non-farm employment, policy, health services, private sector  
FSR VERTICAL FILE # 3101
- 3102 **BUGS, BUNDS, BANKS AND BOTTLENECKS: ORGANIZATIONAL, CONTRADICTIONS IN THE NEW RICE TECHNOLOGY.** Goodell, G.E. (1984) Economic Development and Cultural Change. (Vol.33 no.1 p.23-41) KEYWORDS: Asia, cropping systems, rice, technology design, interdisciplinary research, problem identification, organization, technology application, pests, irrigation, farmer borrowing, farmer testing, analysis, recommendations, high yielding varieties, planting dates, credit, labor, integrated pest management, farmer participation, synchronization  
KSUL # HC10 .E254
- 3103 **CONSIDERATIONS AND RECOMMENDATIONS CONCERNING AGRICULTURAL DEVELOPMENT IN THE PHILIPPINES.** Rohrer, W.C. (1982) Manhattan, Kan.: Kansas State Univ., Dept. of Sociology, Anthropology, and Social Work. 21p. KEYWORDS: Philippines, agricultural development, farmers' attitudes, traditional farming, technology transfers, extension, sociology  
FSR VERTICAL FILE # 3103
- 3104 **EXECUTIVE SUMMARY OF GENDER ISSUES IN FARMING SYSTEMS RESEARCH: A SURVEY OF CURRENT PROJECTS.** Horwith, B. (1989) Washington: USAID, Office of Women in Development. 6p. KEYWORDS: gender analysis, women in agriculture, FSR, households  
FSR VERTICAL FILE # 3104

3105           **HOW PARTICIPATORY IS PARTICIPATORY DEVELOPMENT? SOME LESSONS FROM PHILIPPINE EXPERIENCE.** Castillo, G.T. (1985) IN: Integrated Rural Development-Research Results and Programme Implementation, E. Zurek, ed. Hamburg: Verlag Weltarchiv. (Bonn Conference 1985; p.161-181) **KEYWORDS:** Philippines, research methodology, community development, development strategies, participatory strategies, analysis, irrigation systems, farmers' associations, agroforestry, health  
KSUL # HD1417 .I585 1985

**SOCIAL ORGANIZATION AND COMMUNITY STRUCTURE**

3106           **DIMENSIONS OF THE INTERNAL STRATIFICATION OF SMALLHOLDERS: INSIGHTS FROM NORTH CAROLINA PIEDMONT COUNTIES.** Schulman, M.D. (1985) Rural Sociology. (Vol.50 no.2 p.251-261), **KEYWORDS:** US, small farmers, Afro-Americans, social stratification, income, land tenure, tobacco, labor, research methodology, data evaluation  
KSUL # HT401 .R8

3107           **FRUIT PRODUCTION IN SOUTHEAST ASIA: STRATEGIES AND PLANS FOR FARMERS' COMMUNITIES.** Coronel, R.E. (1986) SEARCHA Diary. (April, p.5-10) 2p. **KEYWORDS:** Southeast Asia, Philippines, fruit production, cropping systems, fruit trees, processing, communities, projects, farmers' associations  
KSUL # S530 .S68

3108           **LOCAL INSTITUTIONS AND MANAGEMENT OF COMMUNAL RESOURCES: LESSONS FROM ASIA AND AFRICA.** (Paper presented at the Annual Meeting of the Rural Sociology Association, Guelph, Ontario, August 19-22, 1981) Odell, M.J. (1981) Amesbury, Mass.: Synergy International. 18p. **KEYWORDS:** Africa, Botswana, India, institutions, administration, communal tenure, village level studies, communal grazing, communal forestry, privatization, resource management, conservation  
FSR VERTICAL FILE # 3108

3109           **PASTORAL NOMADISM IN MONGOLIA: THE ROLE OF HERDSMEN'S COOPERATIVES IN THE NATIONAL ECONOMY.** Humphrey, C. (1978) IN: Development and Change. (Vol.9 p.133-160) **KEYWORDS:** Mongolia, nomadism, cooperatives, pastoral society, social change, socioeconomic systems, social organization, labor  
FSR VERTICAL FILE # 3109

3110           **RESEARCH ON FARMER BEHAVIOR AND SOCIAL ORGANIZATION** Bennet, J.W. (1986) IN: New Directions for Agriculture and Agricultural Research, K.A. Dahlberg, ed. Totowa, N.J.: Rowman & Allanheld. (p.367-402) **KEYWORDS:** agricultural research, social organization, farmers' attitudes, decision making, social science, socioeconomic systems, research methodology, indigenous knowledge systems, objectives, peasant farming  
KSUL # S541 .N49 1986

- 3111           **RESOURCE USE IN THE TAMBOPATA VALLEY, PERU: STATE COOPERATIVES AND COMMUNITY LEADERSHIP ON A COFFEE FRONTIER.** (Paper presented to the Workshop on Natural Resource Management, Clark Univ., Worcester, Mass., Feb. 7-8, 1983) Painter, M. (1983) Worcester, Mass./Binghamton, N.Y.: Clark Univ./Institute for Development Anthropology. (Cooperative Agreement on Human Settlements and Natural Resource Systems Analysis) 20p. KEYWORDS: Peru, settlements, resource utilization, case studies, production systems, cooperatives, coffee, fruits, problem identification FSR VERTICAL FILE # 3111
- 3112           **ROLE OF THE CAMPESINO SECTOR IN THE HONDURAN AGRARIAN REFORM.** (Abstract of an analysis presented at the Land Tenure Center, Univ. of Wisconsin, Madison, Wis.) de Morais, C.S. (1974?) Tegucigalpa, Honduras: C.S. de Morais, National Agrarian Institute. 7p. KEYWORDS: Honduras, peasantry, agrarian reform, land tenure, farmer groups, off-farm employment, socioeconomic systems, socioeconomic constraints, cooperatives, income, enterprises, organizational structures FSR VERTICAL FILE # 3112
- 3113           **SOCIOLOGY OF PRODUCTION IN RURAL MALAY SOCIETY.** Bailey, C. (1983) Kuala Lumpur; New York: Oxford Univ. Press. 225p. KEYWORDS: Malaysia, production systems, community structure, fishing, rice production, rubber, social organization, village level studies, sociology, case studies, labor organization, capital, land tenure, social stratification, rural development KSUL # HD1537.M27 B34 1983

**COMMUNITY NORMS AND BELIEFS**

- 3114           **SOCIOCULTURAL AND ECONOMIC DIMENSION OF THE PROBLEMS OF DEFORESTATION AND REFORESTATION.** Maturan, E. (1975) IN: Silliman Journal. (Vol.22 no.2 p.172-185) KEYWORDS: Philippines, socioeconomic conditions, forestry, deforestation, erosion, soil management, sociology, recommendations, attitudes, ecology, communal forestry, land use, education, population growth FSR VERTICAL FILE # 3114
- 3115           **SOME OBSERVATIONS ON THE CHANGES IN RICE HARVESTING SYSTEMS IN JAVA.** Hayami, Y. [1979?] Jakarta, Indonesia: Agro Economic Survey. (Rural Dynamics Study Working Paper No.1) 35p. KEYWORDS: Indonesia, Java, modernization, socioeconomic change, socioeconomic analysis, poverty, problem identification, labor supply, data collection, traditional farming, testing, technology, rice, harvesting, community structure FSR VERTICAL FILE # 3115

3116           **USE OF COMMUNICATION AND INDIGENOUS INNOVATION IN DEVELOPMENT STRATEGIES: A CASE STUDY OF TIMIKA, IRIAN JAYA, INDONESIA.** (Paper prepared for Farming Systems Research Symposium, Fayetteville, Ark., Oct. 1987) Cook, C.D. (1987) s.l.: s.n. 18p. KEYWORDS: Indonesia, Papua New Guinea, indigenous knowledge systems, anthropology, development planning, development theory, transmigration, land reclamation, deforestation, shifting cultivation, international cooperation, land use, ethnic groups, traditional farming, social change, poverty, resource conservation   FSR VERTICAL FILE # 3116

**POPULATION, NUTRITION, AND HEALTH**

3117           **CALORIC RETURNS TO FOOD COLLECTING: DISRUPTION AND CHANGE AMONG THE BATAK OF THE PHILIPPINE TROPICAL FOREST.** Elder, J.F. (1978), Human Ecology. (Vol.6 no.1 p.55-69) KEYWORDS: Philippines, food collecting, diet, food consumption, nutrition, socioeconomic change, hunting, wild plants  
KSUL # GF1 .H84

3118           **GAME, FARMING, AND INTERETHNIC RELATIONS IN NORTHEASTERN LUZON, PHILIPPINES.** Peterson, J.T. (1981) Human Ecology. (Vol.9 no.1 p.1-22) KEYWORDS: Philippines, hunting, game meat, protein, wild plants, ecology, ethnic groups  
KSUL # GF1 .H84

3119           **HOUSEHOLD FOOD USE IN THREE RURAL COMMUNITITES IN SOUTHERN HONDURAS: SOCIOECONOMIC CONSTRAINTS TO THE PRODUCTION, DISTRIBUTION AND CONSUMPTION OF SORGHUM IN SOUTHERN HONDURAS.** Thompson, K.S. (1985) Lexington, Ky.: Univ. of Kentucky, College of Agriculture, Dept. of Sociology, Dept. of Anthropology & International Sorghum/Millet (INTSORMIL). (Farming Systems Research in Southern Honduras, Report No.2) 133p. KEYWORDS: Honduras, INTSORMIL, sorghum, village level studies, households, population, diet, health, food consumption, food grains, food preferences, food preparation, food beliefs, nutrition, case studies   KSUL # GT2853.H6 T5 1985

3120           **SCRUTINY OF THE BOUNTY: CHEMICAL FOG OVER MEXICO'S FARMWORKERS.** Kistner, W. (1986) Mother Jones. (Vol.11 p.28-58) KEYWORDS: Mexico, pesticides, toxicity, poisoning, health, farm workers, exports, policy  
KSUL # AP2 .M79193

3121           **STAPLE FOOD CONSUMPTION IN THE PHILIPPINES.** Bennagen, E.C. (1982) Washington, D.C.: International Food Policy Research Institute (IFPRI). (Working Paper No. 5/ Rice Policies in Southeast Asia Project) 39p. KEYWORDS: Philippines, food consumption, income, demand, surveys, households, food supply, rice, maize, wheat, sweet potatoes, cassava, food expenditures, prices   KSUL # HD9016.P52 B46 1982

## EXTERNAL INSTITUTIONS

- 3122           **AGRICULTURAL ASSISTANCE STRATEGY: INDIA.** Schutjer, W.A. (1970) University Park, Pa.: Pennsylvania State Univ. KEYWORDS: India, USAID, aid, research, history, national programs and projects, development planning, development administration, development policy, development strategies, research development objectives, research funding FSR VERTICAL FILE # 3122
- 3123           **AGRICULTURAL COMMUNICATION FOR RURAL DEVELOPMENT IN SRI LANKA.** Amarasuriya, N. (1987) Washington, D.C.: Clearinghouse for Development Communication. Development Communication Report (No.1 p.16) KEYWORDS: Sri Lanka, chemical fertilizers, pesticides, health, education, extension, training, communication FSR VERTICAL FILE # 3123
- 3124           **CHANGES IN THE BURMA RICE ECONOMY.** Paris, T.R. (1982?) [Paper is a work-in-progress report] s.l.: IRRI, Dept. of Agricultural Economics. (Ag. Econ. Dept. Paper No.82-10) 53p. KEYWORDS: Burma, rice, history, production, policy, economic performance, price support, credit, innovation adoption, farm income, high yielding varieties FSR VERTICAL FILE # 3124
- 3125           **DEVELOPMENT AND DELIVERY OF SCIENTIFIC FARM INFORMATION: THE TAIWAN SYSTEM AS AN ORGANIZATIONAL ALTERNATIVE TO LAND GRANT UNIVERSITIES-US STYLE.** Lionberger, H.F. (1981) IN: Extension Education and Rural Development, Vol.1; International Experiences in Communication and Innovation. p.155-183 Chichester: John Wiley and Sons. KEYWORDS: Taiwan, agricultural research, extension, innovation adoption, diffusion of information, national programs and projects, implementation of research, organizational structures, farmers' associations, farmer participation, recommendations FSR VERTICAL FILE # 3125
- 3126           **ENTERPRISE BUDGETS: A MULTIPLE USE DATA BASE FOR AGRICULTURAL BANKS IN DEVELOPING COUNTRIES.** Parks, L.L. (1980) Stillwater, Okla.: Oklahoma State Univ., Dept. of Agricultural Economics. (International Development Series no.80-1, Aug. 1980; AID/ta-CA-1; Project No. 931-1134-02) 69p. KEYWORDS: Honduras, agricultural banks, enterprise budgets, databases, finance KSUL # HG2051.D44 P37 1980
- 3127           **EVOLUCION DE LOS ENFOQUES DE INVESTIGACION AGROPECUARIA EN EL PLAN PUEBLA: UNA VISION RETROSPECTIVA.** Estrella Chulin, N. (1987?) s.l.: s.n. 7p. KEYWORDS: Mexico, national programs and projects, Plan Puebla, history, objectives, evaluation, planning of research, agricultural development FSR VERTICAL FILE # 3127

- 3128           **FIELD SUPPORT FUNCTION OF THE AGRICULTURAL EXPERIMENT STATION IN THE DEVELOPING COUNTRIES.** Pomeroy, C.R. (1970) Journal of the Post-Graduate School. (Vol.8 no.1 p.1-21) KEYWORDS: agricultural research, experiment stations, personnel training, administration, applied research, implementation of research, field tests  
FSR VERTICAL FILE # 3128
- 3129           **JAMAICAN SMALL-SCALE FARMER: AN ANNOTATED BIBLIOGRAPHY.** (1988) Kingston, Jamaica: Inter-American Institute for Cooperation on Agriculture (IICA). (Miscellaneous Publication Series: No.A2/JM--88-003) 48p. KEYWORDS: Jamaica, bibliographies, economics, agronomy, rural women, families, rural development, rural sociology, poverty  
KSUL # Z5075.J25 J36 1988
- 3130           **ORGANISATIONAL CONSEQUENCES OF SOCIAL AND ECONOMIC CONSTRAINTS AND POLICIES IN DRY-LAND AREAS.** Norman, D.W. (1974) Nairobi: Institute for Development Studies, Univ. of Nairobi. (Discussion Paper no.214) 19p. KEYWORDS: Africa, Nigeria, socioeconomic conditions, constraints, social policy, social environment, economic policy, technology development, organizational structures, development administration  
FSR VERTICAL FILE # 3130
- 3131           **REPORT OF THE SEVENTH SESSION OF THE FAO REGIONAL COMMISSION OF FARM MANAGEMENT FOR ASIA AND THE FAR EAST, JOGJAKARTA, INDONESIA, AUGUST 24-29,1981.** (1981) Bangkok, Thailand: Food and Agriculture Organization of the United Nations (FAO). 210p. KEYWORDS: FAO, Asia, surveys, small farms, cropping systems, rural development, farmer participation, development policy, extension, universities, management, training, education      KSUL # S560.3 .F36 1981
- 3132           **RESEARCH PROGRAM DEVELOPMENT AND GOAL HIERARCHIES: AN APPLICATION TO IRRI.** Barichello, R.R. (1985) Agricultural Administration (Vol.19 p.1-12) KEYWORDS: IRRI, development objectives, Philippines, project design, national programs and projects, social environment, demand, planning of research, research institutes      KSUL # HD1401 .A36
- 3133           **TRAINING PROGRAMS FOR AGRICULTURAL DEVELOPMENT PERSONNEL: THE HONDURAS EXPERIENCE.** Parks, L.L. (1980) Stillwater, Okla.: Oklahoma State Univ., Dept. of Agricultural Economics. (International Development Series no.80-2, Aug. 1980; AID/ta-CA-1; Project No. 931-1134-02) 128p. KEYWORDS: Latin America, Honduras, agricultural banks, finance, training, education      KSUL # HG2051.H8 P37 1980

**INFRASTRUCTURE, SUPPORT SYSTEMS**

- 3134        **FIRST GREEN REVOLUTION: CHINESE AGRICULTURE IN THE HAN DYNASTY.** (Paper presented at the Society for Economic Anthropology, Annual Meeting, 1987) Anderson, E.N. (1987)\* Riverside, Calif. E.N. Anderson, Univ. of Calif., Dept. of Anthropology. 20p. KEYWORDS: China, innovation adoption, history, millets, technology development, extension, settlement, policy, population growth, political economy, price support, national programs and projects, peasant farming, cropping systems FSR VERTICAL FILE # 3134
- 3135        **INCREASING THE PRODUCTIVITY OF SMALL FARMS IN BARANI AREAS OF PUNJAB.** Ahmad, R.M. (1978?) Rawalpindi, Pakistan: Agency for Barani Area Development (ABAD). 16p. KEYWORDS: Pakistan, Punjab, development, infrastructure development, social institutions, economic growth, rain-fed farming, wheat, technology transfers, extension, yields, management, income, production constraints, problem identification FSR VERTICAL FILE # 3135
- 3136        **LESSONS FROM SURVEY OF SUCCESSFUL EXPERIENCES IN ASSISTING THE SMALLHOLDER LIVESTOCK PRODUCER.** (Article stems from the Report to the World Bank on the Survey of Successful Experiences in Assisting the Smallholder Livestock Producer) McCauley, E.H. [1973?] s.l.: s.n. 6p. KEYWORDS: India, Kenya, World Bank, programs and projects, small farmers, livestock systems, farmers' associations, cooperatives, communal tenure, community development, development agencies, ranching, milk, credit, marketing systems FSR VERTICAL FILE # 3136
- 3137        **OBSERVATIONS ON INDIAN AGRICULTURAL UNIVERSITIES AND THE INDIAN NATIONAL AGRICULTURAL RESEARCH ESTABLISHMENT AS A MODEL FOR OTHER DEVELOPING COUNTRIES.** Michie, B.H. (1984?) Manhattan, Kan.: Kansas State Univ., Dept. of Sociology, Anthropology and Social Work. 5p. KEYWORDS: India, research centers, organizational structures, institution building, extension, production, yields, problem identification, history, diffusion of information, innovation adoption, universities FSR VERTICAL FILE # 3137
- 3138        **POTATOES, PEASANTS, AND PROFESSORS: A DEVELOPMENT STRATEGY FOR PERU.** Whyte, W.F. (1977) Sociological Practice. (Vol.2 no.1 p.7-23) KEYWORDS: Latin America, Peru, potatoes, development planning, agricultural productivity, development projects FSR VERTICAL FILE # 3138

## INPUT

- 3139           **ACCESS TO IMPROVED INPUTS: THE SPECIAL PROBLEMS OF SMALL FARMERS.** Ahmed, R. (1978?) s.l.: Exxon Chemical Pakistan Ltd. 16p. KEYWORDS: Pakistan, small farms, subsistence farming, yields, economic analysis, inputs, credit, fertilizers, policy, national programs and projects, cooperatives, land tenure, improved varieties, resource allocation, pesticides, extension FSR VERTICAL FILE # 3139
- 3140           **MARKETING POLICIES ON FARM INPUTS: IMPLICATIONS TO RURAL INCOME IMPROVEMENT AND EQUITY.** (Paper presented at Philippines Agricultural Economics Development Association Convention on Agricultural Marketing Policies and Strategies for Improved Rural Income and Equity, DBP Penthouse, Makati, Manila, June 4, 1982) Gonzales, L.A. (1982) Los Baños, Philippines: International Rice Research Institute (IRRI). (IRRI Ag. Ec. Dept. Paper No. 82-07) 52p. KEYWORDS: Philippines, marketing, policy, inputs, seeds, fertilizer, machinery, credit, input distribution FSR VERTICAL FILE # 3140
- 3141           **PUBLIC AND PRIVATE SECTOR EXTENSION SYSTEMS IN AGRICULTURAL DEVELOPMENT.** Crowder, L.V. (1987?) Gainesville, Fla.: Univ. of Florida, Institute of Food and Agricultural Sciences. 17p. KEYWORDS: Ecuador, extension, private sector, agribusiness, research, credit, resource allocation, policy FSR VERTICAL FILE # 3141
- 3142           **COMPLIMENTARITIES BETWEEN IRRIGATION DEVELOPMENT OBJECTIVES IN NEPAL: THE AKWUA STRATEGY.** (Paper prepared for the 14th Annual Conference on South Asia, Univ. of Wisconsin, Nov. 1-3, 1985) Thiessen, E.M. (1985) Ithaca, N.Y.: E.M. Thiessen, Univ. of Cornell, Agricultural Engineering. 22p. KEYWORDS: Nepal, irrigation, programs and projects, economic development, resource allocation, poverty, income distribution, project implementation, evaluation, problem identification FSR VERTICAL FILE # 3142

## INPUT DISTRIBUTION

- 3143           **ACCESS AND THE COOPERATIVE: A STUDY OF AN INTERMEDIUM IN STRUCTURAL CHANGE IN SRI LANKAN DRY ZONE PADDY CULTIVATION.** Harriss, B. (1978) Development and Change. (Vol.9 p.277-298) KEYWORDS: Sri Lanka, inputs, resource allocation, distribution, farmers' attitudes, terminology, cooperatives, national programs and projects, marketing systems, credit, technology transfers, institutional resources, constraints, infrastructure FSR VERTICAL FILE # 3143

## EXTENSION

- 3144           **AGRICULTURAL EXTENSION AND FARMING SYSTEMS RESEARCH.**  
(Paper presented at the Farming Systems and Farming Systems Research Conference, Arusha, Tanzania, April 14-16, 1981) De Vries, J. (1981) Morogoro, Tanzania Univ. of Dar es Salaam, Dept. of Agricultural Education and Extension (AEE Working Paper 81.1, USAID Doc. No. PN-AAT-639) 20p. KEYWORDS: extension, education, models FSR VERTICAL FILE # 3144
- 3145           **AGRICULTURAL EXTENSION IN THE HILLS OF NEPAL: TEN YEARS OF EXPERIENCE FROM PAKHRIBAS AGRICULTURAL CENTRE.** Thapa, H.B. (1988) Regent's Park, London: Overseas Development Institute (ODI). (ODI Agricultural Administration [Research and Extension] Network Paper No.4, Dec. 1988) 34p. KEYWORDS: Nepal, extension, research centers, management, target selection, farmers' attitudes, technology analysis, diffusion of information, innovation adoption, credit, training, inputs FSR VERTICAL FILE # 3145
- 3146           **AGRICULTURAL EXTENSION SYSTEM IN CHINA.** Delman, J. (1988) Regent's Park, London: Overseas Development Institute (ODI). (ODI Agricultural Administration (Research and Extension) Network Paper No.3, Dec. 1988) 32p. KEYWORDS: China, extension, history, farmers' attitudes, appropriate technology, policy FSR VERTICAL FILE # 3146
- 3147           **EXTENSION EVALUATION AND PLANNING IN THE HILLS OF NEPAL (WITH SPECIAL REFERENCE TO THE OVERSEAS DEVELOPMENT ADMINISTRATION'S PROJECT BASED AT LUMLE).** Hughes, D.T. (1985) Agricultural Administration. (Vol.18 p.89-105) KEYWORDS : Nepal, ODA, extension, development agencies, national programs and projects, training, case studies, surveys, evaluation KSUL # HD1401 .A36
- 3148           **MAKING EXTENSION WORK.** Safo, M. (1990) African Farmer. (Vol.1 no.4 p.23-33) KEYWORDS: Africa, extension, farmer participation KSUL # S323 .A37
- 3149           **MISSOURI EXTENSION PROGRAM FOR SMALL FARM FAMILIES -- AN EXAMPLE OF HOW THE FARMING SYSTEM APPROACH CAN BE UTILIZED AS AN EFFECTIVE DELIVERY METHOD.** (Presented at the FSR Symposium, Univ. of Arkansas, Fayetteville, Ark., October 18-19, 1987) Brown, T. (1987) Columbia, Mo.: Univ. of Missouri, Dept. of Agricultural Economics. 6p. KEYWORDS: US, Missouri, farming systems theory, research, innovation adoption, farmers' attitudes, diffusion of information, history, methodology, multidisciplinary research FSR VERTICAL FILE # 3149

- 3150           **SOCIOLOGICAL DIMENSIONS OF EXTENSION ORGANIZATION: THE INTRODUCTION OF THE T & V SYSTEM IN INDIA.** Cernea, M. (1981) Extension Education and Rural Development, Volume 2: International Experience in Strategies for Planned Change, B.R. Crouch and S. Chamala, eds. Chichester, England: Wiley. (World Bank Reprint Series No.196, 1981) p.221-235 KEYWORDS: India, extension, sociology, development strategies, training, organizational structures, constraints, national programs and projects KSUL # HN980 .E97

#### CREDIT

- 3151           **CREDIT FOR SMALL FARMERS: INDONESIA, MALAYSIA, THAILAND.** Long, M. (n.d.) Cambridge, Mass.: Harvard Univ. Development Advisory Service. (AID/CSD-1543) 25p. KEYWORDS: Southeast Asia, Indonesia, Malaysia, Thailand, credit, small farms, loans, crop production, evaluation, credit policy, commercial credit, cooperatives FSR VERTICAL FILE # 3151
- 3152           **MANAGING SMALL FARMER CREDIT PROGRAMS: A CASE STUDY IN HONDURAS.** Parks, L.L. (1980) Stillwater, Okla.: Oklahoma State Univ., Dept. of Agricultural Economics. (International Development Series no.80-4, Aug. 1980; AID/ta-CA-1; Project No. 931-1134-02) 92p. KEYWORDS: Latin America, Honduras, agricultural banks, enterprise budgets, finance, bank loans, management, training, credit KSUL # HG2051.H8 P367 1980
- 3153           **PRODUCTION LOANS TO GROUPS OF FARMS: EXPERIMENTS IN HONDURAS.** Parks, L.L. (1980) Stillwater, Okla.: Oklahoma State Univ., Dept. of Agricultural Economics. (International Development Series no.80-5, Aug. 1980; AID/ta-CA-1; Project No. 931-1134-02) 31p. KEYWORDS: Latin America, Honduras, credit, agricultural banks, crop production, finance KSUL # HG2051.H8 P368 1980
- 3154           **STUDY ON THE CREDIT BEHAVIOR OF FARM FAMILIES IN NUEVA ECIJA.** Swaminathan, M. (1982) Los Baños, Philippines: International Rice Research Institute (IRRI). (IRRI Ag. Ec. Dept. Paper No. 82-27) 35p. KEYWORDS: Philippines, IRRI, credit, policy, informal credit, community organization FSR VERTICAL FILE # 3154

#### MARKETING

- 3155           **MARKETING THAILAND'S POTATOES: PRESENT PATTERNS AND FUTURE PROSPECTS.** Scott, G.J. (1987) Lima: International Potato Center (CIP). (Potatoes in Food Systems Research Series Report No. 3) 65p. KEYWORDS: Thailand, Singapore, potatoes, CIP, marketing, production, consumption, consumer preferences, economic analysis, problem identification, production constraints, cashcrops, trade, exports KSUL # HD9235.P82 T58 1987

- 3156           **PRODUCT MARKETING SYSTEM IN PAKISTAN: PROBLEMS AND POTENTIALS.** (Paper presented at CENTO Seminar on Increasing the Productive Capacity of Small Farms, Lahore, Pakistan, December 17-21, 1978) Ul-Hasan, S. (1978) Karachi, Pakistan: Dept of Agriculture and Livestock, Products Marketing and Grading. 11p. KEYWORDS: Pakistan, marketing systems, small farms, price support, institution building, economic analysis, commodity research, postharvest systems, infrastructure development, market prices, harvesting, national programs and projects, credit FSR VERTICAL FILE # 3156
- 3157           **RURAL MARKETS SERVING SMALL FARMERS IN SRI LANKA - AN OVERVIEW.** (Paper to be presented at FAO/DSE Rural Market Centre Development Program in Asia, Joint Planning Meeting, Bangkok, Thailand, Dec. 6-9, 1978) de Silva, M.D. (1978) Colombo, Sri Lanka: Ministry of Plan Implementation. 27p. KEYWORDS: Sri Lanka, markets, programs and projects, small farms, marketing strategies, tea, rubber, coconut, policy, sustainability FSR VERTICAL FILE # 3157
- 3158           **SCENARIO ANALYSIS OF IMPACTS OF CHANGES IN TECHNOLOGY, FERTILIZER PRICES, HIGHWAYS, LABOR MARKETS, CONSUMPTION EXPENDITURE, RAINFALL AND PRICE POLICY FOR SEMI-ARID TROPICAL CROP MARKETS.** Behrman, J.R. (1982) Patancheru, Andhra Pradesh, India: International Crop Research Institute for the Semi-Arid Tropics (ICRISAT). (Economics Program Progress Report 39) 22p. KEYWORDS: India, semiarid tropics, crops, data analysis, models, methodology, cereals, pulses, oilseeds, production systems, production trends, change, markets, inputs, labor, marketing decisions, production strategies, high yielding varieties, irrigated farming, fertilizers  
KSUL # HD9016.I43 A63 1982

**PROCESSING**

- 3159           **DEVELOPMENT AND TESTING OF A PORTABLE RICE HULLER FOR BANGLADESH.** Lockwood, L.M. (1981) Dacca, Bangladesh: Asia Foundation. 37p. KEYWORDS: Bangladesh, mechanization, rice, appropriate technology, rice processing, milling, technology design, cost analysis, nutrition, problem identification, postharvest technology FSR VERTICAL FILE # 3159

## POLICIES AND STRUCTURAL REFORM PROGRAMS

- 3160           **ACCELERATED MAHAWELI PROGRAMME (AMP) AND DRY ZONE DEVELOPMENT.**           Scudder, T. (1985a) Worcester, Mass./ Binghamton, N.Y.: Clark Univ./Institute for Development Anthropology (IDA). (AMP Report No.5; Cooperative Agreement on Human Settlements and Natural Resource Systems Analysis) 57p. KEYWORDS: Sri Lanka, USAID, national programs and projects, problem identification, subsistence farming, recommendations, living conditions, living standards, project implementation, fisheries, agroforestry, project evaluation, income, infrastructure development, employment, community organization, solution design, resettlement   FSR VERTICAL FILE # 3160
- 3161           **ACCELERATED MAHAWELI PROGRAMME (AMP) AND DRY ZONE DEVELOPMENT.**           Scudder, T. (1985b) Worcester, Mass./Binghamton, N.Y.: Clark Univ./Institute for Development Anthropology (IDA). (AMP Report No.6; Cooperative Agreement on Human Settlements and Natural Resource Systems Analysis) 54p. KEYWORDS: Sri Lanka, USAID, national programs and projects, development planning, development policy, recommendations, evaluation, resettlement, intensification, land holdings, cropping systems, livestock, fisheries, employment, enterprises, community structure   FSR VERTICAL FILE # 3161
- 3162           **AGRICULTURAL MODERNIZATION IN SMALLHOLDING AREAS OF MEXICO: A CASE STUDY IN THE SIERRA NORTE DE PUEBLA.** Edelman, M. (1980) Latin American Perspectives. (Vol.7 no.4 Iss.27 p.29-49) KEYWORDS: Mexico, policy, food supply, political economy, productivity, employment, peasant farming, land tenure, income, poverty, grain production, Plan Puebla, national programs and projects, case studies, potatoes   KSUL # F1401 .L335
- 3163           **AGRICULTURAL RESEARCH AND DEVELOPMENT: VIABLE OBJECTIVES FOR SMALLHOLDER PROGRAMS.** (Paper prepared for presentation at Farming Systems Research Symposium, Kansas State University, Manhattan, Kan., Oct., 1984) Garrett, P. (1984) Ithaca, N.Y.: Dept. of Rural Sociology, Cornell Univ. 14p. KEYWORDS: objectives, national programs and projects, project design, subsistence farming, small farms, socioeconomic analysis, policy   FSR VERTICAL FILE # 3163
- 3164           **AGRICULTURAL TECHNOLOGY MANAGEMENT: DRAFT GUIDELINES.** (Draft) Cummings, R.W. (1984) s.l.: s.n. 14p. KEYWORDS: USAID, appropriate technology, research institutes, on-farm testing, extension, policy, diffusion of information, technology management, research objectives, analysis, finance, evaluation, technology transfers   FSR VERTICAL FILE # 3164

- 3165           **BALUCHISTAN: AN INTRODUCTION.** Spooner, B. (1983)  
 (Area Development Paper) Worcester, Mass./Binghamton, N.Y.:  
 Clark Univ./Institute for Development Anthropology.  
 (Cooperative Agreement on Human Settlements and Natural Resource  
 Systems Analysis) 93p. KEYWORDS: Pakistan, Baluchistan,  
 USAID, economic analysis, development planning, development  
 projects, project proposals, natural resources, climate, human  
 resources, agro-ecological zones, socioeconomic conditions,  
 infrastructure, national programs and projects, donor agencies,  
 statistics KSUL # HN690.5.Z9 C688 1983
- 3166           **ESTABLISHING STANDARDS: CRUCIAL STEP IN THE ART OF  
 SETTING PRODUCTION RESEARCH PRIORITIES.** Knapp, R. (1984)  
 Sorghum and Millet in Latin American Farming Systems Workshop,  
 CIMMYT, El Batan, Mexico, Sept. 16-22, 1984)  
 El Batan, Mexico: CIMMYT, Wheat Training Program.  
 (Spanish version also available) 13p. KEYWORDS: Latin  
 America, Mexico, production systems, decision making, research  
 strategy, planning of research, terminology, policy, research  
 institutes, problem identification FSR VERTICAL FILE # 3166
- 3167           **INCREASING THE PRODUCTION CAPACITY OF SMALL FARM:  
 PAKISTAN'S COUNTRY REPORT.** Ali M.M. (1978) (Paper presented  
 at the CENTO Seminar, Lahore, Pakistan, December 17-21, 1978)  
 Islamabad, Pakistan: Ministry of Food,  
 Agriculture and Cooperative. 10p. KEYWORDS: Pakistan, small  
 farmers, land tenure, policy, national programs and projects,  
 land reform, innovation adoption, inputs, varieties, technology  
 transfers, extension, cooperative farming, price support  
 FSR VERTICAL FILE # 3167
- 3168           **PERU'S AGRARIAN TRANSFORMATION.** Eastman, C. (1984)  
 Las Cruces, N.M.: New Mexico State Univ., Center for Latin  
 American Studies. (Latin American Research Paper Series No.1,  
 April 1984) 57p. KEYWORDS: Peru, history, agrarian reform,  
 land tenure, socioeconomic systems, socioeconomic conditions,  
 social change, social policy, cooperatives  
 FSR VERTICAL FILE # 3168
- 3169           **PROJECT PAPER: FARMING SYSTEMS DEVELOPMENT PROJECT -  
 EASTERN VISAYAS.** (1981) s.l.: USAID/Philippines, Office of  
 Rural and Agricultural Development. (USAID Contract No.  
 492-0356) 132p. KEYWORDS: Philippines, Eastern Visayas, FSR,  
 programs and projects, project design, project implementation,  
 project proposals, objectives, socioeconomic analysis, budget  
 formulation FSR VERTICAL FILE # 3169

- 3170        **REFLECTIONS ON THE NEEDED DEVELOPMENTS IN TRAINING AGRICULTURAL ECONOMISTS IN PAKISTAN.** Amir, P. (1985) (Paper prepared for the IRRI/PARC Workshop Training of Research Science in Pakistan, June 29, 1985) Morrilton, Ark.: Winrock International Institute for Agricultural Development. 16p. KEYWORDS: Pakistan, education, universities, agricultural economics, social science, problem identification, philosophy, recommendations, policy, Philippines, Thailand, information exchange, agricultural education FSR VERTICAL FILE # 3170
- 3171        **REVIEW OF THE RESEARCH SYSTEM OF THE MINISTRY OF AGRICULTURE AND FOOD IN THE PHILIPPINES: AN ISNAR ANALYSIS.** (Report to the Ministry of Agriculture and Food, the Republic of the Philippines) (1988) The Hague: International Service for National Agricultural Research (ISNAR). (ISNAR R34) 49p. KEYWORDS: Philippines, policy, agricultural research, experiment stations, universities, extension, planning of research, institutional resources, research centers, objectives, administration KSUL # S542.P6 R48 1988
- 3172        **SOME AGRICULTURAL POLICY EFFECTS OF ENCOURAGING WATER HARVESTING IN INDIA.** Ray D. (1986) Agricultural Administration (Vol.21 p.234-248) KEYWORDS: India, water management, water harvesting, irrigation, technology analysis, self-sufficiency, farmer groups, community development, participatory strategies, policy KSUL # HD1401 .A36
- 3173        **TOWARD FARM-BASED POLICY RESEARCH: LEARNING FROM EXPERIENCE.** Martinez, J.C. (1986) (Draft of paper presented at the Farming Systems Research Symposium, Kansas State University, Manhattan, Kan., Oct. 5-8, 1986.) Mexico: CIMMYT Economics Program. 33p. KEYWORDS: research, agricultural policy, on-farm research, target selection, problem identification, FSR VERTICAL FILE # 3173
- 3174        **WHY DEVELOPMENT FAILS: THE EVALUATION GAP IN NEPAL'S SUBSISTENCE AGRICULTURE.** Calkins, P.H. (1982) World Development (Vol.10 no.5 p.397-411) KEYWORDS: Nepal, development programs, farmers' attitudes, constraints, infrastructure development, living standards, horticulture, decision making, traditional farming, national programs and projects, education, evaluation, models, theory KSUL # HC4 .W66
- 3175        **WOMEN IN DEVELOPMENT AND NEPAL'S RESOURCE CONSERVATION AND UTILIZATION PROJECT.** (Draft) Davenport, A.A. (1985) s.l.: s.n. 56p. KEYWORDS: Nepal, USAID, gender analysis, resource management, project design, women in development, women's roles, women's status, rural development, socioeconomic conditions FSR VERTICAL FILE # 3175

- 3176 **WOMEN'S ROLES IN BANGLADESH DEVELOPMENT: A PROGRAM ASSESSMENT.** Germain, A. (1976) Dacca, Bangladesh: Ford Foundation. 48p. KEYWORDS: Bangladesh, policy, development planning, employment, poverty, crafts, education, family planning, women in development, women's roles  
FSR VERTICAL FILE # 3176

**TECHNOLOGICAL AND MECHANICAL FACTORS**

- 3177 **ECONOMICS OF TIMELINESS IN THE CROP INTENSIFICATION OF RAINFED FARMS IN ILOILO, CENTRAL PHILIPPINES.** Roxas, N.M. (1982) (Paper based on author's masters' thesis at Australian National Univ.) Los Baños, Philippines: International Rice Research Institute (IRRI). (IRRI Ag. Ec. Dept. Paper No. 82-01) 34p. KEYWORDS: Philippines, cropping systems, rice, rain-fed farming, intensification, timeliness, land preparation, tillage, risks, economic analysis, technology analysis  
FSR VERTICAL FILE # 3177

- 3178 **FARMING SYSTEMS APPROACHES IN INTERNATIONAL TECHNICAL COOPERATION IN AGRICULTURAL AND RURAL LIFE.** Flora, C.B. (1988) Manhattan, Kan.: Kansas State Univ., Dept. of Sociology, Anthropology, and Social Work (Kansas State Agricultural Experiment Station Contribution no.88-1-J) 30p. KEYWORDS: international cooperation, technology transfers, cropping systems, research methodology, interdisciplinary research, farmer participation, training FSR VERTICAL FILE # 3178

**MECHANIZATION**

- 3179 **ENERGY-CONSERVING FARMING SYSTEMS FOR THE HUMID TROPICS.** Wijewardene, R. (1980) Agricultural Mechanization in Asia. (Vol.11 no.2 p.47-53)KEYWORDS: humid tropics, farming systems, energy conservation, mechanization, tillage systems, seeding, planting methods, fertilizer application KSUL # S671 .A15
- 3180 **EXPERIENCE IN MECHANIZATION OF EAST ASIAN RICE FARMING.** (Paper prepared for the International Seminar on Small Farm Mechanization, Hangzhou, China, June 21-27, 1982) Herdt, R.W. (1982) Los Baños, Philippines: International Rice Research Institute (IRRI), Dept. of Agricultural Economics. 35p. KEYWORDS: Asia, mechanization, rice, labor, production strategies, labor supply, history, socioeconomic conditions  
FSR VERTICAL FILE # 3180

## ENERGY

- 3181           **FUELWOOD SITUATION AND FARMERS' ADJUSTMENT IN NORTHEASTERN THAI VILLAGES.** Subhadhira, S. (1985) Khon Kaen, Thailand: S. Subhadhira, Khon Kaen Univ., Dept. of Sociology. (Socio-Economic Studies of the Farmers in Rainfed Areas of Northeast Thailand, KKU-Ford Project) 29p. KEYWORDS: Thailand, fuelwood, rapid rural appraisal, deforestation, energy, village level studies, socioeconomic analysis  
FSR VERTICAL FILE # 3181
- 3182           **LESSONS FROM LADAKH.** Page, J.A. (1985) Utne Reader. (p.74-85, Oct./Nov., 1985) 12p. KEYWORDS: India, traditional farming, appropriate technology, Trombe Wall, solar energy, alternative technology, fuels, ecology, sustainability, social anthropology NOT OWNED BY KSU LIBRARIES
- 3183           **LORENA STOVE: AN ENERGY-EFFICIENT, ECONOMICAL, AND SAFE SOURCE OF HEAT.** Thompson, G.S. (1985) (Paper prepared for inclusion in Selected Proceedings of Kansas State University's Farming Systems Research Symposium, October 13-16, 1985) s.l.: s.n. 11p. KEYWORDS: rural households, appropriate technology, recommended technology, cookstoves, consumer preferences, technology design, Lorena stove, fuelwood, energy FSR VERTICAL FILE # 3183

## TECHNOLOGY TRANSFER

- 3184           **ADOPTION OF AGRICULTURAL TECHNOLOGY: DEVELOPMENTS IN AGRO-SOCIO-ECONOMIC THOUGHT.** Social and Economic Studies. (Vol.31 no.3 p.171-189) KEYWORDS: farming systems, theory, development theory, socioeconomic analysis, farmers'attitudes, socioeconomic constraints, inovation adoption, hybrids, corn, sorghum, technology transfers KSUL # HN244 .S6
- 3185           **ALTERNATE STRATEGY FOR THE TRANSFER OF TECHNOLOGY WITH SPECIAL REFERENCE TO INDIA.** Kishore, D. (1986) Agricultural Administration. (Vol.21 p.197-204) KEYWORDS: India, technology transfers, diffusion of information, production, extension, development strategies, technology analysis, recommendations, innovation adoption KSUL # HD1401 .A36
- 3186           **CHANGES IN PRACTICES OF RICE FARMERS IN CENTRAL LUZON: 1966-79.** Cordova, V. (1981) Los Baños, Philippines: International Rice Research Institute (IRRI). (IRRI Ag. Ec. Dept. Paper No. 81-05) 23p. KEYWORDS: Philippines, IRRI, rice, surveys, technology transfers, inputs, yields  
FSR VERTICAL FILE # 3186

- 3187           **INCREASING THE PRODUCTION OF FOOD CROPS IN THE UPLAND AREAS IN INDONESIA.** Satjanata, S. (1985) Indonesia Agricultural Research and Development Journal. (Vol.7 no.3&4 p.49-53) KEYWORDS: Indonesia, rice, crop production, yields, constraints, highlands, national programs and projects, technology transfers, extension, intercropping, field tests, farmer groups, problem identification, diseases, insects KSUL # S3. I53
- 3188           **MINIMUM DATA SETS FOR AGROTECHNOLOGY TRANSFER.** Nix, H.A. (1984) IN: Proceedings of the International Symposium of Minimum Data Sets for Agrotechnology Transfer: ICRISAT Center, Patancheru, India, 21-26 March 1983. Patancheru, India: International Crops Research Institute for the Semi-Arid Tropics. (p.181-88) KEYWORDS: technology transfers, databases, appropriate technology, research methodology, models KSUL # S494.5.I5 I57 1983
- 3189           **TECHNOLOGY ADOPTION AMONG LIMITED RESOURCE RICE-FARMERS IN ASIA.** Koppel, B. (1985) Agricultural Administration. (Vol.20 p.201-223) KEYWORDS: Asia, project design, innovation adoption, rice, methodology, technology transfers, risk KSUL # HD1401 .A36
- 3190           **TECHNOLOGY FOR THE SMALL FARMER.** Gee-Clough, D. (1985) IN: Applied Agricultural Research and Development for Small Farms in Asia; Proceedings of the International Seminar Workshop on Applied Agricultural Research and Development for Small Farms, " held at SEARCA, Los Baños, Philippines, May 13-18, 1985. Taipei: Food and Fertilizer Technology Center (FFTC) for the Asian and Pacific Region. (FFTC Book Series no.31, Dec. 1985 p.1-7) KEYWORDS: Asia, technology application, food supply, production costs, yields, food prices KSUL # S494.5.I5 A66 1985

**APPROPRIATE TECHNOLOGY**

- 3191           **AGRICULTURAL RESEARCH NEED TO INCREASE PRODUCTIVE CAPACITY OF SMALL FARMERS.** Aslam, M. (1978) (Presented at CENTO Seminar for Raising Productivity of Small Farmers, Lahore, Pakistan, December 17-21, 1978) Faisalabad, Pakistan: Univ. of Agriculture. 23p. KEYWORDS: Pakistan, food supply, population growth, intensive production, small farmers, agricultural research, salinity, fertilizers, mechanization, irrigation, animal traction, pesticides, climatic factors, socioeconomic analysis, innovation adoption, extension, appropriate technology, national programs and projects FSR VERTICAL FILE # 3191

- 3192           **COMPONENT TECHNOLOGY FOR REGENERATIVE AGRICULTURE.**  
(Presented in Second Annual Symposium on Ecological Agriculture,  
Cornell University, Ithaca, March 16, 1985) Francis, C.  
(1985) Kutztown, Pa.: Rodale Research Center. 9p.  
KEYWORDS: research philosophy, ecology, soil fertility,  
pest control, disease control, tillage systems, cultural  
environment, sustainability, appropriate technology  
FSR VERTICAL FILE # 3192
- 3193           **IMPROVED ANIMAL-DRAWN IMPLEMENTS FOR FARMING IN THE  
SEMI-ARID TROPICS.** Bansal, R.K. (1981) Agricultural Mechaniza-  
tion in Asia, Africa, and Latin America. (Vol.12 No.3 p. 33-38)  
KEYWORDS: semiarid tropics, India, animal traction,  
farm equipment, technology application, Tropicutor,  
cultivation, mechanization, soil preparation,  
appropriate technology       KSUL # S671 .A15
- 3194           **KENYA TOP-BAR HIVE AS A BETTER HIVE IN DEVELOPING  
COUNTRIES.** Berube, C. (1989) American Bee Journal.  
(Aug., p.525-27) KEYWORDS: apiculture, beekeeping, bees,  
bees, appropriate technology, hives, tropics       KSUL # SF521 .A5
- 3195           **METHODOLOGY FOR THE DEVELOPMENT OF AN AGRICULTURAL  
TECHNOLOGY APPROPRIATE FOR SMALL PRODUCERS. EXPERIENCES OF THE  
QUIMIAG-PENIPE PROJECT, ECUADOR.** Kirkby, R. (1980) Ithaca,  
N.Y.: Cornell Univ., Dept. of Plant Breeding and  
Biometrics. 34p. KEYWORDS: Ecuador, appropriate technology,  
interdisciplinary research, rural development, on-farm testing,  
research methodology, farmer participation, planning of  
research, cropping systems, livestock, maize, potatoes, beans,  
cattle, pigs, guinea pigs FSR VERTICAL FILE # 3195
- 3196           **SOME INNOVATIONS DON'T WAIT FOR EXPERTS: A REPORT ON  
APPLIED RESEARCH BY BANGLADESHI PEASANTS.** Brammer, H. (1980)  
Ceres. (Vol.13 no.2 p.24-28) KEYWORDS: Bangladesh,  
cropping systems, multiple cropping intercropping,  
intercropping, farmers' attitudes, varietal improvement,  
farmer-managed trials, farmer testing, alternative technology,  
intensification, innovation adoption, cultivation methods,  
sowing, salinity, irrigation, technology development  
KSUL # S1 .C4
- 3197           **SUSTAINABLE AGROECOLOGICAL TECHNOLOGY: AN EMERGING  
STRATEGY FOR INTERNATIONAL DEVELOPMENT.** (Seminar presentation,  
Univ. of California at Davis, Nov. 17, 1983) Andrews, S.B.  
(1983) Carbondale, Ill.: Southern Illinois University 9p.  
KEYWORDS: sustainable agriculture, appropriate technology,  
development strategies, alternative technology,  
ecology FSR VERTICAL FILE # 3197

3198           **USE OF TRADITIONAL KNOWLEDGE IN DEVELOPMENT AND IMPLICATION OF RESOURCE USE SYSTEMS THAT SUSTAIN TROPICAL FOREST AND WOODLAND RESOURCES.** (Paper prepared for the Office of Technology Assessment for OTA's Assessment of Technologies to Sustain Tropical Forest Resources, Aug. 1982) Gliessman, S.R. (1982) Santa Cruz, Calif.: Univ. of California, Environmental Studies. (OTA Contract No.233-4640.1) 36p. KEYWORDS: Mexico, agroecosystems, indigenous knowledge systems, resource allocation, multidisciplinary research, tropics, forestry, gardens, deforestation, sustainability, alternative technology, international cooperation  
FSR VERTICAL FILE # 3198

**RECOMMENDED TECHNOLOGY**

3199           **CHALLENGES IN REGENERATIVE AGRICULTURE.** (Presented in Agriculture, Society and the Environment, Cornell University, Ithaca, March 14, 1985) Francis, C.A. (1985) s.l.: s.n. 10p. KEYWORDS: sustainable agriculture, technology analysis, research philosophy, research development objectives, pest management, genetic resources, tillage systems, mixed farming, self-sufficiency, soil fertility, recommended technology  
FSR VERTICAL FILE # 3199

**HUMAN ELEMENT: ENDOGENOUS FACTORS (HOUSEHOLD)**

3200           **CHANGES IN HOUSEHOLD ECONOMY IN A RICE VILLAGE IN SOUTHERN LUZON; 1975/76, 1980/81 AND 1981/82.** Kikuchi, M. (1983) Los Baños, Philippines: International Rice Research Institute (IRRI). (IRRI Ag. Econ. Dept. Paper No.83-09; Report No.6 in Phase II of the project "Anatomy of Peasant Economy") 49p. KEYWORDS: Philippines, rural households, economic analysis, rice, surveys, cost benefit analysis  
FSR VERTICAL FILE # 3200

3201           **HOUSEHOLD ECONOMY IN A RICE VILLAGE IN SOUTHERN LUZON, 1980-1982.** Kikuchi, M. (1983) Los Baños, Philippines: International Rice Research Institute (IRRI). (IRRI Ag. Econ. Dept. Paper No.83-06; Report No.3 in Phase II of the project "Anatomy of Peasant Economy") 64p. KEYWORDS: Philippines, rural households, economic analysis, rice, watermelons, surveys, income, expenditures, capital  
FSR VERTICAL FILE # 3201

3202           **IDENTIFICATION AND CHARACTERIZATION OF AGRICULTURAL ENTERPRISES: CONCEPTUAL FRAMEWORK AND OPERATING MODEL, SALTA, ARGENTINA.** Elena, M.A. (1985) Salta, Argentina: M.A. Elena, INTA-EERA, Dept. of Economics. (Spanish version also available) 7p. KEYWORDS: Argentina, production systems, economic evaluation, models, resource allocation, technology analysis, technology transfers, field tests, technological change  
FSR VERTICAL FILE # 3202

- 3203           **LAND TENURE AND RICE PRODUCTION IN FOUR VILLAGES OF DACCA DISTRICT, BANGLADESH.**           Shahid, A.   (1982)   Manila, Philippines:   International Rice Research Institute (IRRI), Dept. of Agricultural Economics. (IRRI Ag. Econ. Dept. Paper 82-25) 13p. KEYWORDS: Bangladesh, IRRI, land tenure, rice, rice production, land reform, income, development, socioeconomic constraints, resource allocation, research objectives, methodology, yields, inputs, improved varieties, seed selection, cropping patterns, credit, share cropping, tenancy FSR VERTICAL FILE # 3203
- 3204           **RECORDS FOR SMALL FARMS IN HONDURAS: A DEVELOPMENT AND CRITIQUE.**   Parks, L.L. (1980) Stillwater, Okla.: Oklahoma State Univ., Dept. of Agricultural Economics. (International Development Series no.80-3, Aug. 1980; AID/ta-CA-1; Project No. 931-1134-02) 83p. KEYWORDS: Latin America, Honduras, farm records, accounting, small farms, analysis KSUL # S564.7 .R43 1980
- 3205           **STRUCTURE OF ASSET HOLDINGS OF HOUSEHOLD IN A RICE VILLAGE IN SOUTHERN LUZON, 1980-82.**   Kikuchi, M. (1983) Los Baños, Philippines:   International Rice Research Institute (IRRI). (IRRI Ag. Econ. Dept. Paper No. 83-07; Report No.4 in Phase II of the project "Anatomy of Peasant Economy") 83p. KEYWORDS: Philippines, rural households, surveys, assets, rice, income, land, capital, economic analysis   FSR VERTICAL FILE # 3205
- 3206           **STUDY OF THE CHANGES IN CROPPING PATTERNS, INCOMES AND EXPENDITURES OF SELECTED FARM FAMILIES IN PANGASINAN.**   Maranan, C.G. (1980) Los Baños, Philippines:   International Rice Research Institute (IRRI). (IRRI Ag. Ec. Dept. Paper No. 80-03) 35p. KEYWORDS: Philippines, IRRI, cropping systems, income, expenditures, share cropping, land tenancy, rice, double cropping, triple cropping, irrigation, inputs, water FSR VERTICAL FILE # 3206
- 3207           **TENANCY, FARMING PRACTICES AND INCOME DIFFERENCES: A STUDY OF RICE FARMERS IN CENTRAL THAILAND.**   Tongpain, S. (1982) Bangkok:   Ministry of Agriculture, Office of Agricultural Economics. (Revised version of this paper in: Agricultural Administration; Vol.16(2) p.99-111, 1984) 33p. KEYWORDS: Thailand, rice production, income, tenancy, land tenure, productivity, economic analysis, land evaluation, markets FSR VERTICAL FILE # 3207
- 3208           **TOLAKI FARMING SYSTEMS IN KECAMATAN WAWOTOBI OF SOUTHEAST SULAWESI.** (Preliminary Results) Levine, J. (1982?) s.l.: Resources Management International, Inc. (SESTADP Occasional Paper No.3) 28p. KEYWORDS: Indonesia, tropics, surveys, baseline data, land tenure, income, socioeconomic analysis, family size, employment, tree crops, food crops, cash crops, subsistence farming, livestock, prices, national programs and projects FSR VERTICAL FILE # 3208

3209 **WOMEN'S ROLE IN CARIBBEAN AGRICULTURE: REPORT OF THE CARIBBEAN AGRICULTURAL EXTENSION PROJECT.** Schmink, M. (1985) s.l.: s.n. 33p. KEYWORDS: Caribbean, women in development, women's roles, resource allocation, inputs, extension, gender analysis, gender, division of labor, training, project design, national programs and projects, baseline data, project implementation, evaluation, recommendations  
FSR VERTICAL FILE # 3209

**GOALS AND RISKS**

3210 **ECONOMIC DIVERSIFICATION AND RISK MANAGEMENT: CONSTRAINTS TO THE ADOPTION OF MODERN RICE TECHNOLOGIES IN THE BESUT AGRICULTURAL DEVELOPMENT PROJECT AREA.** Bailey, C. (1982) Kajian Ekonomi Malaysia (Journal of the Malaysian Economics Association). (Vol.19 no.1 p.1-15) KEYWORDS: Malaysia, rice production, income, off-farm employment, risks, technology transfers, diversification, constraints, innovation adoption, subsistence farming  
FSR VERTICAL FILE # 3210

3211 **FARM SIZE AND PRODUCTIVITY: A CASE STUDY OF NEPALESE TARAI FARMERS.** Hamal, K.B. (1983?) Kathmandu, Nepal: Agricultural Project Services Centre (APROSC). (APROSC Staff Paper No.5) 20p. KEYWORDS: Nepal, case studies, farm size, productivity, analysis, innovation adoption, policy, models, research methodology, cropping patterns, intensification  
FSR VERTICAL FILE # 3211

3212 **IMPACTS OF PRICE AND YIELD VARIATION ON PROFITABILITY OF MANAGEMENT PLANS OF SUBSISTENCE FARMERS IN SRI LANKA.** Abegunawardana, P. (1986) Agricultural Administration. (Vol.22 p.197-204) KEYWORDS: Sri Lanka, socioeconomic conditions, subsistence farming, production constraints, innovation adoption, farmers' attitudes, market development, cash crops, risks, decision making  
KSUL # HD1401 .A36

3213 **PEASANT STRATEGIES TO DEAL WITH RISK.** Morlon, P. (1991) ILEIA Newsletter. (Vol.7 no.1/2 p.7-8) KEYWORDS: Latin America, Peru, Bolivia, peasant farming, yield factors, risk, innovation adoption, farmers' attitudes  
NOT OWNED BY KSUL

3214 **PROBLEMS OF THE SMALL FARMERS.** Khan, A.S. (n.d.) s.l.: s.n. 8p. KEYWORDS: Pakistan, small farmers, surveys, constraints, cropping patterns, subsistence farming, cash crops, land use, inputs, innovation adoption, fertilizer application, credit, cost benefit analysis, income, national programs and projects, policy  
FSR VERTICAL FILE # 3214

- 3215           **RISK AND ITS MANAGEMENT IN TRADITIONAL AND MODERN AGROECONOMIC SYSTEMS.** (Prepared for presentation at the Society of Economic Anthropology Meetings, Univ. of California, Riverside, April 4-5,1987) Norgaard, R.B. (1987) Berkeley, Calif.: R.B. Norgaard, Univ. of California, Dept. of Agricultural and Resource Economics. 23p. KEYWORDS: risks, risk analysis, agricultural history, environmental factors, traditional farming, technological change, institutions, marketing systems, socioeconomic change, social history, stability, trade, infrastructure development  
FSR VERTICAL FILE # 3215
- 3216           **RISK AVERSION, RISK PERCEPTION, AND CREDIT USE: THE CASE OF SMALL PADDY FARMERS IN NEPAL.** Hamal, K.B. (1983) Kathmandu, Nepal: Agricultural Development Council (A/D/C)/Agricultural Projects Services Centre (APROSC). (Research Paper Series, No.21, May, 1983) 23p. KEYWORDS: Nepal, small farmers, farmers' attitudes, risk, risk analysis, credit, technology analysis, policy, models, research methodology FSR VERTICAL FILE # 3216
- 3217           **SOCIO-ECOLOGICAL PARADIGM FOR ANALYSING PROBLEMS OF POOR IN DRY REGIONS.** Gupta, A.K. (1985) Ecodevelopment News (No.32-33 p.68-74) KEYWORDS: India, semiarid zones, small farmers, households, poverty, socioeconomic constraints, class conflict, credit, diversification, ecology, risks, infrastructure development, technology analysis, dry farming, mixed systems, appropriate technology, markets FSR VERTICAL FILE # 3217
- 3218           **STOCHASTIC EFFICIENCY ANALYSIS AND FARMERS' CHOICE OF TECHNOLOGY: A NEPALESE CASE STUDY.** Hamal, K.B. (1982) Kathmandu, Nepal: Nepal Institute of Development Studies. (Research Paper Series-3) 28p. KEYWORDS: Nepal, innovation adoption, agricultural economics, development, farmers' attitudes, yields, crop production, risk, problem identification, development theory, methodology, mathematical models, policy, recommendations, crop insurance FSR VERTICAL FILE # 3218
- ECONOMIC INPUTS**
- 3219           **CONSTRAINTS ON SMALLHOLDER TREE CROPPING IN MALAYSIA.** Crotty, R. (1978) Internationales Asienforum. (Vol.9 no.3/4 p.229-241) KEYWORDS: Malaysia, constraints, small farms, agroforestry, labor supply, infrastructure, inputs, income, rubber, land tenure, capital, land tenancy  
FSR VERTICAL FILE # 3219

3220           **PLANES DE INVERSION PARA GRANOS BASICOS EN HONDURAS: 1980.** (1980) Stillwater, Okla.: Oklahoma State Univ., Dept. of Agricultural Economics. (International Development Series no.80-6, Aug. 1980; AID/ta-CA-1; Project No. 931-1134-02) 362p. KEYWORDS: Latin America, Honduras, enterprise budgets, financial planning, cereals      KSUL # HG2051.H8 P53 1980

3221           **RESOURCES ACCESS AND UTILIZATION.** Illo, J.F. (1988) (Draft from Women and Men in Rainfed Farming Systems. J.F.I. Illo and C.C. Veneracion, eds.) Quezon City, Philippines: Institute of Philippine Culture, Ateneo de Manila Univ. (p. 1-31) KEYWORDS: Philippines, rain-fed farming, households, rice, income, gender analysis, land use, labor, capital, livestock, employment, women's roles  
FSR VERTICAL FILE # 3221

#### LAND

3222           **SOME ASPECTS OF CROP PRODUCTION WITH REFERENCE TO LAND CONSOLIDATION IN IRAN.** Karimizadeh, R. (n.d.)(CENTO Seminar on Increasing Productivity of Small Farmers) s.l.: s.n. Ministry of Agriculture and Rural Development. 5p. KEYWORDS: Iran, small farms, programs and projects, crop production, land use, irrigation systems      FSR VERTICAL FILE # 3222

#### LABOR MANAGEMENT

3223           **LABOR HETEROGENEITY AND RICE PRODUCTION IN MALAYSIA.** Barnum, H.N. (1977) Ann Arbor, Mich.: Univ. of Michigan, Center for Research on Economic Development. (Discussion Paper No.71) 11p. KEYWORDS: Malaysia, rice production, division of labor, gender analysis, labor, production      KSUL # HD9066.M22 B26

3224           **TECHNICAL CHANGE AND LABOR ABSORPTION IN ASIAN AGRICULTURE: SOME EMERGING TRENDS.** Jayasuriya, S.K. (1986) IN: World Development. (Vol.14 no.3 p.415-428) KEYWORDS: Asia, labor, technology, employment, innovation adoption, labor requirements      KSUL # HC4 .W66

3225           **WORK AND PRODUCTION AMONG SHIFTING CULTIVATORS OF BORNEO.** (Draft) Colfer, C.J. (1982) s.l.: s.n. 35p. KEYWORDS: Indonesia, production, women, women in agriculture, rice, shifting cultivation, ethnology, history, time allocation, division of labor, value systems, socioeconomic conditions, production trends, cropping decisions, varieties, yields, gender analysis, technological change, extension, problem identification      FSR VERTICAL FILE # 3225

## ECONOMIC OUTPUT

- 3226           **CONSEQUENCES OF DEFORESTATION FOR WOMEN'S TIME ALLOCATION, AGRICULTURAL PRODUCTION, AND NUTRITION IN HILL AREAS OF NEPAL.** Kamar, S.K. (1988) Washington, D.C.: International Food Policy Research Institute (IFPRI). (Research Report No.69) 72p. KEYWORDS: Nepal, deforestation, environmental degradation, women's roles, income, time allocation, fuelwood, labor allocation, productivity, human resources, traditional farming, food consumption, nutrition, environment, socioeconomic conditions   KSUL # HD6247.A4 N354 1988
- 3227           **NATURE AND IMPACT OF THE GREEN REVOLUTION IN BANGLADESH.** Hossain, M. (1988) Washington, D.C.: International Food Policy Research Institute. (Research Report No.67) 146p. KEYWORDS: Bangladesh, food production, rice production, constraints, food consumption, land, technology transfers, income distribution, innovation adoption, income, rural development, improved varieties, seeds, fertilizers, poverty   KSUL # HD2075.6 .H67 1988

## INCOME

- 3228           **OFF-FARM LABOUR SUPPLY OF PADI FARMERS IN KELANTAN, MALAYSIA.** Chew, T.A. (1984) Canberra, A.C.T.: Australian National Univ., Development Studies Centre. (Working Paper no. 38) 19p. KEYWORDS: Malaysia, labor supply, income, rural households, off-farm employment, small farms   FSR VERTICAL FILE # 3228

## FOOD

- 3229           **ECONOMIC ANALYSIS OF A RESERVE STOCK PROGRAM FOR RICE IN THE PHILIPPINES.** Te, A. (1982) Washington, D.C.: International Food Policy Research Institute (IFPRI). (Working Paper No. 7/Rice Policies in Southeast Asia Project) 33p. KEYWORDS: Philippines, rice, food supply, self-sufficiency, staple crops, stocks, price support, policy, economic analysis, production trends, demand, models   KSUL # HD9066.P62 T4 1982
- 3230           **HOME TECHNOLOGIES IN FOOD PRESERVATION.** (Paper prepared for inclusion in Selected Proceedings of Kansas State University's 1985 Farming Systems Research Symposium, October 13-26, 1985) Thompson, G.S. (1985?) s.l.: s.n. 10p. KEYWORDS: food preservation, cooking, food supply, malnutrition, postharvest systems, food storage, appropriate technology   FSR VERTICAL FILE # 3230

**FARMING SYSTEMS RESEARCH METHODOLOGY**

- 3231        **AGRICULTURAL RESEARCH FOR RESOURCE POOR FARMERS: THE FARMER-FIRST-AND-LAST MODEL.** Chambers, R. (1985) Brighton, England: Univ. of Sussex, Institute of Development Studies) (IDS Discussion Paper No.203) 29p. KEYWORDS: agricultural research, models, technology transfers, sondeos, surveys, research methodology    KSUL # S494.5.I5 C48 1985
- 3232        **AGROECOLOGICAL APPROACH FOR RESEARCHING SUSTAINABLE AGROECOSYSTEMS.** (Paper prepared for the 5th IFOAM International Scientific Conference at the University of Kassel, Witzenhausen, West Germany, August 27-30, 1984) Gliessman, S.R. (1984) Santa Cruz, Calif.: Univ. of California, Environmental Studies, Agroecology Program. 23p. KEYWORDS: Mexico, sustainable agriculture, ecology, agroecosystems, research methodology, field tests, cropping systems, pest management, gardens, weeds, environment, traditional farming  
FSR VERTICAL FILE # 3232
- 3233        **ASSESSING THE IMPACT OF FARMING SYSTEMS RESEARCH: FRAMEWORK AND PROBLEMS.** Anderson, J.R. (1985) IN: Agricultural Administration (Vol.20 p.225-235) KEYWORDS: research methodology, terminology, on-farm research, analysis, agricultural research, objectives, constraints, management  
KSUL # HD1401 .A36
- 3234        **CONDUCTING ON FARM RESEARCH IN FSR - MAKING A GOOD IDEA WORK.** Lightfoot, C. (1984?) s.l.: Cornell University, 20p. KEYWORDS: on-farm research, methodology, problem identification, sondeos, baseline data, planning of research, farmer participation, innovation adoption, solution design  
FSR VERTICAL FILE # 3234
- 3235        **EVALUATING TECHNOLOGY FOR NEW FARMING SYSTEMS: CASE STUDIES FROM PHILIPPINE RICE FARMS.** Barlow, C. (1983) Los Baños, Philippines: International Rice Research Institute (IRRI) 110p. KEYWORDS: Philippines, IRRI, rice, technology analysis, innovation adoption, appropriate technology, cropping systems, multiple cropping, linear programming, economic evaluation    KSUL # S494.5.I5 B374 1983
- 3236        **EXAMINING DIVERGENT STRATEGIES IN FARMING SYSTEMS RESEARCH.** Okali, C. (1986?) s.l.: s.n. Agricultural Administration (Vol.22 p.233-253) 23p. KEYWORDS: humid zones, research centers, ILCA, baseline data, surveys, small ruminants, animal diseases, rinderpest, village level studies, fodder, experimental design, alley farming, mixed farming, technology development    FSR VERTICAL FILE # 3236

- 3237           **EXPLORATORY ANALYSIS OF FARMER PARTICIPATION IN THE FARMING SYSTEMS RESEARCH AND EXTENSION PROCESS.** (Paper prepared for Farming Systems Research Symposium, Kansas State University, Manhattan, Kan., Oct. 13-16, 1985) Sigman, V.A. (1985) Honolulu: University of Hawaii. 26p. KEYWORDS: farming systems, theory, methodology, farmer participation, analysis, data evaluation, data collection, recommendations, programs and projects, sondeos FSR VERTICAL FILE # 3237
- 3238           **FARMING SYSTEMS APPROACH TO SMALL FARMER DEVELOPMENT: OPPORTUNITIES AND CONSTRAINTS.** (Presented at 8th Session of the FAO Regional Commission on Farm Management for Asia and Far East, Soweon City, Republic of Korea, Oct. 4-11, 1983) Jodha, N.S. (1983) Patancheru, India: N.S. Jodha, Sr. Economist, ICRISAT. 32p. KEYWORDS: FSR, recommendation domains, small farmers, constraints, methodology, policy FSR VERTICAL FILE # 3238
- 3239           **FARMING SYSTEMS RESEARCH APPLICATIONS IN THE UNITED STATES.** Voth, D.E. (n.d.) Fayetteville, Ark.: D.E. Voth, Univ. of Arkansas, Dept. of Agricultural Economics and Rural Sociology. 8p. KEYWORDS: US, farming systems theory, history, terminology, applied research FSR VERTICAL FILE# 3239
- 3240           **FARMING SYSTEMS RESEARCH IN BANGLADESH.** (Paper prepared for the Proceedings of the Farming Systems Research Symposium held at Kansas State Univ., Manhattan, Kan., Oct. 7-10, 1984) Ahmad, K.U. (1984) Dhaka, Bangladesh: K.U. Ahmad, Bangladesh Agricultural Research Council. 15p. KEYWORDS: Bangladesh, research objectives, yields, performance testing, alternative technology, constraints, problem identification, multidisciplinary research, natural resources, human resources, capital, small farmers, share cropping, land holdings, crops, cropping systems, rice, jute, wheat, potatoes, pulses, horticulture, nutrition, livestock, fisheries, agroforestry, research institutes FSR VERTICAL FILE# 3240
- 3241           **FARMING SYSTEMS RESEARCH IN THE EASTERN CARIBBEAN: SOME SOCIOLOGICAL ISSUES.** (Paper presented at the Interventions Workshop, Trinidad) Narendran, V. (n.d.) s.l.: s.n. 11p. KEYWORDS: Caribbean, sociology, cropping systems, land tenure, resource allocation, constraints, case studies FSR VERTICAL FILE# 3241
- 3242           **FARMING SYSTEMS RESEARCH: DIAGNOSING THE PROBLEMS.** Collinson, M. (1985 Research-Extension-Farmer: a Two-Way Continuum for Agricultural Development, M. Cernea, J.K. Coulter, & J.F.A. Russel, eds. Washington: World Bank. (Based on an international workshop convened by the World Bank and the United Nations Development Programme in Denpasar, Indonesia in March 1984; p.71-86) 16p. KEYWORDS: methodology, problem identification, systems analysis, technology design, project design, policy KSUL # S542.A8 R47 1985

- 3243           **FARMING SYSTEMS RESEARCH: A PROBLEM-SOLVING METHOD OF FARM MANAGEMENT ANALYSIS.** Bartlett, C. (n.d) s.l.: s.n. 15p. KEYWORDS: farming systems theory, research development objectives, research methodology, solution design, planning of research, research philosophy, analysis, problem identification FSR VERTICAL FILE # 3243
- 3244           **FARMING SYSTEMS RESEARCH: AN APPRECIATION AND A CRITIQUE.** (Paper prepared for presentation at the Annual Meeting of the Rural Sociological Society, San Francisco, Calif., August 1982) Garrett, P. (1982) Ithaca, N.Y.: Cornell Univ., Dept. of Rural Sociology. 24p. KEYWORDS: FSR, sociology, multidisciplinary research, research theory, research methodology, analysis, problem identification, recommendations FSR VERTICAL FILE # 3244
- 3245           **FARMING SYSTEMS RESEARCH: CLARIFICATION OF TERMS AND CONCEPTS.** Merrill-Sands, D. (1986) Experimental Agriculture. (Vol.22 p.87-104) KEYWORDS: farming systems theory, terminology, research philosophy, research methodology, interdisciplinary research KSUL # S3 .E9
- 3246           **HALFWAY THERE: SOCIAL SCIENCE IN AGRICULTURAL DEVELOPMENT AND THE SOCIAL SCIENCE OF AGRICULTURAL DEVELOPMENT.** DeWalt, B.R. (1988) Human Organization. (Vol.47 no.4 p.343-353) KEYWORDS: Mexico, FSR, social science, planning of research, development policy, programs and projects, innovation adoption, appropriate technology KSUL # GN1 .H83
- 3247           **INDONESIAN FARMING SYSTEMS RESEARCH AND DEVELOPMENT.** (Draft) McIntosh, J.L. (1981) Bogor, Indonesia: Agency for Agricultural Research and Development, Cooperative CRIFC/IRRI Program. 70p. KEYWORDS: Indonesia, IRRI, land classification, environmental factors, land use, maps, target selection, surveys, physical features, soil classification, precipitation, irrigation, economic analysis, cash flow, income, labor, market prices, trials, fertilizer, food crops, mixed farming, project design, rain-fed farming, cropping patterns, management, methodology, constraints, technology transfers, technology development FSR VERTICAL FILE # 3247
- 3248           **MULTIDISCIPLINARY APPROACH TO DEVELOPMENT RESEARCH - THE MALAYSIAN EXPERIENCE.** Noor, H. (1980) IN: Proceedings of the Economics of Cropping Systems. Nepal: Los Baños, Laguna, Philippines: Dept. of Agriculture and International Rice Research Institute (IRRI). (p.132-137) KEYWORDS: Malaysia, multidisciplinary research, problem identification, research methodology, cropping systems, planning of research, research centers KSUL # HD1405 .W67 1979

- 3249           **NORTHEAST RAINFED AGRICULTURAL DEVELOPMENT PROJECT IN THAILAND: A WOMEN IN DEVELOPMENT ASSESSMENT.** (Draft) Blanc-Szanton, M.C. (1985) New York: s.n., Columbia Univ. 55p. KEYWORDS: Thailand, AID, rain-fed farming, gender analysis, women, women in development, programs and projects, socioeconomic analysis, project implementation, technology transfers, cropping systems, marketing, water management, communal tenure, aquaculture, poultry, livestock, sericulture, extension, constraints FSR VERTICAL FILE # 3249
- 3250           **OUTLINE OF PROPOSED KSU - UNIVERSITY OF UDAIPUR TITLE XII INTSORMIL COLLABORATIVE FARMING SYSTEMS PROJECT.** Michie, B.H. (1980) Manhattan, Kan.: Kansas State Univ. 5p. KEYWORDS: India, project proposals, project design, INTSORMIL, dry farming, dryland agricultural research, research methodology, budget formulation, women in development, socioeconomic conditions, problem identification FSR VERTICAL FILE # 3250
- 3251           **RELEVANCE OF STRUCTURAL VARIABLES FOR FARMING SYSTEMS RESEARCH.** Garrett, P. (1984) Rural Sociology. (Vol.49 no.4 p.580-589) KEYWORDS: FSR, social structure, models, multidisciplinary research, agronomy, social science, sociology, roles, social organization, production systems, resource allocation, socioeconomic constraints, land tenure KSUL # HT401 .R8
- 3252           **RESEARCH, RECOMMENDATION, AND DIFFUSION DOMAINS: A FARMING SYSTEMS APPROACH TO TARGETING.** (Paper submitted to the 1986 conference on Gender Issues in Farming Systems Research and Extension, Univ. of Florida, Gainesville, Fla., Feb 26, 1986) Wotowiec, P. (1986) Gainesville, Fla.: Univ. of Florida, Agricultural and Extension Education Department 14p. KEYWORDS: farming systems theory, on-farm research, methodology, gender analysis, social analysis, recommendation domains, environmental factors, technology development, target selection FSR VERTICAL FILE # 3252
- 3253           **SOCIO-CULTURAL EFFECTS ON THE FARMING SYSTEMS RESEARCH AND DEVELOPMENT APPROACH.** Wilson, K.K. (1986) Agricultural Systems. (Vol.19 p.83-110), KEYWORDS: social analysis, cultural environment, research development objectives, research philosophy, multidisciplinary research, social analysis, participatory strategies, innovation adoption, recommendations, extension KSUL # S3 .A45

- 3254           **STRATEGY FOR SURVIVAL OF SMALL FARMERS...INTERNATIONAL IMPLICATIONS.** (Proceedings of the 42nd Professional Agricultural Workers Conference, Tuskegee Institute, 1984) Williams, T.T. (1985) Tuskegee, Ala.: Tuskegee Institute, Human Resources Development Center. 312p. KEYWORDS: small farmers, family farms, technology analysis, off-farm employment, cooperatives, policy, markets, marketing systems, socioeconomic conditions, human resources, institutions, case studies, economic development KSUL # HD1476.U5 S87 1985
- 3255           **USING ANTHROPOLOGY IN IMPROVING FOOD PRODUCTION: PROBLEMS AND PROSPECTS.** Rhoades, R.E. (1986) IN: Agricultural Administration. (Vol.22 p.57-78) KEYWORDS: food production, social anthropology, social science, agricultural research KSUL # HD1401 .A36
- 3256           **WORKSHOP ON THE PROBLEMS AND PROSPECTS FOR DEVELOPMENT IN THE YEMEN ARAB REPUBLIC: THE CONTRIBUTION OF THE SOCIAL SCIENCES.** (Agency for International Development, Washington, Oct. 22, 1976) Tutwiler, R.N. (1976) Binghamton, N.Y.: Institute for Development Anthropology. (AID/NE-G-1270) 63p. KEYWORDS: Middle East, Yemen Arab Republic, problem identification, rural development, project design, policy, social science, evaluation FSR VERTICAL FILE # 3256

**SURVEY TECHNIQUES (DESCRIPTIVE AND DIAGNOSTIC METHODS)**

- 3257           **ASSESSING POTENTIALS FOR AGRICULTURAL INNOVATION: MULTIDISCIPLINARY AND REGIONAL PERSPECTIVES.** Garrett, P. (1987) Chapel Hill, N.C.: Univ. of North Carolina, Bush Institute for Child and Family Policy. 42p. KEYWORDS: Ecuador, multidisciplinary research, planning of research, interviewing, sondeos, socioeconomic constraints, research methodology, regional agricultural policy, cropping systems, irrigation, legumes, marketing, social science FSR VERTICAL FILE # 3257
- 3258           **DRAFT TERMS OF REFERENCE FOR THE SOCIO-ECONOMIC STUDY ON FARMING SYSTEMS IN AZAD KASHMIR.** (Pakistan Hill Farming Technical Development Project) Cernea, M. (1979?) s.l.: s.n. 7p. KEYWORDS: Pakistan, small farmers, traditional farming, subsistence farming, income, households, rural development, methodology, data collection, baseline data, socioeconomic analysis, surveys, case studies, planning of research FSR VERTICAL FILE # 3258

- 3259           **EXPLORATORY SURVEY: CONTENT, METHODS AND DETAILED GUIDELINES FOR DISCUSSIONS WITH FARMERS.** Collinson, M.P. (n.d.) Nairobi: CIMMYT Eastern African Economics Program. 15p. KEYWORDS: surveys--short term, interviews, research methodology, farmers' attitudes, interdisciplinary research, food preferences, problem identification FSR VERTICAL FILE # 3259
- 3260           **FIRST SURVEY IN CROPPING SYSTEM RESEARCH SITES.** Mathema, S.B. (n.d.) s.l.: s.n. 6p. KEYWORDS: Asia, Nepal, cropping systems, surveys, data collection, economic analysis FSR VERTICAL FILE # 3260
- 3261           **HOUSEHOLD STUDIES IN PASTORAL SYSTEMS RESEARCH.** Grandin, B.E. (1983) IN: Pastoral Systems Research in Sub-Saharan Africa: Proceedings of the IRDC/ILCA Workshop Held at ILCA, Addis Ababa, Ethiopia March 21-24, 1983. Addis Ababa, Ethiopia: International Livestock Center for Africa (ILCA) p.263-272. KEYWORDS: households, pastoral systems, research methodology, constraints, surveys, data collection, inter-household research KSUL # S542.A4 P3 1983
- 3262           **HOW RAPID RURAL APPRAISAL AND OTHER SOCIO-ECONOMIC DIAGNOSTIC TECHNIQUES FIT INTO THE CYCLIC FSR/E PROCESS.** (Paper prepared for the International Conference on Rapid Rural Appraisal, Khon Kaen Univ., Khon Kaen, Thailand, Sept. 2-5, 1985) Galt, D.L. (1985) Gainesville, Fla.: Univ. of Florida, Farming Systems Support Project (FSSP). 24p. KEYWORDS: Honduras, rapid rural appraisal, sondeos, history, surveys, baseline data, questionnaires, data collection, interdisciplinary research, research methodology, recommendation domains, sociological analysis FSR VERTICAL FILE # 3262
- 3263           **INCORPORATING GENDER INTO DIAGNOSTIC FIELD RESEARCH: STRUCTURAL INTERVIEWING IN ECUADOR.** Garrett, P. (1987) Chapel Hill, N.C.: Univ. of North Carolina, Bush Institute for Child and Family Policy. 14p. KEYWORDS: Ecuador, gender, gender analysis, socioeconomic systems, division of labor, socioeconomic change, interviewing, research methodology, development projects, policy FSR VERTICAL FILE # 3263
- 3264           **JUEGO DE REGISTRO: USING A REGISTRATION GAME IN AN FSR PROJECT IN COLOMBIA.** (Draft based on transcript of interview with J. Jiggins, Nov. 24, 1987) Leesberg, J. (1988) s.l.: s.n. 16p. KEYWORDS: Colombia, socioeconomic conditions, research methodology, problem identification, surveys, data collection, communication, registration games FSR VERTICAL FILE # 3264

- 3265        **PROSPECTS FOR AGROFORESTRY RESEARCH IN INDIA'S SEMI-ARID TROPICS AND AT ICRISAT.** (Consultancy Report, Economics Group, Resource Management Program, ICRISAT) Michie, B.H. (1986) Manhattan, Kan.: Kansas State Univ., Dept. of Sociology, Anthropology and Social Work. 17p. KEYWORDS: India, ICRISAT, semiarid tropics, implementation of research, alley farming, agroforestry, information exchange, diffusion of information, planning of research, problem identification, innovation adoption, rain-fed farming, water management, technology transfers, Leucaena, Prosopis cineraria, appropriate technology FSR VERTICAL FILE # 3265
- 3266        **PUTTING FARMING SYSTEMS RESEARCH DATA COLLECTION IN PERSPECTIVE: PRACTICALITIES AND REALITIES.** (Prepared for Farming Systems Research Symposium, Kansas State University, Manhattan, Kan., Oct. 31-Nov. 2, 1983) Butler, L.M. [1983] Pullman, Wash.: Washington State Univ., Dept. of Rural Sociology. 31p. KEYWORDS: data collection, surveys, on-farm trials, baseline data FSR VERTICAL FILE # 3266
- 3267        **QUANTIFYING CAUSES OF LOW RICE YIELDS IN FARM ENVIRONMENTS.** (Paper presented at the Eastern India Rice Constraints Workshop, Calcutta, November, 9-10, 1982) Flinn, J.C. (1982) Los Baños, Laguna, Philippines: International Rice Research Institute (IRRI). (Ag. Economics Dept. Paper 82-23) 25p. KEYWORDS: India, IRRI, yields, rice, rice production, constraints, yield factors, target selection, research methodology, economic evaluation, innovation adoption, agricultural economics, recommendation domains, experimental design, testing FSR VERTICAL FILE # 3267
- 3268        **REGULAR RESEARCH FIELD HEARING (RRFH): A DISCUSSION OF THE CONTRIBUTION OF FARMERS' OPINIONS TO FARMING SYSTEMS RESEARCH.** Suradisastra, K. (1984) Bogor, Indonesia: Small Ruminant CRSP, Research Institute for Animal Production. (Working Paper no.38, Sept. 1984) 18p. KEYWORDS: research methodology, farmer participation, small ruminants, mixed systems, problem identification, traditional farming, participatory strategies, trials, statistical analysis, programs and projects FSR VERTICAL FILE # 3268
- 3269        **SOCIO-ECONOMIC RESEARCH ON CROPPING SYSTEMS PROGRAM IN NEPAL.** Mathema, S.B. (n.d.) Kathmandu, Nepal: Dept. of Agriculture, Cropping Systems Program. 12p. KEYWORDS: Nepal, cropping systems, socioeconomic conditions, surveys, research methodology, goals, research development objectives FSR VERTICAL FILE # 3269

- 3270           **SOCIO-ECONOMIC STUDY OF FARMING SYSTEMS IN AZAD JAMMU AND KASHMIR.** Khan, M.J. (1982) Lahore, Pakistan: Punjab Economic Research Institute. (Occasional Study, Publication No.197, March 1982) 180p. KEYWORDS: Pakistan, Punjab, socioeconomic analysis, village level studies, households, physical features, socioeconomic structure, land use, income, trade, project design, methodology, irrigation, labor, land holdings, cropping patterns, cultivation, animal husbandry, fruits, vegetables, forestry, conservation, development strategies, surveys   KSUL # HD2075.5.Z9 A924 1982
- 3271           **SPECIAL REPORT: A HOLISTIC APPROACH TO RURAL DEVELOPMENT.** Finck, J. (1986) Ford Foundation Letter. (Vol.17 no.5 p.2-3) KEYWORDS: Thailand, rural development, poverty, multidisciplinary research, FSR, farmers' attitudes, dry farming, groundnuts, rapid rural appraisal, farmer participation, data collection   FSR VERTICAL FILE # 3271
- 3272           **SURVEY RESEARCH IN SUPPORT OF CROPPING SYSTEM IMPROVEMENT.** Bernsten, R.H. (n.d.) s.l.: s.n. 7p. KEYWORDS: cropping systems, surveys, data collection   FSR VERTICAL FILE # 3272
- 3273           **TIPIFICACION DE SISTEMAS DE PRODUCCION AGRICOLA.** Escobar, G. (1990) Santiago, Chile: Red Internacional de Metodología de Investigación de Sistemas de Producción (RIMISP). 284p. KEYWORDS: Latin America, Chile, Brazil, Ecuador, Colombia, Guatemala, Caribbean, agricultural production, data collection, agricultural economics, small farms, recommendation domains, development agencies, methodology, classification, surveys   KSUL# S494.5.S95 T57 1990
- 3274           **TRAINING RESOURCE BOOK FOR AGRO-ECOSYSTEM MAPPING.** (Process Documentation of an Experiential Learning Exercise in Agro-Ecosystem Mapping held at Rajendra Agricultural University, Pusa, Samastipur, Bihar, India, March 7-10, 1989) Lightfoot, C. (1989) Los Baños, Philippines: International Rice Research Institute (IRRI) and Ford Foundation, India. 55p. KEYWORDS: India, IRRI, agroecosystems, mapping, training, case studies, surveys, problem identification, data collection, methodology, target selection   KSUL # S589.7 .T73 1989
- 3275           **USE OF RRA IN CROSS-SECTIONAL AND LONGITUDINAL STUDIES.** (Paper presented at the International Conference on Rural Appraisal sponsored by Khon Kaen Univ. and the Ford Foundation, Khon Kaen, Thailand, Sep. 2-5, 1985) Thomas, D.E. (1985) Berkeley, Calif. Univ. of California, Dept. of Forestry and Resource Management (USAID Doc. No. PN-AAU-085) 9p. KEYWORDS: rapid rural appraisal, data collection, surveys, research methodology, longitudinal studies   FSR VERTICAL FILE # 3275

3276 **USING LOCAL PERCEPTIONS IN TARGET GROUPING FOR FARMING SYSTEMS RESEARCH.** (Paper presented at the Workshop on the Role of Rural Sociology in Farming Systems Research, Lusaka, Zambia, Nov. 27-30, 1984) Kabagambe, J.C.K. (1984) s.l.: Univ. of Swaziland, Dept. of Sociology. 14p. KEYWORDS: target selection, rural sociology, perceptions, research methodology, farmers' attitudes, surveys FSR VERTICAL FILE # 3276

3277 **COMMUNICATION ALTERNATIVES FOR FARMING SYSTEMS: A MULTI-PHASE PLANNING MODEL.** (Project Self-Study Guide) Norem, R.H. (1987) s.l.: s.n. 6p. KEYWORDS: research, surveys, planning of research, communication, linkages, training, evaluation, research objectives FSR VERTICAL FILE # 3277

**DESIGN OF IMPROVED TECHNOLOGY**

3278 **CONTRIBUTIONS OF RURAL SOCIOLOGY TO TECHNOLOGY GENERATION IN THE CONTEXT OF FARMING SYSTEMS RESEARCH.** (Prepared for the ARPT/CIMMYT Workshop on the role of rural sociology in farming systems research and technology generation and adoption Ridgeway Hotel, Lusaka, Zambia, Nov. 27-29, 1984.) Opio-Odongo, J.M.A. (1984) Kampala, Uganda: Makerere Univ., Dept. of Agricultural Economics. 20p. KEYWORDS: rural sociology, technology development, appropriate technology, research philosophy FSR VERTICAL FILE # 3278

3279 **CROP YIELD DEVELOPMENT IN PAKISTAN: SOME CONCEPTUAL AND OPERATIONAL CONSIDERATIONS.** Amir, P. (1985) Morrilton, Ark.: Winrock International Institute for Agricultural Development Development. 15p. KEYWORDS: Pakistan, yields, optimization, methodology, wheat, rice, maize, cotton, project design, village level studies, problem identification, multidisciplinary research, economic analysis, recommendations, appropriate technology FSR VERTICAL FILE # 3279

3280 **CROPPING SYSTEMS RESEARCH FOR AGROTECHNOLOGY DEVELOPMENT AND TRANSFER.** McIntosh, J.L. (1983) IN: Agrotechnology Transfer in Indonesia and the Philippines, B.G. Caguan, ed. Honolulu: Univ. of Hawaii, College of Tropical Agriculture and Human Resources, Dept. of Agronomy and Soil Science, Benchmark Soils Project. (p.105-13, HITAGR Research Extension Series 027 Aug.1983) 9p. KEYWORDS: Indonesia, tropics, cropping systems, technology design, technology transfers, testing, appropriate technology KSUL # S494.5.I5 A33 1983

- 3281        **DEVELOPING NOTIONAL TECHNOLOGIES IN A FARMING SYSTEMS RESEARCH CONTEXT.** Chapman, J.A. (1985) Washington, D.C.: Chemonics International Consulting Division. (Chemonics International Publications Series) 34p. KEYWORDS: Philippines, IRRI, FSR, technology design, cropping systems, rice, ratooning, labor, solution design, risks, problem identification, appropriate technology, multidisciplinary research, methodology, technology development FSR VERTICAL FILE # 3281
- 3282        **FARMER FIELD PREPARATION AND TILLAGE PRACTICES: IMPLICATIONS FOR FERTILIZER TECHNOLOGY.** Ashby, J.A. (1982) Soil and Tillage Research. (Vol. 2 no.4 p.331-346) KEYWORDS: Colombia, small farms, decision making, cassava, fertilizer, technology analysis, land preparation, tillage, models, constraints, innovation adoption, research methodology, farmers' attitudes KSUL # S590 .S48
- 3283        **LIVESTOCK COMPONENT FARMING SYSTEMS RESEARCH IN JAVA -- THE CASE FOR WORK WITH WOMEN.** Petheram, R.J. (1986) Agricultural Administration. (Vol.21 p.119-127) KEYWORDS: Indonesia, Java, livestock systems, extension, management, women, farmer groups, research methodology, farmer participation, surveys, program implementation, problem identification, recommendations, diffusion of information, women in development KSUL # HD1401.A36
- 3284        **ON DEVELOPING UPLAND RICE-BASED TECHNOLOGIES IN SHIFTING CULTIVATION SYSTEM OF SIERRA MADRE, PHILIPPINES.** (Paper prepared for Symposium on Farming Systems Research and Extension: Implementation and Monitoring, Kansas State Univ., Manhattan, Kan., Oct. 7-10, 1984) Roxas, N.M. (1984) Manila: International Rice Research Institute (IRRI) 31p. KEYWORDS: Philippines, alternative technology, upland rice, rice, shifting cultivation, on-farm testing, cropping patterns, analysis, watersheds, deforestation, income, models, sustainability FSR VERTICAL FILE # 3284
- 3285        **REGIONAL ANALYSIS, FARMING SYSTEMS, AND SOCIAL SCIENCE: BEAN/COWPEA CRSP EXPERIENCES IN MANABI, ECUADOR.** Uquillas, J. (1987) Ithaca, N.Y.: Cornell Univ., International Agriculture Program. 30p. KEYWORDS: Ecuador, social science, socioeconomic analysis, research methodology, multidisciplinary research, beans, cowpeas, project design, appropriate technology, data analysis, food distribution, food marketing, seeds, postharvest systems FSR VERTICAL FILE # 3285

- 3286        **RESEARCH AND VALIDATION IN AGRICULTURAL PRODUCTION SYSTEMS FOR HIGH ALTITUDE PEASANT COMMUNITIES.** Coronado, L. (n.d., s.l.: s.n.) 15p. KEYWORDS: Peru, national programs and projects, peasant farming, highlands, objectives, FSR, technology transfers, potatoes, maize, barley, beans, cattle, sheep, pigs, pastoral systems, research methodology, farmer participation, geography, demographics, village level studies  
FSR VERTICAL FILE # 3286
- 3287        **REVERSE TRANSFER: ADAPTING AGRICULTURAL RESEARCH TO SMALL HOLDER CONDITIONS - THE CASE OF CASSAVA CULTIVATION IN THE DOMINICAN REPUBLIC.** (Paper presented at the Caribbean Studies Association Conference on Strategies for Progress in the Post Independence Caribbean, St. Kitts, May 30-June 2, 1984) Box, L. (1984) Wageningen, The Netherlands: Wageningen Agricultural University. 22p. KEYWORDS: Dominican Republic, technology development, technology transfers, indigenous knowledge systems, cassava, cropping systems, research methodology, development agencies, appropriate technology  
FSR VERTICAL FILE # 3287
- 3288        **SOCIAL STRATIFICATION AND MULTIPLE ENTERPRISES: SOME IMPLICATIONS FOR FARMING SYSTEMS RESEARCH.** Garrett, P. (1986) Journal of Rural Studies. (Vol.2 no.3 p.209-220) KEYWORDS: sociological analysis, research methodology, research development objectives, socioeconomic constraints, social stratification, households, small farmers, inputs, commodities, appropriate technology, recommendations  
KSUL # HT401. J68
- 3289        **SORGHUM ADOPTION FOR SMALLHOLDER SELF-SUFFICIENCY IN THE DOMINICAN REPUBLIC.** Marcotte, P. (1985) Lexington, Ky.: Univ. of Kentucky, College of Agriculture, Dept. of Sociology & International Sorghum/Millet (INTSORMIL) 93p. KEYWORDS: Dominican Republic, INTSORMIL, development agencies, socioeconomic conditions, socioeconomic analysis, history, research methodology, on-farm research, sorghum, cropping systems, food supply, feed supply, food preferences, diffusion of information  
KSUL # S477.D6 M3 1985
- 3290        **TECHNOLOGICAL INNOVATIONS AND IMPACT OF CROPPING SYSTEMS RESEARCH IN DIFFERENT SITES IN INDONESIA.** (Paper presented at the Farming Systems Research Symposium, Kansas State Univ., Manhattan, Kan., Oct 7-10, 1984) Partohardjono, S. (1984) Bogor, Indonesia: Research Institute for Food Crops. 20p. KEYWORDS: Indonesia, on-farm research, technology analysis, cropping systems, sustainable agriculture, policy, research methodology, recommendations, labor, inputs, innovation adoption  
FSR VERTICAL FILE # 3290

3291           **WHEAT IN THE COTTON-WHEAT FARMING SYSTEMS OF THE PUNJAB: IMPLICATIONS FOR RESEARCH AND EXTENSION.** Akhtar, M.R. (1986) Faisalabad, Pakistan: Ayub Agricultural Research Institute, Agricultural Economics Research Unit (PARC). (PARC/CIMMYT Paper No.86/8) 76p. KEYWORDS: Pakistan, Punjab, CIMMYT, wheat, cotton, crop rotations, cropping systems, methodology, data analysis, cost benefit analysis, surveys, environment, socioeconomic conditions, inputs, outputs, technology, yields, income, problem identification, on-farm testing, recommendation domains, extension FSR VERTICAL FILE # 3291

### **TESTING**

3292           **ANTHROPOLOGY AND ON-FARM RESEARCH.** Tripp, R. (1984) (Paper presented in absentia for the ARPT/CIMMYT Workshop on the Role of Rural Sociology and Anthropology in Farming Systems Research, Lusaka, Zambia, Nov. 27-29, 1984) Human organization, (Vol. 44 no.2 p. 114-124) KEYWORDS: Ecuador, methodology, on-farm research, terminology, anthropology, socio-economic systems, surveys, sondeos, rapid rural appraisal, technology development, experimental design FSR VERTICAL FILE # 3292

3293           **DESARROLLO DE ALTERNATIVAS PARA SISTEMAS DE PRODUCCION DE AGRICULTORES CON RECURSOS LIMITADOS: UNA METODOLOGIA USADA EN DOS AREAS DE PANAMA.** Bejarano, W. (1984?) David, Panamá: Centro Agronómico Tropical de Investigación y Enseñanza (CATIE). 73p. KEYWORDS: Panama, cropping systems, on-farm research, planning of research, rice, maize, sorghum, research methodology, production systems, experimental design, pest control, fertilizers, farmer participation, alternative technology FSR VERTICAL FILE # 3293

3294           **EFFECTS OF DIFFERENT TYPES OF FARMER PARTICIPATION ON THE MANAGEMENT OF ON-FARM TRIALS.** Ashby, J.A. (1987) Agricultural Administration and Extension. (Vol.25 no.4 p.235-252) KEYWORDS: farmer-managed trials, farmer participation, farmers' attitudes, research objectives, research methodology, recommended technology, evaluation, management, decision making, risk, on-farm trials KSUL # HD1401 .A36

3295           **EVALUATION OF NEW TECHNOLOGY ON FARMS: METHODOLOGY AND SOME RESULTS FROM TWO CROP PROGRAMMES AT CIAT.** Sanders, J.H. (1982) Agricultural Systems. (Vol.9 p.97-112) KEYWORDS: technology transfers, technology analysis, on-farm testing, research methodology KSUL # S3 .A45

- 3296           **GUIA METODOLOGICA PARA CONDUCCION DE ENSAYOS DE FINCA.**  
Honduras. Secretaria de Recursos Naturales. (1979) Comayagua,  
Honduras: Secretaria de Recursos Naturales, Programa Nacional  
de Investigación Agropecuaria, Unidad Central. 26p. **KEYWORDS:**  
testing, on-farm research, guides, research methodology,  
surveys, data collection, sondeos       FSR VERTICAL FILE # 3296
- 3297           **METHODOLOGY FOR THE PARTICIPATION OF SMALL FARMERS IN THE  
DESIGN OF ON-FARM TRIALS.** Ashby, J.A. (1986) Agricultural  
Administration (Vol.22 p.1-19) **KEYWORDS:** on-farm trials, farmer  
participation, research design   KSUL # HD1401 .A36
- 3298           **ON-FARM AGRONOMIC TRIALS IN FARMING SYSTEMS RESEARCH AND  
EXTENSION.** Hildebrand, P.E. (1985) Boulder, Colo.: Lynne  
Rienner Publishers, Inc. (USAID Doc. No. PN-AAT-642) 162p.  
**KEYWORDS:** on-farm trials, agronomy, extension, technology  
development, farmer-managed trials, farmer participation,  
databases, statistical analysis, planning of research  
KSUL # S540.053 H55 1985
- 3299           **ON-FARM PERFORMANCE OF SMALL RUMINANT TECHNOLOGIES IN WEST  
JAVA: IMPLICATIONS FOR TECHNOLOGY TRANSFER AND DESIGN.** Amir,  
P. (1986) Morrilton, Ark.: Winrock International. (SR-CRSP  
Working Paper No.69) 24p. **KEYWORDS:** Indonesia, SR-CRSP,  
livestock nutrition, livestock health, ruminants, technology  
transfers, socioeconomic conditions, appropriate technology,  
sheep, goats, extension, risks, farmer participation, small  
farmers, pilot projects, surveys, farmers' attitudes, cost  
benefit analysis, on-farm research       FSR VERTICAL FILE # 3299
- 3300           **ROLE OF ON-FARM TRIALS IN THE EVALUATION OF ALLEY FARMING.**  
(Paper prepared for International Workshop on Alley Farming for  
Humid and Subhumid Regions of Tropical Africa, International  
Institute of Tropical Agriculture, Ibadan, Nigeria, March 1986)  
Attah-Krah, A.N. (1986) Ibadan, Nigeria: Humid Zone  
Programme, International Livestock Centre for Africa.  
21p. **KEYWORDS:** Africa, Nigeria, humid zones, alley farming,  
on-farm research, evaluation, farmer participation,  
farmer-managed trials       FSR VERTICAL FILE # 3300
- 3301           **SOCIOLOGICAL AND ANTHROPOLOGICAL ASPECTS IN PREPRODUCTION  
TESTING AND PRODUCTION PROGRAMMES INVOLVING UPLAND RICE.** (Paper  
presented at IRRI Upland Rice Conference, Djakarta, Indonesia,  
Mar., 1985) Jiggins, J.; Fresco, L. (1984) Andelst, Netherlands:  
s.n. 14p. **KEYWORDS:** IRRI, rice, rice production,  
sociological analysis, testing, anthropology, technology  
transfers, women's roles       FSR VERTICAL FILE # 3301

3302           **TESTING THE EXPECTED VALUE-VARIANCE CRITERION IN A  
SUBSISTENCE AGRICULTURAL SITUATION.** Tew, B.V. (1988?)  
Lexington, Ky.: Univ. of Kentucky, Dept. of Agricultural  
Economics. 23p. KEYWORDS: agricultural economics, quadratic  
programming, risk analysis, subsistence agriculture, testing  
FSR VERTICAL FILE # 3302

3303           **MULTIPLE CROPPING TRIALS AND DEVELOPMENT ON THE FARMERS'  
FIELD IN INDONESIA.** (Paper presented at the Workshop for the  
South and Southeast Asia Cropping Systems Network, IRRI, Los  
Baños, Philippines, March 18-20, 1975) Thahir, S.M. (1975)  
Jakarta, Indonesia: Directorate General of Agriculture  
Food Crops, Directorate of Food Crops Protection, Multiple  
Cropping Trial Project. 18p. KEYWORDS: Indonesia, multiple  
cropping, rice production, national programs and projects,  
objectives, economic development, land distribution, land use,  
on-farm trials, yields, intensification, methodology, results  
FSR VERTICAL FILE # 3303

**FSR METHODOLOGY EXTENSION AND TRANSFER**

3304           **APPROPRIATE AGRICULTURAL RESEARCH AND DEVELOPMENT SYSTEMS  
FOR COMPLEX ENVIRONMENTS -- THE CASE OF CARICOM.** Ferguson,  
D.S. (1983) Washington, D.C.: U.S. Dept. of Agriculture  
(USDA), Office of International Cooperation and Development.  
43p. KEYWORDS: Caribbean, USAID, CARICOM, CARDI, technology  
development, technology transfers, on-farm testing,  
development agencies, recommendation domains, recommendations,  
research development objectives, problem identification  
FSR VERTICAL FILE # 3304

3305           **COMMUNICATIONS AS ADAPTIVE AGRICULTURAL TECHNOLOGY IN  
FSR/E (OR RESEARCH AND EXTENSION AS BAD HABITS).** (Draft of  
discussion paper prepared for Workshop on Communication:  
Management and Methodology, FSR/E Symposium, Kansas State Univ.,  
Manhattan, Kan., October 13, 1985) Bemis, J.H. (1985)  
s.l.: s.n. 14p. KEYWORDS: multidisciplinary research,  
agricultural technology, farmer participation, technology  
transfers, research methodology, communication, information  
exchange, research philosophy, models, networks, extension,  
training, databases FSR Vertical FILE # 3305

- 3306           **CONDUCTING ON-FARM RESEARCH BY EXTENSIONISTS: AN APPROACH TO EFFECTIVE TRANSFER OF TECHNOLOGY.** (Paper presented at the Farming Systems Research Symposium, Kansas State Univ., Manhattan, Kan., October 7-10, 1984) Poey, F. (1984) Coral Gables, Fla.: Agricultural Development Consultants, Inc. (AGRIDEC). 7p. KEYWORDS: Paraguay, FSR, technology development, technology transfers, extension, on-farm research, case studies, research methodology, problem identification, sondeos FSR VERTICAL FILE # 3306
- 3307           **CONSTRAINTS TO THE TRANSFER OF AUSTRALIAN FARMING SYSTEMS RESEARCH TO THE THIRD WORLD.** Petheram, R.J. (1985) IN: Agricultural Systems Research for Developing Countries: Proceedings of a Workshop Held at Hawkesbury Agricultural College, Richmond, N.S.W., Australia, 12-15 May 1985, J.V. Remenyi, ed. Canberra, A.C.T.: Australian Centre for International Agricultural Research. (ACIAR Proceedings No.11; p.156-162) KEYWORDS: farming systems theory, research philosophy, institutionalization, technology transfers, constraints, problem identification, recommendations KSUL # S542.3 .A38 1985
- 3308           **IMPLEMENTING A FARMING SYSTEMS RESEARCH PROGRAM: A CASE STUDY IN HAITI.** Dupont, E. (1984) Port-au-Prince, Haiti: E. Dupont, Ministère de l'Agriculture des Ressources Naturelles at du Développement Rural, Faculte d'Agronomie et de Medicine Vétérinaire/Centre de Recherche et de Documentation Agricole (MARNDR, FAMV/CRDA). 45p. KEYWORDS: Haiti, national programs and projects, rapid rural appraisal, multidisciplinary research, farmer surveys, research methodology, constraints, socioeconomic conditions, innovation adoption, appropriate technology, target selection, land tenure, land use, social stratification, resource allocation, households, demography, data collection FSR VERTICAL FILE # 3308
- 3309           **INTRODUCTION TO CROPPING SYSTEMS RESEARCH METHODOLOGY.** Van Der Veen, M.G. (n.d.) s.l.: s.n. (Farming Systems Socio-economic Research training module, IRRI) 7p. KEYWORDS: IRRI, cropping systems, research methodology, education, training FSR VERTICAL FILE # 3309
- 3310           **ON FARM RESEARCH, TECHNOLOGY GENERATION AND NECESSARY LINKS WITH PLANNING, SERVICES AND POLICY.** IN: Farming Systems Newsletter. (1985) Nairobi, Kenya: CIMMYT Eastern Africa Economics Programme, International Maize and Wheat Improvement Center. (no.23 p.7-13, Oct.-Dec. 1985) 7p. KEYWORDS: Africa, CIMMYT, on-farm research, farmer participation, research methodology, recommended technology, development, development strategies, development administration, national programs and projects, policy, target selection FSR VERTICAL FILE # 3310

3311 **ROLE OF THE INFORMATION SPECIALIST IN THE DISSEMINATION OF AGRICULTURAL INFORMATION.** Sattar, A. (1984) Urbana, Ill.: International Programs for Agricultural Knowledge Systems (INTERPAKS), Office of International Agriculture, Univ. of Illinois at Urbana-Champaign. (INTERPAKS Series no.2; revised; Oct. 1984) 11p. KEYWORDS: agricultural information, information specialists, information exchange, documentation, librarianship FSR VERTICAL FILE # 3311

3312 **SHIFTING TOWARDS A MORE COMPREHENSIVE FARMING SYSTEMS APPROACH IN BANGLADESH.** (Paper presented at the FSR/E Management and Methodology Symposium, Manhattan, Kan., Oct. 13-16, 1985) Abedin, M.Z. (1985) Gazipur, Bangladesh: Bangladesh Agricultural Research Institute (BARI), On-Farm Research Division. 28p. KEYWORDS: Bangladesh, cropping systems, national programs and projects, rice, integrated systems, field tests, methodology, livestock, fisheries, agroforestry, training FSR VERTICAL FILE # 3312

#### SYSTEMS ANALYSIS

3313 **TEMPORAL LAND RESOURCE CONCERNS AND FARMING SYSTEMS RESEARCH: CHIANG MAI VALLEY, NORTHERN THAILAND.** Johnson, S.H. (1984) Land Economics. (Vol.60 no.2 p.202-210) KEYWORDS: Thailand, sustainability, environment, methodology, risk, resource conservation, objectives, socioeconomic analysis, systems analysis KSUL # HB1 .J65

3314 **ADAPTIVE FARMER: SOCIOLOGICAL CONTRIBUTIONS TO ADAPTIVE AGRICULTURAL RESEARCH ON CASSAVA AND RICE CULTIVATION IN THE DOMINICAN REPUBLIC.** Box, L. (1985) Wageningen, The Netherlands: Wageningen Agricultural Univ. 60p. KEYWORDS: Dominican Republic, cassava, rice, research objectives, research methodology, project design, innovation adoption, women's roles, cropping systems, constraints, extension, threshing, appropriate technology FSR VERTICAL FILE # 3314

3315 **ANALISIS DINAMICO DE PEQUEÑAS FINCAS EN CUATRO REGIONES DEL PERU: ASPECTOS METODOLOGICOS.** Quijandría, B. (1990) Santiago, Chile: Red Internacional de Metodología de Investigación de Sistemas de Producción (RIMISP). (RIMISP Materiales Docentes No.1) 82p. KEYWORDS: Latin America, Peru, small farms, research methodology, analysis, data collection FSR VERTICAL FILE # 3315

3316 **ECONOMIC ANALYSIS OF ON-FARM LIVESTOCK TRIALS.** Amir, P. (1985) Morrilton, Ark.: Winrock International. (Small Ruminant CRSP Working Paper No. 63) 26p. KEYWORDS: Asia, mixed systems, livestock, on-farm trials, technology transfers, economic analysis, productivity, livestock health, agricultural economics FSR VERTICAL FILE # 3316

- 3317           **FARMING SYSTEMS RESEARCH: HITTING A MOVING TARGET.**  
 Maxwell, S. (1986) World Development. (Vol.14 no.1 p.65-77)  
 KEYWORDS: FSR, methodology, systems analysis, problem  
 identification, socioeconomic constraints, change,  
 recommendations           KSUL # HC4 .W66
- 3318           **IDENTIFICATION OF FARMERS' PRODUCTION PROBLEMS IN  
 INDONESIA.** Effendi, S. (1985) Research-Extension-Farmer;  
 for Agricultural Development, M.M. Cernea, ed. Washington,  
 D.C.: World Bank. 12p. KEYWORDS: Indonesia, production,  
 problem identification, research methodology, farming systems  
 theory, multidisciplinary research, extension, cropping  
 systems, rice, diffusion of information, resources,  
 intensive farming   KSUL # S54.A8 R47 1985
- 3319           **IMPACT OF AN AGROFORESTRY PROJECT ON UPLAND FARMING IN SAN  
 FRANCISCO, CEBU, PHILIPPINES.** Leones, J.P. (1987) Ithaca,  
 N.Y.: Cornell Univ., Dept. of Agricultural Economics. (Cornell  
 International Agriculture Mimeograph 116) 65p. KEYWORDS:  
 Philippines, traditional farming, programs and projects,  
 agroforestry, improved varieties, maize, fertilizer, natural  
 resources, crops, livestock, farmers' associations, evaluation,  
 communication, soil conservation, planning of research  
 FSR VERTICAL FILE # 3319
- 3320           **PARTICIPATORY METHODS FOR IDENTIFYING, ANALYZING, AND  
 SOLVING SYSTEMS PROBLEMS.** (Paper presented at Farming Systems  
 Research Symposium, Univ. of Arkansas, Fayetteville, Ark., Oct.  
 18-23, 1987) Lightfoot, C. (1987) Ithaca, N.Y.: International  
 Agriculture Programs, Cornell University 22p.  
 KEYWORDS: Philippines, Eastern Visayas, systems analysis,  
 participatory strategies, problem identification, weed control,  
 Imperata, grasses, on-farm research, soil fertility  
 FSR VERTICAL FILE # 3320
- 3321           **PHASES OF FARMING SYSTEMS RESEARCH: THE RELEVANCE OF  
 GENDER IN ECUADORIAN SITES.** (Paper prepared for presentation at  
 the Conference on Gender Issues in Farming Systems Research and  
 Extension, Univ. of Florida, Gainesville, Fla., Feb. 27, 1986)  
 Garrett, P. (1986) Ithaca, N.Y.: Cornell Univ.,  
 Dept. of Rural Sociology. (Bean/Cowpea CRSP Working Paper  
 86.2E, Feb. 1986) 13p. KEYWORDS: Ecuador, food supply,  
 self-sufficiency, research institutes, national programs and  
 projects, planning of research, regional planning, gender,  
 roles, gender analysis, division of labor, research methodology,  
 interviewing, recommendation domains, technology analysis,  
 technology transfers, women in agriculture   FSR VERTICAL  
 FILE # 3321

- 3322           **SYSTEMS ANALYSIS FOR SMALLHOLDER DEVELOPMENT.**  
(International Course on Rural Extension) Van Muilwijk, T.  
(1980?) s.l.: International Agricultural Center. (Background  
Doc. 28 ICRE 80) 25p. KEYWORDS: small farms, family farms,  
socioeconomic analysis, power structure, development theory,  
systems analysis, research theory, food production, land use,  
cropping systems, pastoral systems, labor, appropriate  
technology, cash crops       FSR VERTICAL FILE # 3322
- 3323           **TOWARDS A FRAMEWORK FOR PASTORAL SYSTEMS RESEARCH.** de Haan,  
C. (1983) IN: Pastoral Systems Research in Sub-Saharan Africa:  
proceedings of the IDRC/ILCA Workshop, held at ILCA, Addis  
Ababa, Ethiopia, March 21-24, 1983. Addis Ababa, Ethiopia:  
International Livestock Center for Africa (ILCA) p. 25-42 18p.  
KEYWORDS: Africa, arid regions, semiarid zones, livestock  
systems, pastoral systems, research methodology, ILCA,  
socioeconomic systems, mixed farming, programs and projects  
KSUL # S542.A4 P3 1983
- INSTITUTIONAL FACTORS IN IMPLEMENTATION OF FARMING SYSTEMS  
RESEARCH**
- 3324           **ANALYSIS OF HUMAN RESOURCE CAPABILITIES AND CONSTRAINTS IN  
INIAP, ECUADOR.** Marcotte, P. (1989) The Hague, Netherlands:  
International Service for National Agricultural Research  
(ISNAR). (ISNAR Working Paper no.25) 41p. KEYWORDS: Ecuador,  
INIAP, research institutes, human resources, planning of  
research, socioeconomic conditions, institutional resources,  
education, roles, problem identification, recommendations  
KSUL # S542.E2 A52 1989
- 3325           **ANNUAL REPORT 1983-84.** Pakistan Agricultural Research  
Council (PARC). (1985) Islamabad, Pakistan: Pakistan  
Agricultural Research Council. 203p. KEYWORDS: Pakistan,  
PARC, crops, natural resources, animal science, fisheries,  
social science, machinery, arid regions, rain-fed farming,  
agricultural research, annual reports, national programs and  
projects       KSUL # S1 .A56
- 3326           **ANNUAL REPORT 1985: AGRICULTURAL DEVELOPMENT SUPPORT II  
PROJECT.** (1985) Port-au-Prince, Haiti: Haiti Ministry of  
Agriculture, Univ. of Arkansas/Winrock International. (French  
version also available; USAID Project No. 520-0092) 243p.  
KEYWORDS: Haiti, USAID, national programs and projects, FSR,  
on-farm research, cropping systems, livestock, agroforestry,  
statistics, mountains, plains, extension, training, maize,  
cassava, sorghum, beans, sweet potatoes, rice, natural  
resources, GIS, watersheds, databases, evaluation       FSR VERTICAL  
FILE # 3326

- 3327           **BANGLADESH AND INTERNATIONAL AGRICULTURAL RESEARCH: ADMINISTRATIVE AND ECONOMIC ISSUES.** Alauddin, M. (1986) Agricultural Administration. (Vol.21 p.1-20) KEYWORDS: Bangladesh, international cooperation, development administration, technology transfers, constraints, resource allocation, history, institutions, research centers KSUL # HD1401 .A36
- 3328           **DEVELOPING A REGIONAL NETWORK FOR INTERDISCIPLINARY RESEARCH ON RURAL ECOLOGY: THE SOUTHEAST ASIAN UNIVERSITIES AGROECOSYSTEM NETWORK (SUAN) EXPERIENCE.** Rambo, A.T. (1985) Environmental Professional. (Vol.7 p.289-298) KEYWORDS: Asia, Southeast Asia, tropics, networks, ecology, environment, agroecosystems, rural development, international cooperation FSR VERTICAL FILE # 3328
- 3329           **DISARTICULATION OF FARMING SYSTEMS RESEARCH WITH NATIONAL AGRICULTURAL SYSTEMS: BRINGING FSR BACK IN.** Marcotte, P. (1987) Administration and Extension. (Vol.2 p.75-91) KEYWORDS: research philosophy, research methodology, socioeconomic conditions, political economy, national programs and projects, evaluation, resource control, power structure, policy, development strategies KSUL # HD1401 .A36
- 3330           **DOES FARMING SYSTEMS RESEARCH HAVE A FUTURE?.** Davidson, A.P. (1987) Agricultural Administration and Extension (Vol.24 p.69-77) KEYWORDS: FSR, institutionalization, policy, research policy, extension, development policy KSUL # HD1401 .A36
- 3331           **DOMESTICATING THE FSR/E CONCEPT IN A LAND GRANT UNIVERSITY: CONSIDERATIONS AT WASHINGTON STATE UNIVERSITY.** (Prepared for the Conference on Domestic Farming Systems, Univ. of Florida, Gainesville, Fla., September 10-13, 1984) Fiske, E.P. (1984) Pullman, Wash.: Washington State Univ., Dept. of Rural Sociology. 9p. KEYWORDS: US, projects, extension, farmer surveys, farmers' attitudes, farmer participation, resource management, research development objectives, project design, problem identification, farming systems theory FSR VERTICAL FILE # 3331
- 3332           **ECONOMIC JUSTIFICATION FOR THE FARMING SYSTEMS APPROACH.** (Draft of Paper prepared for AID Economist Conference, Annapolis, Md., Nov. 4-9, 1984) Swanberg, K.G. (1984) Washington D.C.,: U.S. Agency for International Development. 18p. KEYWORDS: FSR, USAID, research, economic evaluation FSR VERTICAL FILE # 3332

- 3333        **FARMING SYSTEMS RESEARCH AND EXTENSION: ACHIEVEMENTS AND FUTURE.** (Keynote Address for Farming Systems Research and Extension: Food and Feed Symposium, Manhattan, Kan., October 5-8, 1986) Zandstra, H.G. (1986) Ottawa, Canada: International Development Research Centre; Agriculture, Food and Nutrition Sciences Division. 11p. KEYWORDS: FSRE, history, analysis, terminology, recommendations, applied research, farming systems theory, farmer participation, research development objectives, agricultural policy FSR VERTICAL FILE # 3333
- 3334        **FARMING SYSTEMS RESEARCH AT THE INTERNATIONAL AGRICULTURAL RESEARCH CENTRES AND OTHER INTERNATIONAL GROUPS.** Anderson, F.M. (1985) IN: Agricultural Systems Research for Developing Countries, J.V. Remenyi, ed. Canberra: Australian Centre for International Agricultural Research (ACIAR). (p.141-147) KEYWORDS: IARCs, institutionalization, cooperation, NARS, research centers KSUL # S542.3 .A38 1985
- 3335        **FARMING SYSTEMS RESEARCH IN BANGLADESH: A REVIEW OF THE CURRENT SITUATION AND NEEDS.** (A Consultancy Report for BARC and BARI, Jan. 15-Feb. 12, 1985) Gibbon, D. (1985) Norwich, U.K.: Overseas Development Group. (Manuals and Reports in Development Studies No.23) 57p. KEYWORDS: Bangladesh, cropping systems, development agencies, national programs and projects, physical resources, human resources, management, training, research policy, recommendations FSR VERTICAL FILE # 3335
- 3336        **FARMING SYSTEMS RESEARCH: UPLAND AGRICULTURE AND CONSERVATION RESEARCH HIGHLIGHTS 1985-86.** (1987) Indonesia: Ministry of Agriculture, Agency for Agricultural Research and Development, Upland Agriculture and Conservation Project. 34p. KEYWORDS: Indonesia, soil management, water management, conservation, erosion, population, sustainability, development, land tenure, mixed cropping, national programs and projects, research methodology, watershed management, terrace farming, forage, alley cropping, livestock FSR VERTICAL FILE # 3336
- 3337        **FSR IN EVOLUTION: PAST AND FUTURE.** (Draft) Collinson, M. (1988) Washington D.C.: s.n. 18p. KEYWORDS: FSR, history, evaluation, implementation of research, analysis, farming systems theory, target selection, farmer participation, national programs and projects, sustainability, policy, FSR VERTICAL FILE # 3337

- 3338        **FSR/E IN THE WORLD SYSTEM FOR AGRICULTURAL RESEARCH AND EXTENSION.** (Paper prepared for communications panel pre-FSR Symposium, Kansas State Univ., Manhattan, Kan., 1986) Lionberger, H.F. (1986) Columbia, Mo.: Dept. of Rural Sociology, Univ. of Missouri. 17p. KEYWORDS: FSRE, evaluation, diffusion of information, communication, technology transfers, universities, indigenous knowledge systems FSR VERTICAL FILE # 3338
- 3339        **HISTORICAL PERSPECTIVE ON INSTITUTIONAL TRANSFER.** Flora, J.L. (1984) Manhattan, Kan.: Kansas State University, Department of Sociology. 39p. KEYWORDS: development programs, extension, diffusion of information, education, land grant system, institution building, universities, training, history FSR VERTICAL FILE # 3339
- 3340        **IMPACT EVALUATIONS: CONCEPTS, PROCEDURES AND PRACTICES.** (Submitted to PPC/CDIE, Agency for International Development) White, L.G. (1985) Fairfax, Va.: George Mason University. 49p. KEYWORDS: USAID, development administration, development strategies, reports, policy, problem identification, data evaluation, communication, planning of research, methodology, evaluation, programs and projects FSR VERTICAL FILE # 3340
- 3341        **INDUCING INSTITUTIONAL RESPONSE TO FARMING SYSTEMS RESEARCH APPROACH - A CASE STUDY.** Amir, P. (1987) Pakistan Journal of Agricultural Social Sciences. (Vol.1 no.2 p.169-83) KEYWORDS: Pakistan, FSR, private sector, national programs, and projects, terminology, technology transfers, induced innovation, linkages, constraints, sustainability commodity research KSUL # HD2075.5 .A43
- 3342        **INSTITUTIONALIZING SUSTAINABLE DEVELOPMENT: EXPERIENCES IN FIVE COUNTRIES.** Lowry, K. (1985) Environmental Impact Assessment Review; (Vol.5 no. 3 p.239-254) KEYWORDS: US, Korea, Malaysia, Philippines, Thailand, ecosystems, environment, sustainability, management, economic development, policy, organizational structures, evaluation FSR VERTICAL FILE # 3342
- 3343        **INTERNATIONAL LINKAGES IN RICE FARMING SYSTEMS.** Carangal, V.R. (1986?) Manila, Philippines: V. Carangal, International Rice Research Institute (IRRI), Rice Farming Systems Program. 20p. KEYWORDS: Asia, IRRI, networks, research centers, rice, programs and projects, information exchange, methodology FSR VERTICAL FILE # 3343

- 3344           **IS FARMING SYSTEMS RESEARCH THE CART BEFORE THE HORSE?**  
(Paper prepared for the FSR Symposium, Kansas State Univ.,  
Manhattan, Kan., Oct. 13-16, 1985) Greene, B.A. (1985)  
Dhaka, Bangladesh: B.A. Greene, Winrock International Institute  
for Agricultural Development. 17p. KEYWORDS: Bangladesh,  
FSR, farming systems theory, training, personnel, management  
training, data collection, data analysis, seminars,  
international cooperation, development agencies, national  
programs and projects, education FSR VERTICAL FILE # 3344
- 3345           **LIMITS OF FARMING SYSTEMS RESEARCH AND DEVELOPMENT: SHOULD  
DEVELOPMENT ADMINISTRATORS BE INTERESTED?** Oasa, E.K. (1986)  
Agricultural Administration. (Vol.23 p.201-221)  
KEYWORDS: technical assistance, research methodology,  
implementation of research, appropriate technology, research  
philosophy, terminology, research development objectives,  
socioeconomic change, goals, evaluation, markets, development  
administration, problem identification, sustainability  
KSUL # HD1401 .A36
- 3346           **MAJOR ISSUES TO ADDRESS IN THE INCORPORATION OF A FOOD  
CONSUMPTION PERSPECTIVE TO FARMING SYSTEMS RESEARCH.** (Prepared  
for Nutrition Economics Group, Technical Assistance Division,  
Office of Int'l Cooperation and Development, USDA)  
Frankenberger, T.R. (1985) Washington: United States Dept.  
of Agriculture (USDA) (Report prepared with Office of  
Nutrition, Bureau of Science and Technology, AID, Project No.  
931-1171) 8p. KEYWORDS: AID, food consumption, research  
policy, planning of research, research development objectives,  
implementation of research, on-farm research, food supply, food  
expenditures, recommendations, evaluation FSR VERTICAL FILE # 3346
- 3347           **NEPAL AGRICULTURAL RESEARCH AND PRODUCTION PROJECT.**  
(Draft) Byrnes, K.J. (1989?) s.l.: s.n. 20p.  
KEYWORDS: Nepal, USAID, national programs and projects,  
development agencies, project design, sustainability, extension,  
institution building, technology development, productivity  
FSR VERTICAL FILE # 3347
- 3348           **ON-FARM RESEARCH IN ECUADOR BY THE NATIONAL INSTITUTE OF  
AGRICULTURAL RESEARCH (INIAP).** (Draft) Espinosa, P. (1987?)  
Ithaca, N.Y.: s.n. 89p. KEYWORDS: Ecuador, INIAP,  
CIMMYT, national programs and projects, development agencies,  
history, on-farm research, institutionalization, research  
methodology, research development objectives, objectives,  
research institutes, planning of research, target selection,  
geography, agricultural zones FSR VERTICAL FILE # 3348

- 3349       **POSSIBLE FUTURE DIRECTIONS OF FARMING SYSTEMS RESEARCH AND EXTENSION: A CONCEPT PAPER.** (Draft prepared for AID/S&T/AGR) Brown, A.L. (1988) Washington: Chemonics International Consulting Division. 54p. KEYWORDS: research methodology, USAID, planning of research, research development objectives FSR VERTICAL FILE # 3349
- 3350       **REVIEW OF A.I.D. EXPERIENCE: FARMING SYSTEMS RESEARCH AND EXTENSION PROJECTS - 1975-1987.** Byrnes, K.J. (1989) A.I.D. Evaluation Highlights. (no.4) 8p. KEYWORDS: USAID, programs and projects, research, extension, evaluation FSR VERTICAL FILE # 3350
- 3351       **REVIEW OF FAO-SPONSORED FARMING SYSTEMS CONFERENCE, SANTIAGO DE CHILE, JULY 30-AUGUST 3, 1984.** Flora, J.L. (1984) Manhattan, Kan.: Kansas State University. 7p. KEYWORDS: FAO, development strategies, national programs and projects, development agencies, FSR, international cooperation FSR VERTICAL FILE # 3351
- 3352       **ROLE OF FARMING SYSTEMS IN SUSTAINING INSTITUTIONAL DEVELOPMENT.** (Paper presented at the 9th Annual Farming Systems Research/Extension Symposium, Fayetteville, Ark., Oct. 8-11, 1989) Sison, O.F. (1989) Los Baños, Philippines: Univ. of the Philippines, Dept. of Agricultural Education and Rural Studies. 21p. KEYWORDS: Asia, Philippines, institution building, research philosophy, research methodology FSR VERTICAL FILE # 3352
- 3353       **TECHNOLOGY TRIANGLE: LINKING FARMERS, TECHNOLOGY TRANSFER AGENTS, AND AGRICULTURAL RESEARCHERS.** (Summary Report of an International Workshop held at ISNAR, The Hague, Nov.22-25, 1989) Merrill-Sands, D. (1990) The Hague: International Service for National Agricultural Research (ISNAR). 118p. KEYWORDS: agricultural research, linkages, technology transfers, policy, organizational structures, human resources, institution building, technology development, research institutes, extension, farmer participation KSUL # S494.5.I5 M4 1989
- 3354       **TRAINING THIRD WORLD STUDENTS IN AGRICULTURAL RESEARCH: AN APPLICATION OF ON-THE-JOB TRAINING IN GRADUATE EDUCATION.** Ames, G. (1985) Agricultural Administration. (Vol.20 p.191-200) KEYWORDS: agricultural research, training, education, institutionalization KSUL # HD1401 .A36

3355

**WORKSHOP OF THE TROPICAL LAND CLEARING FOR SUSTAINABLE AGRICULTURE NETWORK.** (Report of the Inaugural Workshop and Proposal for Implementation of the Tropical Land Clearing for Sustainable Agriculture Network, Jakarta and Bukittinggi, Indonesia, Aug.27-Sept.2, 1985) (1985) Bangkok, Thailand: International Board for Soil Research and Management, Inc. 48p. KEYWORDS: IBSRAM, tropics, technology analysis, technology development, alternative technology, deforestation, land reclamation, networks, sustainable agriculture, soil management, land clearance, appropriate technology, objectives, evaluation, program implementation, problem identification, programs and projects, international cooperation, information exchange, institution building, training, databases  
KSUL # HD1431 .W62 1985

## **KEYWORD INDEX**

abstracts 3077  
accounting 3204  
adaptation 3041  
administration 3108, 3122, 3128, 3130, 3171, 3310, 3327,  
3340, 3345  
Africa 3035, 3083, 3084, 3108, 3130, 3148, 3300, 3310, 3323  
Afro-Americans 3106  
agrarian reform 3112, 3168  
Agribar 3044  
agribusiness 3141  
agricultural banks 3126, 3133, 3152, 3153  
agricultural development 3017, 3034, 3054, 3103, 3127  
agricultural economics 3015, 3170, 3218, 3267, 3273, 3302,  
3316  
agricultural education 3170  
agricultural history 3215  
agricultural information 3311  
agricultural policy 3035, 3173, 3257, 3333  
agricultural production 3095, 3273  
agricultural productivity 3138  
agricultural research 3110, 3125, 3128, 3171, 3191, 3231,  
3233, 3250, 3255, 3325, 3353, 3354  
agricultural technology 3305  
agricultural zones 3348  
agro-ecological zones 3165  
agroclimatology 3069, 3070  
agroecology 3057  
agroecosystems 3064, 3097, 3198, 3232, 3274, 3328  
agroforestry 3032, 3105, 3160, 3219, 3240, 3265, 3312, 3319,  
3326  
agronomy 3081, 3129, 3251, 3298  
aid 3122, 3249, 3346  
alfisols 3062  
alleles 3082  
alley cropping 3336  
alley farming 3236, 3265, 3300  
alternative technology 3054, 3078, 3182, 3196-3198, 3240,  
3284, 3293, 3355  
analysis 3013, 3015, 3018, 3021, 3024, 3030, 3031, 3033,  
3040, 3045, 3049, 3059, 3062, 3079, 3098, 3099,  
3102, 3104, 3105, 3115, 3139, 3145, 3155, 3156,  
3158, 3159, 3163-3165, 3169, 3172, 3175, 3177,  
3181, 3184, 3185, 3191, 3199-3202, 3204, 3205,  
3207, 3208, 3209, 3211, 3214-3217, 3221, 3223,  
3225, 3229, 3233, 3235, 3237, 3242-3244, 3247,  
3249, 3252-3254, 3258, 3260, 3262, 3263, 3268,  
3270, 3279, 3282, 3284, 3285, 3288-3291, 3295,  
3298, 3299, 3301, 3302, 3313, 3315-3317, 3320-3322,  
3333, 3337, 3344, 3355

animal diseases 3034, 3236  
 animal health 3033, 3042  
 animal husbandry 3034, 3043, 3270  
 animal nutrition 3047, 3048  
 animal production 3043  
 animal products 3048  
 animal science 3325  
 animal traction 3044, 3045, 3065, 3191, 3193  
 annual crops 3016  
 annual reports 3325  
 annual/perennial cropping 3017  
 anthropology 3116, 3182, 3255, 3292, 3301  
 apiculture 3194  
 applied research 3128, 3239, 3333  
 appropriate technology 3020, 3022, 3023, 3030, 3035, 3040,  
     3042, 3044, 3045, 3049, 3054, 3065, 3077, 3096,  
     3146, 3159, 3164, 3182, 3183, 3188, 3191-3195,  
     3197, 3217, 3230, 3235, 3246, 3265, 3278-3281,  
     3285, 3287, 3288, 3299, 3308, 3314, 3322, 3345,  
     3355  
 aquaculture 3049-3052, 3249  
 aquatic plants 3036  
 areography 3094  
 Argentina 3080, 3202  
 arid regions 3063, 3323, 3325  
 Asia 3015, 3017, 3018, 3034, 3046, 3056, 3099, 3102, 3107,  
     3131, 3151, 3180, 3189, 3190, 3224, 3260, 3316,  
     3328, 3343, 3352  
 assets 3205  
 attitudes 3056, 3075, 3082, 3103, 3110, 3114, 3143, 3145,  
     3146, 3149, 3174, 3184, 3196, 3212, 3213, 3216,  
     3218, 3259, 3271, 3276, 3282, 3294, 3299, 3331  
 background 3056  
 Baluchistan 3165  
 Bangladesh 3032, 3048, 3159, 3176, 3196, 3203, 3227, 3240,  
     3312, 3327, 3335, 3344  
 bank loans 3152  
 barley 3286  
 baseline data 3042, 3058, 3208, 3209, 3234, 3236, 3258,  
     3262, 3266  
 Basmati rice 3055  
 beans 3022, 3026, 3030, 3052, 3099, 3195, 3285, 3286, 3326  
 bed tillage 3064  
 beekeeping 3194  
 bees 3194  
 Belize 3070  
 bibliographies 3129  
 birds 3096  
 Bolivia 3213  
 Botswana 3108  
 Brazil 3032, 3080, 3273  
 brucellosis 3033

budget formulation 3169, 3250  
buffalo 3046, 3048, 3058  
Burkina Faso 3032  
Burma 3124  
burning 3063  
business conditions 3051  
byproducts 3036  
cajanus cajan 3086  
capital 3113, 3201, 3205, 3219, 3221, 3240  
CARDI 3304  
Caribbean 3209, 3241, 3273, 3304  
CARICOM 3304  
case studies 3066, 3073, 3074, 3111, 3113, 3119, 3147, 3162,  
3211, 3241, 3254, 3258, 3274, 3306  
cash crops 3155, 3208, 3212, 3214, 3322  
cash flow 3247  
cassava 3022, 3058, 3081, 3121, 3282, 3287, 3314, 3326  
CATIE 3022  
cattle 3034, 3040, 3042, 3048, 3058, 3063, 3195, 3286  
Central America 3022  
cereals 3020, 3021, 3023, 3085, 3158, 3220  
change 3041, 3049, 3109, 3115-3117, 3158, 3168, 3202, 3215,  
3225, 3263, 3317, 3345  
chemical fertilizers 3123  
chickens 3042, 3058  
Chile 3080, 3273  
China 3027, 3057, 3134, 3146  
Chinese cabbage 3088  
chlorography 3094  
CIMMYT 3066, 3291, 3310, 3348  
CIP 3155  
class conflict 3217  
classification 3067, 3247, 3273  
climate 3165  
climatic factors 3026, 3034, 3069, 3071, 3191  
coconut 3157  
coffee 3111  
Colombia 3264, 3273, 3282  
commercial credit 3151  
commercial farming 3080  
commodities 3288  
commodity research 3156, 3341  
communal forestry 3108, 3114  
communal grazing 3108  
communal tenure 3108, 3136, 3249  
communication 3073, 3123, 3264, 3277, 3305, 3319, 3338, 3340  
communities 3107  
community development 3032, 3105, 3136, 3172  
community forestry 3032  
community organization 3154, 3160  
community structure 3051, 3113, 3115, 3161  
comparative analysis 3013

conservation 3054, 3062, 3063, 3077, 3108, 3116, 3179, 3270,  
 3313, 3319, 3336  
 constraints 3035, 3056, 3059, 3073, 3112, 3130, 3135, 3143,  
 3150, 3155, 3174, 3184, 3187, 3203, 3210, 3212,  
 3214, 3217, 3219, 3227, 3233, 3238, 3240, 3241,  
 3247, 3249, 3251, 3257, 3261, 3267, 3282, 3288,  
 3307, 3308, 3314, 3317, 3327, 3341  
 consumer preferences 3085, 3155, 3183  
 consumption 3076, 3089, 3117, 3119, 3121, 3155, 3226, 3227,  
 3346  
 cooking 3230  
 cookstoves 3183  
 cooperation 3032, 3116, 3178, 3198, 3327, 3328, 3334, 3344,  
 3351, 3355  
 cooperative farming 3167  
 cooperatives 3109, 3111, 3112, 3136, 3139, 3143, 3151, 3168,  
 3254  
 corchorus 3084  
 corn 3058, 3184  
 cost analysis 3159  
 cost benefit analysis 3040, 3045, 3079, 3200, 3214, 3291,  
 3299  
 cost effectiveness 3015  
 cotton 3279, 3291  
 cowpeas 3026, 3052, 3099, 3285  
 crafts 3176  
 credit 3089, 3102, 3124, 3136, 3139-3141, 3143, 3145, 3151,  
 3152, 3153, 3154, 3156, 3203, 3214, 3216, 3217  
 credit policy 3151  
 crop insurance 3218  
 crop management 3052  
 crop production 3058, 3086, 3151, 3153, 3187, 3218, 3222  
 crop residues 3047  
 crop rotations 3030, 3031, 3054, 3055, 3291  
 cropping decisions 3225  
 cropping patterns 3013, 3015, 3018, 3021, 3024, 3028, 3070,  
 3203, 3211, 3214, 3247, 3270, 3284  
 cropping systems 3014, 3017, 3018, 3021, 3022, 3026, 3027,  
 3030, 3031, 3052, 3053, 3057, 3060, 3065, 3078,  
 3089, 3096, 3099, 3102, 3107, 3131, 3134, 3161,  
 3177, 3178, 3195, 3196, 3206, 3232, 3235, 3240,  
 3241, 3248, 3249, 3257, 3260, 3269, 3272, 3280,  
 3281, 3287, 3289-3291, 3293, 3309, 3312, 3314,  
 3318, 3322, 3326, 3335  
 crops 3016, 3017, 3020, 3023, 3038, 3053, 3068, 3082, 3085,  
 3086, 3090, 3091, 3155, 3158, 3208, 3212, 3214,  
 3229, 3240, 3247, 3319, 3322, 3325  
 cucumbers 3026  
 cultivars 3080, 3081  
 cultivation 3017, 3029, 3044, 3116, 3193, 3196, 3225, 3270,  
 3284  
 cultivation methods 3196

cultural environment 3051, 3073, 3192, 3253  
dairy biomass 3036  
data analysis 3031, 3158, 3285, 3291, 3344  
data collection 3037, 3069, 3115, 3237, 3258, 3260-3262,  
3264, 3266, 3271-3275, 3296, 3308, 3315, 3344  
data evaluation 3048, 3062, 3106, 3237, 3340  
databases 3077, 3126, 3188, 3298, 3305, 3326, 3355  
decision making 3066, 3110, 3166, 3174, 3212, 3282, 3294  
deforestation 3114, 3116, 3181, 3198, 3226, 3284, 3355  
demand 3121, 3132, 3229  
demographics 3286  
demography 3308  
development 3014, 3017, 3031, 3032, 3034, 3042, 3054, 3058,  
3067, 3073, 3074, 3087, 3100, 3103, 3105, 3113,  
3116, 3122, 3127, 3129-3132, 3134-3136, 3138, 3142,  
3147, 3150, 3156, 3160, 3161, 3165, 3172, 3174,  
3175, 3176, 3184, 3185, 3195-3197, 3199, 3203,  
3209, 3212, 3215, 3217, 3218, 3227, 3236, 3243,  
3246, 3247, 3249, 3250, 3252-3254, 3256, 3258,  
3263, 3269-3271, 3273, 3278, 3281, 3283, 3287-3289,  
3292, 3298, 3303, 3304, 3306, 3310, 3322, 3327--  
3331, 3333, 3335, 3336, 3339, 3340, 3342,  
3344-3349, 3351, 3353, 3355  
development administration 3122, 3130, 3310, 3327, 3340,  
3345  
development agencies 3136, 3147, 3273, 3287, 3289, 3304,  
3335, 3344, 3347, 3348, 3351  
development objectives 3067, 3122, 3132, 3199, 3243, 3253,  
3269, 3288, 3304, 3331, 3333, 3345, 3346, 3348,  
3349  
development planning 3058, 3074, 3116, 3122, 3138, 3161,  
3165, 3176  
development policy 3122, 3131, 3161, 3246, 3330, 3342  
development programs 3174, 3339  
development projects 3100, 3138, 3165, 3263  
development strategies 3042, 3073, 3074, 3105, 3122, 3150,  
3185, 3197, 3270, 3310, 3329, 3340, 3351  
development theory 3116, 3184, 3218, 3322  
diet 3117, 3119  
diffusion of information 3033, 3067, 3075, 3125, 3137, 3145,  
3149, 3164, 3185, 3265, 3283, 3289, 3318, 3338,  
3339  
disease control 3192  
disease resistance 3019, 3080  
diseases 3034, 3042, 3092, 3096, 3187, 3236  
distribution 3140, 3142, 3143, 3227, 3285, 3303  
diversification 3014, 3053, 3101, 3210, 3217  
division of labor 3209, 3223, 3225, 3263, 3321  
documentation 3311  
Dominican Republic 3081, 3287, 3289, 3314  
donor agencies 3165  
double cropping 3026, 3206

draft animals 3042, 3045, 3046  
 drought 3019, 3041  
 drought resistance 3019  
 dry farming 3217, 3250, 3271  
 dryland agricultural research 3250  
 ducks 3042, 3058  
 East Africa 3083  
 Eastern Visayas 3029, 3169, 3320  
 ecogeography 3083, 3084, 3094  
 ecology 3053, 3097, 3114, 3118, 3182, 3192, 3197, 3217,  
 3232, 3328  
 economic analysis 3013, 3015, 3018, 3021, 3030, 3059, 3098,  
 3139, 3155, 3156, 3165, 3177, 3200, 3201, 3205,  
 3207, 3229, 3247, 3260, 3279, 3316  
 economic development 3031, 3142, 3254, 3303, 3342  
 economic evaluation 3016, 3061, 3074, 3202, 3235, 3267, 3332  
 economic growth 3135  
 economic performance 3053, 3058, 3124  
 economic policy 3130  
 economics 3015, 3129, 3170, 3218, 3267, 3273, 3302, 3316  
 ecosystems 3342  
 Ecuador 3051, 3072, 3089, 3141, 3195, 3257, 3263, 3273,  
 3285, 3292, 3321, 3324, 3348  
 education 3043, 3114, 3123, 3131, 3133, 3144, 3148, 3170,  
 3174, 3176, 3309, 3324, 3339, 3344, 3354  
 employment 3101, 3112, 3160-3162, 3176, 3208, 3210, 3221,  
 3224, 3228, 3254  
 energy 3045, 3057, 3179, 3181-3183  
 energy conservation 3179  
 energy efficiency 3045  
 energy flows 3057  
 energy use 3045  
 enterprise budgets 3126, 3152, 3220  
 enterprises 3112, 3161  
 entomology 3099  
 environment 3031, 3047, 3051, 3073, 3130, 3132, 3192, 3226,  
 3232, 3253, 3291, 3313, 3328, 3342  
 environmental degradation 3226  
 environmental factors 3038, 3215, 3247, 3252  
 equipment 3069, 3193  
 erosion 3065, 3079, 3114, 3336  
 ethnic groups 3058, 3116, 3118  
 ethnology 3225  
 evaluation 3016, 3048, 3056, 3061, 3062, 3067, 3071, 3074,  
 3101, 3106, 3127, 3142, 3147, 3151, 3160, 3161,  
 3164, 3174, 3202, 3207, 3209, 3235, 3237, 3256,  
 3267, 3277, 3294, 3300, 3319, 3326, 3329, 3332,  
 3337, 3338, 3340, 3342, 3345, 3346, 3350, 3355  
 expenditures 3121, 3201, 3206, 3346  
 experiment stations 3128, 3171  
 experimental design 3099, 3236, 3267, 3292, 3293  
 exports 3120, 3155

extension 3014  
fallow 3029, 3065  
families 3058, 3129  
family farms 3254, 3322  
family planning 3176  
family size 3208  
FAO 3131, 3351  
farm equipment 3193  
farm income 3124  
farm records 3204  
farm size 3211  
farm workers 3120  
farmer borrowing 3102  
farmer groups 3112, 3172, 3187, 3283  
farmer participation 3073, 3075, 3096, 3099, 3102, 3125,  
3131, 3148, 3178, 3195, 3234, 3237, 3268, 3271,  
3283, 3286, 3293, 3294, 3297-3300, 3305, 3310,  
3331, 3333, 3337, 3353  
farmer surveys 3308, 3331  
farmer testing 3081, 3102, 3196  
farmer-managed trials 3196, 3294, 3298, 3300  
farmers' associations 3072, 3089, 3105, 3107, 3125, 3136,  
3319  
farmers' attitudes 3056, 3075, 3103, 3110, 3143, 3145, 3146,  
3149, 3174, 3184, 3196, 3212, 3213, 3216, 3218,  
3259, 3271, 3276, 3282, 3294, 3299, 3331  
farming systems 3049, 3149, 3179, 3184, 3237, 3239, 3243,  
3245, 3252, 3307, 3318, 3331, 3333, 3337, 3344  
farming systems theory 3049, 3149, 3184, 3237, 3239, 3243,  
3245, 3252, 3307, 3318, 3331, 3333, 3337, 3344  
feed crops 3020  
feed production 3034  
feed requirements 3045  
feed supply 3042, 3048, 3289  
fertilizer 3026, 3027, 3044, 3052, 3061, 3066, 3068, 3078,  
3092, 3140, 3179, 3214, 3247, 3282, 3319  
fertilizer application 3044, 3052, 3066, 3179, 3214  
fertilizers 3020, 3023, 3123, 3139, 3158, 3191, 3227, 3293  
fiber plants 3083  
field tests 3015, 3068, 3092, 3099, 3128, 3187, 3202, 3232,  
3312  
finance 3126, 3133, 3152, 3153, 3164  
financial planning 3220  
fish 3049, 3050  
fish farming 3049, 3050  
fisheries 3050, 3160, 3161, 3240, 3312, 3325  
fishing 3049, 3051, 3113  
fodder 3038, 3048, 3090, 3091, 3236  
fodder crops 3038, 3090, 3091  
food beliefs 3119  
food collecting 3117  
food consumption 3117, 3119, 3121, 3226, 3227, 3346

food crops 3085, 3208, 3247  
 food distribution 3285  
 food expenditures 3121, 3346  
 food grains 3119  
 food marketing 3285  
 food preferences 3119, 3259, 3289  
 food preparation 3119  
 food preservation 3230  
 food prices 3042, 3190  
 food production 3054, 3093, 3227, 3255, 3322  
 food security 3070  
 food storage 3230  
 food supply 3051, 3095, 3121, 3162, 3190, 3191, 3229, 3230,  
 3289, 3321, 3346  
 forage 3336  
 forest products 3036  
 forestry 3032, 3063, 3108, 3114, 3198, 3270  
 fruit production 3107  
 fruit trees 3107  
 fruits 3085, 3087, 3111, 3270  
 FSR 3033, 3104, 3169, 3238, 3244, 3246, 3251, 3271, 3281,  
 3286, 3306, 3317, 3326, 3330, 3332, 3337, 3341,  
 3344, 3351  
 FSRE 3333, 3338  
 fuels 3182  
 fuelwood 3181, 3183, 3226  
 game meat 3118  
 gardens 3198, 3232  
 garlic 3052  
 gender 3104, 3175, 3209, 3221, 3223, 3225, 3249, 3252, 3263,  
 3321  
 gender analysis 3104, 3175, 3209, 3221, 3223, 3225, 3249,  
 3252, 3263, 3321  
 genetic diversity 3019, 3025, 3053, 3083, 3084, 3094  
 genetic resources 3084, 3085, 3094, 3199  
 genetic variation 3025  
 genetics 3082  
 genotypes 3023, 3047  
 geography 3286, 3348  
 germplasm 3080, 3083  
 GIS 3326  
 goals 3269, 3345  
 goats 3039, 3041, 3042, 3048, 3058, 3063, 3299  
 grain production 3162  
 grasses 3320  
 green manures 3057  
 groundnuts 3026, 3271  
 Guatemala 3273  
 guides 3296  
 guinea pigs 3195  
 Haiti 3066, 3308, 3326  
 handling 3087

harvesting 3070, 3115, 3156, 3172  
 health 3033, 3042, 3101, 3105, 3119, 3120, 3123, 3299, 3316  
 health services 3101  
 heat resistance 3019, 3088  
 herd size 3041, 3045  
 hibiscus 3083  
 high yielding varieties 3102, 3124, 3158  
 highlands 3187, 3286  
 history 3050, 3057, 3122, 3124, 3127, 3134, 3137, 3146,  
 3149, 3168, 3180, 3215, 3225, 3239, 3262, 3289,  
 3327, 3333, 3337, 3339, 3348  
 hives 3194  
 Honduras 3112, 3119, 3126, 3133, 3152, 3153, 3204, 3220,  
 3262  
 horses 3058  
 horticulture 3174, 3240  
 households 3043, 3104, 3119, 3121, 3183, 3200, 3201, 3205,  
 3217, 3221, 3228, 3258, 3261, 3270, 3288, 3308  
 human resources 3077, 3165, 3226, 3240, 3254, 3324, 3335,  
 3353  
 humid tropics 3088, 3179  
 humid zones 3236, 3300  
 hunger 3082  
 hunting 3117, 3118  
 hybrids 3082, 3184  
 IARCS 3334  
 IBSRAM 3355  
 ICRISAT 3044, 3077, 3265  
 IDIAP 3068  
 IFDC 3078  
 IFPRI 3078  
 IIMI 3075  
 ILCA 3236, 3323  
 Imperata 3017, 3029, 3320  
 implementation of research 3016, 3125, 3128, 3265, 3337,  
 3345, 3346  
 implements 3044  
 improved varieties 3089, 3139, 3203, 3227, 3319  
 income 3031, 3101, 3106, 3112, 3121, 3124, 3135, 3142, 3160,  
 3162, 3201, 3203, 3205-3208, 3210, 3214, 3219,  
 3221, 3226-3228, 3247, 3258, 3270, 3284, 3291  
 income distribution 3142, 3227  
 India 3065, 3074, 3077, 3079, 3092, 3108, 3122, 3136, 3137,  
 3150, 3158, 3172, 3182, 3185, 3193, 3217, 3250,  
 3265, 3267, 3274  
 indigenous knowledge systems 3096, 3097, 3110, 3116, 3198,  
 3287, 3338  
 Indonesia 3014, 3016, 3032, 3042, 3052, 3058, 3060, 3067,  
 3078, 3096, 3115, 3116, 3151, 3187, 3208, 3225,  
 3247, 3280, 3283, 3290, 3299, 3303, 3318, 3336  
 induced innovation 3341  
 informal credit 3154

information exchange 3170, 3265, 3305, 3311, 3343, 3355  
 information specialists 3311  
 infrastructure 3059, 3100, 3135, 3143, 3156, 3160, 3165,  
 3174, 3215, 3217, 3219  
 infrastructure development 3135, 3156, 3160, 3174, 3215,  
 3217  
 INIAP 3324, 3348  
 innovation adoption 3013, 3023, 3082, 3089, 3124, 3125,  
 3134, 3137, 3145, 3149, 3167, 3184, 3185, 3189,  
 3191, 3196, 3210-3214, 3218, 3224, 3227, 3234,  
 3235, 3246, 3253, 3265, 3267, 3282, 3290, 3308,  
 3314  
 input distribution 3140  
 inputs 3066, 3139, 3140, 3143, 3145, 3158, 3167, 3186, 3203,  
 3206, 3209, 3214, 3219, 3288, 3290, 3291  
 insect pests 3092, 3099  
 insect resistance 3019  
 insecticide application 3099  
 insects 3096, 3098, 3187  
 institution building 3137, 3156, 3339, 3347, 3352, 3353,  
 3355  
 institutional resources 3143, 3171, 3324  
 institutionalization 3307, 3330, 3334, 3348, 3354  
 institutions 3035, 3108, 3135, 3215, 3254, 3327  
 integrated pest management 3098, 3099, 3102  
 integrated systems 3312  
 intensification 3014, 3055, 3060, 3161, 3177, 3196, 3211,  
 3303  
 intensive farming 3064, 3318  
 intensive production 3063, 3078, 3191  
 inter-household research 3261  
 intercropping 3015, 3016, 3020-3025, 3187, 3196  
 interdisciplinary research 3102, 3178, 3195, 3245, 3259,  
 3262  
 international cooperation 3032, 3116, 3178, 3198, 3327,  
 3328, 3344, 3351, 3355  
 interplanting 3016  
 interviewing 3257, 3263, 3321  
 interviews 3259  
 INTSORMIL 3059, 3119, 3250, 3289  
 Iran 3222  
 IRRI 3014, 3056, 3078, 3098, 3099, 3132, 3154, 3186, 3203,  
 3206, 3235, 3247, 3267, 3274, 3281, 3301, 3309,  
 3343  
 irrigated farming 3014, 3059, 3061, 3158  
 irrigation 3056, 3058, 3072, 3073, 3075, 3076, 3078, 3079,  
 3102, 3105, 3142, 3172, 3191, 3196, 3206, 3222,  
 3247, 3257, 3270  
 irrigation systems 3073, 3078, 3079, 3105, 3222  
 Israel 3063  
 Jamaica 3129  
 Java 3067, 3115, 3283

jute 3083, 3084, 3240  
 kenaf 3083  
 Kenya 3136  
 Korea 3342  
 labor 3015, 3016, 3027, 3029, 3051, 3102, 3106, 3109, 3113,  
     3115, 3158, 3180, 3209, 3219, 3221, 3223-3226,  
     3228, 3247, 3263, 3270, 3281, 3290, 3321, 3322  
 labor allocation 3226  
 labor organization 3113  
 labor requirements 3015, 3224  
 labor supply 3027, 3051, 3115, 3180, 3219, 3228  
 land 3051, 3055, 3057, 3063, 3064, 3067, 3074, 3077, 3106,  
     3112, 3113, 3114, 3116, 3139, 3161, 3162, 3167,  
     3168, 3177, 3203, 3205-3208, 3214, 3219, 3221,  
     3222, 3227, 3240, 3241, 3247, 3251, 3270, 3282,  
     3303, 3308, 3322, 3336, 3339, 3355  
 land classification 3067, 3247  
 land clearance 3355  
 land distribution 3303  
 land evaluation 3067, 3207  
 land grant system 3339  
 land holdings 3161, 3240, 3270  
 land preparation 3064, 3177, 3282  
 land reclamation 3116, 3355  
 land reform 3167, 3203  
 land tenancy 3055, 3206, 3219  
 land tenure 3106, 3112, 3113, 3139, 3162, 3167, 3168, 3203,  
     3207, 3208, 3219, 3241, 3251, 3308, 3336  
 land use 3051, 3057, 3063, 3067, 3074, 3077, 3114, 3116,  
     3214, 3221, 3222, 3247, 3270, 3303, 3308, 3322  
 land use planning 3067  
 Latin America 3080, 3094, 3133, 3138, 3152, 3153, 3166,  
     3204, 3213, 3220, 3273, 3315  
 legumes 3021, 3023, 3029, 3082, 3085, 3095, 3257  
 leguminosae 3086  
 Leucaena 3265  
 librarianship 3311  
 linear programming 3235  
 linkages 3277, 3341, 3353  
 livestock 3033-3040, 3042, 3047, 3048, 3057, 3058, 3063,  
     3067, 3090, 3091, 3136, 3161, 3195, 3208, 3221,  
     3240, 3249, 3283, 3299, 3312, 3316, 3319, 3323,  
     3326, 3336  
 livestock diseases 3042  
 livestock feeding 3036-3038, 3040, 3047, 3090, 3091  
 livestock health 3299, 3316  
 livestock management 3039, 3040, 3048  
 livestock nutrition 3035, 3039, 3299  
 livestock production 3033, 3035, 3038, 3040, 3042, 3048,  
     3057, 3058, 3063  
 livestock systems 3034, 3067, 3136, 3283, 3323  
 living conditions 3100, 3160

living standards 3160, 3174  
 loans 3151, 3152  
 longitudinal studies 3275  
 Lorena stove 3183  
 lowland areas 3097  
 machinery 3140, 3325  
 maize 3022, 3026, 3066, 3068, 3071, 3082, 3099, 3121, 3195,  
 3279, 3286, 3293, 3319, 3326  
 Malaysia 3073, 3113, 3151, 3210, 3219, 3223, 3228, 3248,  
 3342  
 malnutrition 3093, 3095, 3230  
 management 3032, 3034, 3039, 3040, 3042, 3048, 3051-3053,  
 3062-3065, 3072, 3074, 3075, 3077-3079, 3096, 3098,  
 3099, 3102, 3108, 3114, 3131, 3135, 3145, 3152,  
 3164, 3172, 3175, 3199, 3232, 3233, 3247, 3249,  
 3265, 3283, 3294, 3331, 3335, 3336, 3342, 3344,  
 3355  
 management training 3075, 3344  
 manures 3027, 3046, 3057  
 mapping 3084, 3094, 3274  
 maps 3247  
 mariculture 3051  
 market development 3212  
 market prices 3156, 3247  
 marketing 3031, 3035, 3066, 3089, 3136, 3140, 3143, 3155,  
 3156, 3157, 3158, 3215, 3249, 3254, 3257, 3285  
 marketing decisions 3158  
 marketing strategies 3157  
 marketing systems 3136, 3143, 3156, 3215, 3254  
 markets 3157, 3158, 3207, 3217, 3254, 3345  
 mathematical models 3218  
 meat production 3035, 3046  
 mechanization 3027, 3049, 3056, 3159, 3179, 3180, 3191, 3193  
 Mediterranean countries 3063  
 meteorological factors 3070  
 methodology 3017, 3033, 3062, 3066, 3067, 3081, 3100, 3105,  
 3106, 3110, 3149, 3158, 3178, 3188, 3189, 3195,  
 3203, 3211, 3216, 3218, 3231-3234, 3237, 3238,  
 3242, 3243-3245, 3247, 3248, 3250, 3252, 3257-3259,  
 3261-3264, 3267-3270, 3273-3276, 3279, 3281, 3282,  
 3283, 3285-3296, 3303, 3305, 3306, 3308, 3309,  
 3310, 3312-3315, 3317, 3318, 3321, 3323, 3329,  
 3336, 3340, 3343, 3345, 3348, 3349, 3352  
 Mexico 3059, 3064, 3071, 3094, 3097, 3120, 3127, 3162, 3166,  
 3198, 3232, 3246  
 Middle East 3256  
 migration 3041  
 milk 3034, 3035, 3046, 3136  
 milk production 3034, 3035, 3046  
 millets 3134  
 milling 3159  
 Missouri 3149

mixed cropping 3016, 3053, 3336  
 mixed farming 3042, 3047, 3048, 3054, 3199, 3236, 3247, 3323  
 mixed systems 3217, 3268, 3316  
 models 3070, 3077, 3144, 3158, 3174, 3188, 3202, 3211, 3216,  
 3218, 3229, 3231, 3251, 3282, 3284, 3305  
 modernization 3115  
 Mongolia 3109  
 monsoon 3065  
 mountains 3326  
 mulberry trees 3057  
 multidisciplinary research 3033, 3149, 3198, 3240, 3244,  
 3248, 3251, 3253, 3257, 3271, 3279, 3281, 3285,  
 3305, 3308, 3318  
 multiple cropping 3016, 3019-3021, 3023-3025, 3054, 3060,  
 3065, 3196, 3235, 3303  
 mung beans 3026, 3030, 3099  
 NARS 3334  
 national programs and projects 3014, 3032, 3042, 3049, 3050,  
 3056, 3060, 3069, 3072, 3079, 3089, 3101, 3122,  
 3125, 3127, 3132, 3134, 3139, 3143, 3147, 3150,  
 3156, 3160-3163, 3165, 3167, 3174, 3187, 3191,  
 3208, 3209, 3214, 3286, 3303, 3308, 3310, 3312,  
 3321, 3325, 3326, 3329, 3335-3337, 3341, 3344,  
 3347, 3348, 3351  
 natural resources 3077, 3165, 3240, 3319, 3325, 3326  
 Nepal 3028, 3075, 3142, 3145, 3147, 3174, 3175, 3211, 3216,  
 3218, 3226, 3260, 3269, 3347  
 networks 3305, 3328, 3343, 3355  
 Nigeria 3130, 3300  
 nitrogen 3066, 3068  
 NOAA 3070  
 nomadism 3109  
 non-farm employment 3101  
 nutrition 3034, 3035, 3039, 3047, 3048, 3082, 3095, 3117,  
 3119, 3159, 3226, 3240, 3299  
 nutritional value 3047, 3086, 3090, 3091, 3093  
 oats 3080  
 objectives 3014, 3016, 3067, 3110, 3122, 3127, 3132, 3163,  
 3164, 3169, 3171, 3199, 3203, 3233, 3240, 3243,  
 3253, 3269, 3277, 3286, 3288, 3294, 3303, 3304,  
 3313, 3314, 3331, 3333, 3345, 3346, 3348, 3349,  
 3355  
 ODA 3147  
 off-farm employment 3112, 3210, 3228, 3254  
 oilseeds 3030, 3031, 3082, 3158  
 Oman 3041  
 on-farm research 3022, 3023, 3056, 3066, 3173, 3233, 3234,  
 3252, 3289, 3290, 3292, 3293, 3296, 3299, 3300,  
 3306, 3310, 3320, 3326, 3346, 3348  
 on-farm testing 3026, 3029, 3164, 3195, 3284, 3291, 3295,  
 3304  
 on-farm trials 3266, 3294, 3297, 3298, 3303, 3316

onions 3052  
optimization 3092, 3279  
organization 3102, 3109, 3110, 3113, 3154, 3160, 3251  
organizational structures 3112, 3125, 3130, 3137, 3150,  
3342, 3353  
outputs 3291  
Pakistan 3030, 3031, 3050, 3055, 3056, 3061, 3135, 3139,  
3156, 3165, 3167, 3170, 3191, 3214, 3258, 3270,  
3279, 3291, 3325, 3341  
Panaeus vannamei 3051  
Panama 3068, 3293  
Papua New Guinea 3116  
Paraguay 3306  
PARC 3050, 3325  
participatory strategies 3105, 3172, 3253, 3268, 3320  
pastoral society 3109  
pastoral systems 3063, 3261, 3286, 3322, 3323  
pastoralism 3041, 3043  
pastures 3029, 3063  
peasant farming 3110, 3134, 3162, 3213, 3286  
peasantry 3112  
perceptions 3276  
perennial crops 3016, 3017  
performance testing 3240  
personnel 3128, 3344  
personnel training 3128  
Peru 3111, 3138, 3168, 3213, 3286, 3315  
pest control 3098, 3099, 3192, 3293  
pest management 3053, 3096, 3098, 3099, 3102, 3199, 3232  
pest resistance 3098  
pesticides 3120, 3123, 3139, 3191  
pests 3059, 3092, 3096, 3099, 3102  
phaseolus 3094  
Philippines 3018, 3029, 3069, 3076, 3098, 3103, 3105, 3107,  
3114, 3117, 3118, 3121, 3132, 3140, 3154, 3169,  
3170, 3171, 3177, 3186, 3200, 3201, 3205, 3206,  
3221, 3229, 3235, 3281, 3284, 3319, 3320, 3342,  
3352  
philosophy 3053, 3085, 3170, 3192, 3199, 3243, 3245, 3253,  
3278, 3305, 3307, 3329, 3345, 3352  
physical features 3247, 3270  
physical resources 3335  
pigeon peas 3086  
pigs 3027, 3034, 3058, 3195, 3286  
pilot projects 3299  
plains 3326  
Plan Puebla 3071, 3127, 3162  
planning of research 3127, 3132, 3166, 3171, 3195, 3234,  
3243, 3246, 3248, 3257, 3258, 3265, 3277, 3293,  
3298, 3319, 3321, 3324, 3340, 3346, 3348, 3349  
plant breeding 3019, 3025, 3047, 3089  
plant density 3061

planting 3055, 3070, 3092, 3102, 3179  
 planting dates 3055, 3092, 3102  
 planting methods 3092, 3179  
 plowing 3044, 3065  
 poisoning 3120  
 policy 3030, 3035, 3054, 3100, 3101, 3120, 3122, 3124, 3130,  
     3131, 3134, 3139-3141, 3146, 3151, 3154, 3157,  
     3161, 3162-3164, 3166-3168, 3170-3173, 3176, 3211,  
     3214, 3216, 3218, 3229, 3238, 3242, 3246, 3254,  
     3256, 3257, 3263, 3290, 3310, 3329, 3330, 3333,  
     3335, 3337, 3340, 3342, 3346, 3353  
 political attitudes 3082  
 political economy 3134, 3162, 3329  
 polyculture 3019, 3024, 3025, 3053  
 population 3093, 3114, 3119, 3134, 3191, 3336  
 population growth 3093, 3114, 3134, 3191  
 postharvest systems 3087, 3156, 3230, 3285  
 postharvest technology 3159  
 potatoes 3022, 3068, 3088, 3089, 3121, 3138, 3155, 3162,  
     3195, 3240, 3286, 3326  
 poultry 3034, 3036, 3048, 3249  
 poultry feeding 3036  
 poverty 3115, 3116, 3129, 3142, 3162, 3176, 3217, 3227, 3271  
 power structure 3322, 3329  
 precipitation 3070, 3247  
 prehistoric agriculture 3064  
 price support 3124, 3134, 3156, 3167, 3229  
 prices 3042, 3121, 3156, 3190, 3208, 3247  
 private sector 3072, 3101, 3141, 3341  
 privatization 3108  
 problem identification 3016, 3028, 3054, 3058, 3102, 3111,  
     3115, 3135, 3137, 3142, 3155, 3159, 3160, 3166,  
     3170, 3173, 3187, 3218, 3225, 3234, 3240, 3242,  
     3243, 3244, 3248, 3250, 3256, 3259, 3264, 3265,  
     3268, 3274, 3279, 3281, 3283, 3291, 3304, 3306,  
     3307, 3317, 3318, 3320, 3324, 3331, 3340, 3345,  
     3355  
 processing 3107, 3159  
 production 3031, 3033-3035, 3038, 3040, 3042, 3043, 3046,  
     3048, 3054, 3057, 3058, 3060, 3061, 3063, 3076,  
     3078, 3086, 3089, 3093, 3095, 3096, 3107, 3111,  
     3113, 3124, 3135, 3137, 3151, 3153, 3155, 3158,  
     3162, 3166, 3180, 3185, 3187, 3190, 3191, 3202,  
     3203, 3207, 3210, 3212, 3218, 3222, 3223, 3225,  
     3227, 3229, 3251, 3255, 3267, 3273, 3293, 3301,  
     3303, 3318, 3322  
 production constraints 3135, 3155, 3212  
 production costs 3190  
 production strategies 3031, 3158, 3180  
 production systems 3046, 3054, 3111, 3113, 3158, 3166, 3202,  
     3251, 3293  
 production trends 3158, 3225, 3229

productivity 3040, 3048, 3065, 3138, 3162, 3207, 3211, 3226,  
 3316, 3347  
 program implementation 3283, 3355  
 programs and projects 3014, 3032, 3042, 3049, 3050, 3056,  
 3060, 3069, 3072, 3079, 3089, 3101, 3122, 3125,  
 3127, 3132, 3134, 3136, 3139, 3142, 3143, 3147,  
 3150, 3156, 3157, 3160-3163, 3165, 3167, 3169,  
 3174, 3187, 3191, 3208, 3209, 3214, 3222, 3237,  
 3246, 3249, 3268, 3286, 3303, 3308, 3310, 3312,  
 3319, 3321, 3323, 3325, 3326, 3329, 3335-3337,  
 3340, 3341, 3343, 3344, 3347, 3348, 3350, 3351,  
 3355  
 project design 3101, 3132, 3163, 3169, 3175, 3189, 3209,  
 3242, 3247, 3250, 3256, 3270, 3279, 3285, 3314,  
 3331, 3347  
 project evaluation 3160  
 project implementation 3142, 3160, 3169, 3209, 3249  
 project proposals 3165, 3169, 3250  
 projections 3076, 3078  
 projects 3014, 3016, 3032, 3042, 3049, 3050, 3056, 3060,  
 3069, 3072, 3079, 3089, 3100, 3101, 3107, 3122,  
 3125, 3127, 3132, 3134, 3136, 3138, 3139, 3142,  
 3143, 3147, 3150, 3156, 3157, 3160-3163, 3165,  
 3167, 3169, 3174, 3187, 3191, 3208, 3209, 3214,  
 3222, 3237, 3246, 3249, 3263, 3268, 3286, 3299,  
 3303, 3308, 3310, 3312, 3319, 3321, 3323, 3325,  
 3326, 3329, 3331, 3335-3337, 3340, 3341, 3343,  
 3344, 3347, 3348, 3350, 3351, 3355  
 Prosopis cineraria 3265  
 protein 3030, 3034, 3082, 3118  
 pulses 3158, 3240  
 pumpkins 3026  
 Punjab 3030, 3031, 3135, 3270, 3291  
 quadratic programming 3302  
 questionnaires 3262  
 rain-fed farming 3017, 3026, 3040, 3052, 3059, 3060, 3062,  
 3065, 3074, 3135, 3177, 3221, 3247, 3249, 3265,  
 3325  
 rainforests 3032  
 ranching 3136  
 range management 3034, 3063  
 rapid rural appraisal 3100, 3181, 3262, 3271, 3275, 3292,  
 3308  
 ratooning 3281  
 rats 3058, 3096  
 recommendation domains 3049, 3067, 3238, 3252, 3262, 3267,  
 3273, 3291, 3304, 3321  
 recommendations 3016, 3033, 3049, 3054, 3077, 3099, 3102,  
 3114, 3125, 3160, 3161, 3170, 3185, 3209, 3218,  
 3237, 3244, 3253, 3279, 3283, 3288, 3290, 3304,  
 3307, 3317, 3324, 3333, 3335, 3346

recommended technology 3034, 3056, 3062, 3063, 3098, 3183,  
 3199, 3294, 3310  
 recreation 3063  
 regional agricultural policy 3257  
 regional planning 3101, 3321  
 registration games 3264  
 relay cropping 3016  
 reports 3325, 3340  
 research 3016, 3017, 3022, 3023, 3033, 3047, 3053, 3056,  
 3062, 3066, 3067, 3081, 3085, 3100, 3102, 3105,  
 3106, 3110, 3122, 3125, 3127, 3128, 3132, 3137,  
 3141, 3145, 3149, 3156, 3164, 3166, 3171, 3173,  
 3178, 3188, 3191, 3192, 3195, 3198, 3199, 3203,  
 3211, 3216, 3231-3234, 3236, 3239, 3240, 3243-3246,  
 3248, 3250-3253, 3255, 3257-3259, 3261, 3262,  
 3263-3265, 3267-3269, 3271, 3275-3279, 3281, 3282,  
 3283, 3285-3290, 3292-3300, 3304-3310, 3314, 3315,  
 3318-3327, 3329-3337, 3340, 3341, 3343, 3345, 3346,  
 3348-3350, 3352-3354  
 research centers 3137, 3145, 3171, 3236, 3248, 3327, 3334,  
 3343  
 research design 3297  
 research development objectives 3067, 3122, 3199, 3243,  
 3253, 3269, 3288, 3304, 3331, 3333, 3345, 3346,  
 3348, 3349  
 research funding 3122  
 research institutes 3132, 3164, 3166, 3240, 3321, 3324,  
 3348, 3353  
 research methodology 3017, 3033, 3062, 3066, 3081, 3100,  
 3105, 3106, 3110, 3178, 3188, 3195, 3211, 3216,  
 3231, 3232, 3233, 3243-3245, 3248, 3250, 3257,  
 3259, 3261-3264, 3267-3269, 3275, 3276, 3282, 3283,  
 3285, 3286-3290, 3293-3296, 3305, 3306, 3308-3310,  
 3314, 3315, 3318, 3321, 3323, 3329, 3336, 3345,  
 3348, 3349, 3352  
 research objectives 3164, 3203, 3240, 3277, 3294, 3314  
 research philosophy 3053, 3085, 3192, 3199, 3243, 3245,  
 3253, 3278, 3305, 3307, 3329, 3345, 3352  
 research policy 3330, 3335, 3346  
 research strategy 3166  
 research theory 3244, 3322  
 resettlement 3100, 3101, 3160, 3161  
 resource allocation 3059, 3139, 3141-3143, 3198, 3202, 3203,  
 3209, 3241, 3251, 3308, 3327  
 resource conservation 3054, 3116, 3313  
 resource control 3329  
 resource management 3042, 3108, 3175, 3331  
 resource use 3055  
 resource utilization 3111  
 resources 3077, 3084, 3085, 3094, 3143, 3165, 3171, 3199,  
 3226, 3240, 3254, 3318, 3319, 3324-3326, 3335, 3353  
 results 3303

rice 3014, 3016-3018, 3021, 3026-3028, 3030, 3052, 3055,  
 3056, 3057, 3058, 3060, 3061, 3068, 3076, 3078,  
 3096, 3098, 3099, 3102, 3113, 3115, 3121, 3124,  
 3159, 3177, 3180, 3186, 3187, 3189, 3200, 3201,  
 3203, 3205-3207, 3210, 3221, 3223, 3225, 3227,  
 3229, 3235, 3240, 3267, 3279, 3281, 3284, 3293,  
 3301, 3303, 3312, 3314, 3318, 3326, 3343  
 rice processing 3159  
 rice production 3057, 3060, 3076, 3078, 3096, 3113, 3203,  
 3207, 3210, 3223, 3227, 3267, 3301, 3303  
 rinderpest 3236  
 risk 3021, 3035, 3189, 3213, 3215, 3216, 3218, 3294, 3302,  
 3313  
 risk analysis 3021, 3215, 3216, 3302  
 risks 3098, 3177, 3210, 3212, 3215, 3217, 3281, 3299  
 roles 3175, 3176, 3209, 3221, 3226, 3251, 3301, 3314, 3321,  
 3324  
 root crops 3023  
 rosella 3083  
 rubber 3113, 3157, 3219  
 ruminants 3034, 3036, 3037, 3236, 3268, 3299  
 rural development 3113, 3129, 3131, 3175, 3195, 3227, 3256,  
 3258, 3271, 3328  
 rural households 3183, 3200, 3201, 3205, 3228  
 rural sociology 3129, 3276, 3278  
 rural women 3129  
 Sahel 3032  
 salinity 3191, 3196  
 savanna 3040  
 seasonality 3065  
 seed potatoes 3089  
 seed production 3089  
 seed selection 3203  
 seeding 3179  
 seeds 3140, 3227, 3285  
 self-sufficiency 3014, 3054, 3172, 3199, 3229, 3321  
 semiarid tropics 3032, 3074, 3079, 3158, 3193, 3265  
 semiarid zones 3062, 3217, 3323  
 seminars 3344  
 sequential cropping 3016  
 sericulture 3249  
 settlement 3134  
 settlements 3111  
 share cropping 3066, 3203, 3206, 3240  
 sheep 3041, 3063, 3286, 3299  
 shifting cultivation 3017, 3116, 3225, 3284  
 shrimp 3050, 3051  
 shrubs 3038  
 silage making 3090, 3091  
 Singapore 3155

small farmers 3016, 3021, 3022, 3089, 3106, 3136, 3167,  
 3191, 3214, 3216, 3217, 3238, 3240, 3254, 3258,  
 3288, 3299  
 small farms 3042, 3047, 3059, 3131, 3139, 3151, 3156, 3157,  
 3163, 3204, 3219, 3222, 3228, 3273, 3282, 3315,  
 3322  
 small ruminants 3034, 3236, 3268  
 social analysis 3252, 3253  
 social anthropology 3182, 3255  
 social change 3041, 3109, 3116, 3168  
 social environment 3031, 3130, 3132  
 social history 3215  
 social institutions 3135  
 social organization 3109, 3110, 3113, 3251  
 social policy 3130, 3168  
 social science 3081, 3110, 3170, 3246, 3251, 3255-3257,  
 3285, 3325  
 social stratification 3106, 3113, 3288, 3308  
 social structure 3251  
 socioeconomic analysis 3115, 3163, 3169, 3181, 3184, 3191,  
 3208, 3249, 3258, 3270, 3285, 3289, 3313, 3322  
 socioeconomic change 3115, 3117, 3215, 3263, 3345  
 socioeconomic conditions 3033, 3034, 3041, 3049, 3114, 3130,  
 3165, 3168, 3175, 3180, 3212, 3225, 3226, 3250,  
 3254, 3264, 3269, 3289, 3291, 3299, 3308, 3324,  
 3329  
 socioeconomic constraints 3112, 3184, 3203, 3217, 3251,  
 3257, 3288, 3317  
 socioeconomic factors 3031  
 socioeconomic structure 3270  
 socioeconomic systems 3109, 3110, 3112, 3168, 3263, 3292,  
 3323  
 sociological analysis 3033, 3262, 3288, 3301  
 sociology 3103, 3113, 3114, 3129, 3150, 3241, 3244, 3251,  
 3276, 3278  
 soil classification 3247  
 soil conservation 3319  
 soil fertility 3028, 3029, 3058, 3068, 3192, 3199, 3320  
 soil management 3032, 3062, 3065, 3077, 3114, 3336, 3355  
 soil preparation 3193  
 soil types 3068  
 soils 3068  
 solar energy 3182  
 solution design 3160, 3234, 3243, 3281  
 sondeos 3100, 3231, 3234, 3237, 3257, 3262, 3292, 3296, 3306  
 sorghum 3059, 3068, 3099, 3119, 3184, 3289, 3293, 3326  
 sorjans 3052  
 South Asia 3056  
 Southeast Asia 3017, 3107, 3151, 3328  
 sowing 3044, 3196  
 soybeans 3026, 3052, 3058, 3092, 3099  
 SR-CRSP 3299

Sri Lanka 3100, 3101, 3123, 3143, 3157, 3160, 3161, 3212  
 stability 3215  
 staple crops 3229  
 statistical analysis 3024, 3268, 3298  
 statistics 3048, 3165, 3326  
 stocking rate 3040  
 stocks 3229  
 storage 3087, 3230  
 subsistence agriculture 3302  
 subsistence farming 3100, 3139, 3160, 3163, 3208, 3210,  
     3212, 3214, 3258  
 subtropics 3040, 3087  
 sunflowers 3030, 3031  
 surveys 3055, 3058, 3067, 3068, 3078, 3099, 3121, 3131,  
     3147, 3186, 3200, 3201, 3205, 3208, 3214, 3231,  
     3236, 3237, 3247, 3258-3262, 3264, 3266, 3269,  
     3270, 3272-3277, 3283, 3291, 3292, 3296, 3299,  
     3308, 3331  
 surveys--short term 3259  
 sustainability 3028, 3032, 3097, 3157, 3182, 3192, 3198,  
     3284, 3313, 3336, 3337, 3341, 3342, 3345, 3347  
 sustainable agriculture 3057, 3197, 3199, 3232, 3290, 3355  
 swamps 3014, 3096  
 sweet potatoes 3022, 3121, 3326  
 synchronization 3102  
 systems analysis 3242, 3313, 3317, 3320, 3322  
 Taiwan 3125  
 tank irrigation 3079  
 target selection 3014, 3049, 3145, 3173, 3247, 3252, 3267,  
     3274, 3276, 3308, 3310, 3337, 3348  
 tea 3157  
 technical assistance 3345  
 technological change 3049, 3202, 3215, 3225  
 technology 3014, 3020, 3022, 3023, 3030, 3034, 3035, 3040,  
     3042, 3044, 3045, 3049, 3052, 3054, 3056, 3062,  
     3063, 3065, 3071, 3073, 3074, 3077-3079, 3087,  
     3096, 3098, 3099, 3102, 3103, 3115, 3130, 3134,  
     3135, 3143, 3145, 3146, 3159, 3164, 3167, 3172,  
     3177, 3178, 3182-3199, 3202, 3210, 3216, 3217,  
     3224, 3227, 3230, 3231, 3235, 3236, 3240, 3242,  
     3246, 3247, 3249, 3252, 3254, 3265, 3278-3282,  
     3284, 3285-3288, 3290-3295, 3298, 3299, 3301, 3304,  
     3305, 3306-3308, 3310, 3314, 3316, 3321, 3322,  
     3327, 3338, 3341, 3345, 3347, 3353, 3355  
 technology analysis 3049, 3062, 3079, 3099, 3145, 3172,  
     3177, 3185, 3199, 3202, 3216, 3217, 3235, 3254,  
     3282, 3290, 3295, 3321, 3355  
 technology application 3102, 3190, 3193  
 technology design 3102, 3159, 3183, 3242, 3280, 3281  
 technology development 3014, 3087, 3130, 3134, 3196, 3236,  
     3247, 3252, 3278, 3281, 3287, 3292, 3298, 3304,  
     3306, 3347, 3353, 3355

technology management 3164  
 technology transfers 3049, 3071, 3074, 3103, 3135, 3143,  
     3164, 3167, 3178, 3184-3189, 3202, 3210, 3227,  
     3231, 3247, 3249, 3265, 3280, 3286, 3287, 3295,  
     3299, 3301, 3304-3307, 3316, 3321, 3327, 3338,  
     3341, 3353  
 temperate zones 3090, 3091  
 tenancy 3055, 3203, 3206, 3207, 3219  
 terminology 3143, 3166, 3233, 3239, 3245, 3292, 3333, 3341,  
     3345  
 terrace farming 3336  
 testing 3026, 3029, 3081, 3102, 3115, 3164, 3195, 3196,  
     3240, 3267, 3280, 3284, 3291, 3295, 3296, 3301,  
     3302, 3304  
 Thailand 3018, 3026, 3032, 3151, 3155, 3170, 3181, 3207,  
     3249, 3271, 3313, 3342  
 theory 3049, 3116, 3149, 3174, 3184, 3218, 3237, 3239, 3243,  
     3244, 3245, 3252, 3307, 3318, 3322, 3331, 3333,  
     3337, 3344  
 threshing 3314  
 Tilapia 3052  
 tillage 3064, 3065, 3177, 3179, 3192, 3199, 3282  
 tillage systems 3065, 3179, 3192, 3199  
 time allocation 3225, 3226  
 timeliness 3177  
 tobacco 3106  
 tomatoes 3052, 3088  
 toxicity 3120  
 trade 3031, 3155, 3215, 3270  
 traditional farming 3032, 3057, 3064, 3097, 3103, 3115,  
     3116, 3174, 3182, 3215, 3226, 3232, 3258, 3268,  
     3319  
 training 3043, 3075, 3123, 3128, 3131, 3133, 3145, 3147,  
     3150, 3152, 3178, 3209, 3274, 3277, 3305, 3309,  
     3312, 3326, 3335, 3339, 3344, 3354, 3355  
 transmigration 3042, 3058, 3116  
 transport 3087  
 tree crops 3038, 3085, 3208  
 trials 3013, 3092, 3196, 3247, 3266, 3268, 3294, 3297, 3298,  
     3300, 3303, 3316  
 triple cropping 3026, 3027, 3206  
 Trombe Wall 3182  
 tropics 3032, 3042, 3074, 3079, 3086-3088, 3090, 3091, 3097,  
     3158, 3179, 3193, 3194, 3198, 3208, 3265, 3280,  
     3328, 3355  
 Tropiculator 3193  
 universities 3131, 3137, 3170, 3171, 3338, 3339  
 upland rice 3284  
 US 3106, 3149, 3239, 3331, 3342  
 USAID 3070, 3092, 3100, 3101, 3122, 3160, 3161, 3164, 3165,  
     3175, 3304, 3326, 3332, 3340, 3347, 3349, 3350  
 value systems 3225

varietal improvement 3025, 3081, 3196  
 varietal trials 3092  
 varieties 3053, 3081, 3084, 3085, 3089, 3094, 3102, 3124,  
 3139, 3158, 3167, 3203, 3225, 3227, 3319  
 vegetables 3017, 3087, 3093, 3095, 3270  
 vegetation mapping 3084, 3094  
 vertisols 3062, 3065, 3074  
 Vietnam 3027  
 village level studies 3058, 3108, 3113, 3119, 3181, 3236,  
 3270, 3279, 3286  
 waste utilization 3036  
 water 3032, 3055, 3062-3065, 3072, 3074, 3075, 3078, 3079,  
 3172, 3206, 3249, 3265, 3336  
 water availability 3055  
 water harvesting 3172  
 water management 3032, 3062, 3064, 3065, 3072, 3074, 3075,  
 3078, 3079, 3172, 3249, 3265, 3336  
 water use 3063, 3072  
 watermelons 3201  
 watershed management 3336  
 watersheds 3074, 3077, 3079, 3284, 3326  
 weather 3070  
 weed control 3017, 3029, 3030, 3097, 3320  
 weed science 3017  
 weeds 3017, 3096, 3097, 3232  
 wetlands 3052, 3064  
 wheat 3028, 3030, 3082, 3121, 3135, 3240, 3279, 3291  
 wild plants 3097, 3117, 3118  
 wild varieties 3084, 3094  
 women 3043, 3104, 3129, 3175, 3176, 3209, 3221, 3225, 3226,  
 3249, 3250, 3283, 3301, 3314, 3321  
 women in agriculture 3104, 3225, 3321  
 women in development 3175, 3176, 3209, 3249, 3250, 3283  
 women's roles 3175, 3176, 3209, 3221, 3226, 3301, 3314  
 women's status 3043, 3175  
 World Bank 3136  
 Yemen Arab Republic 3256  
 yield factors 3019, 3024, 3071, 3213, 3267  
 yields 3030, 3055, 3056, 3058-3061, 3071, 3076, 3078, 3098,  
 3099, 3135, 3137, 3139, 3186, 3187, 3190, 3203,  
 3218, 3225, 3240, 3267, 3279, 3291, 3303

## TITLE INDEX

ACCELERATED MAHAWELI PROGRAMME (AMP) AND DRY ZONE	3100
ACCELERATED MAHAWELI PROGRAMME (AMP) AND DRY ZONE	3160
ACCELERATED MAHAWELI PROGRAMME (AMP) AND DRY ZONE	3161
ACCELERATED MAHAWELI PROGRAMME (AMP) AND DRY ZONE	3101
ACCESS AND THE COOPERATIVE: A STUDY OF AN	3143
ACCESS TO IMPROVED INPUTS: THE SPECIAL PROBLEMS	3139
ADAPTIVE FARMER: SOCIOLOGICAL CONTRIBUTIONS TO	3314
ADOPTION OF AGRICULTURAL TECHNOLOGY: DEVELOPMENTS	3184
AGRIBAR OPERATOR'S MANUAL: FIELD OPERATIONS	3044
AGRICULTURAL ASSISTANCE STRATEGY: INDIA	3122
AGRICULTURAL COMMUNICATION FOR RURAL DEVELOPMENT	3123
AGRICULTURAL EXTENSION AND FARMING SYSTEMS	3144
AGRICULTURAL EXTENSION IN THE HILLS OF NEPAL: TEN	3145
AGRICULTURAL EXTENSION SYSTEM IN CHINA	3146
AGRICULTURAL MODERNIZATION IN SMALLHOLDING AREAS	3162
AGRICULTURAL RESEARCH AND DEVELOPMENT: VIABLE	3163
AGRICULTURAL RESEARCH FOR RESOURCE POOR FARMERS:	3231
AGRICULTURAL RESEARCH NEED TO INCREASE PRODUCTIVE	3191
AGRICULTURAL TECHNOLOGY MANAGEMENT: DRAFT	3164
AGROCLIMATIC SERVICE UNIT: 1978 INTERNAL PROGRAM	3069
AGROECOLOGICAL APPROACH FOR RESEARCHING	3232
ALTERNATE STRATEGY FOR THE TRANSFER OF TECHNOLOGY	3185
ANALISIS DINAMICO DE PEQUEÑAS FINCAS EN CUATRO	3315
ANALYSIS OF HUMAN RESOURCE CAPABILITIES AND	3324
ANCIENT RAISED FIELD AGRICULTURE IN THE MAYA	3064
ANIMAL INDUSTRY POTENTIAL IN MONSOONAL AND	3034
ANNUAL REPORT 1983-84	3325
ANNUAL REPORT 1985: AGRICULTURAL DEVELOPMENT	3326
ANTHROPOLOGY AND ON-FARM RESEARCH	3292
APPROACH TO IMPROVED PRODUCTIVITY ON DEEP	3065
APPROPRIATE AGRICULTURAL RESEARCH AND DEVELOPMENT	3304
ASSESSING POTENTIALS FOR AGRICULTURAL INNOVATION:	3257
ASSESSING THE IMPACT OF FARMING SYSTEMS RESEARCH:	3233
BALUCHISTAN: AN INTRODUCTION	3165
BANGLADESH AND INTERNATIONAL AGRICULTURAL	3327
BETTER BEAST OF BURDEN	3045
BREEDING FOR MULTIPLE CROPPING SYSTEMS	3019
BREEDING OAT CULTIVARS SUITABLE FOR PRODUCTION IN	3080
BUFFALOES: THE BACKBONE OF SMALL FARM ECONOMY IN	3046
BUGS, BUNDS, BANKS AND BOTTLENECKS: ORGANIZATIONAL	3102
CALORIC RETURNS TO FOOD COLLECTING: DISRUPTION	3117
CASSAVA CULTIVATORS AND THEIR CULTIVARS:	3081
CEREALS IN MULTIPLE CROPPING	3020
CHALLENGES IN REGENERATIVE AGRICULTURE	3199
CHANGES IN HOUSEHOLD ECONOMY IN A RICE VILLAGE IN	3200
CHANGES IN PRACTICES OF RICE FARMERS IN CENTRAL	3186
CHANGES IN THE BURMA RICE ECONOMY	3124
COMMUNICATION ALTERNATIVES FOR FARMING SYSTEM: A	3277
COMMUNICATIONS AS ADAPTIVE AGRICULTURAL TECHNOLOGY	3305

COMPARISON OF THE ECONOMIC PERFORMANCE OF CROPPING	3013
COMPLIMENTARITIES BETWEEN IRRIGATION DEVELOPMENT	3142
COMPONENT TECHNOLOGY FOR REGENERATIVE AGRICULTURE	3192
CONDUCTING ON FARM RESEARCH IN FSR - MAKING A GOOD	3234
CONDUCTING ON-FARM RESEARCH BY EXTENSIONISTS: AN	3306
CONSEQUENCES OF DEFORESTATION FOR WOMEN'S TIME	3226
CONSIDERATIONS AND RECOMMENDATIONS CONCERNING	3103
CONSTRAINTS ON SMALLHOLDER TREE CROPPING IN	3219
CONSTRAINTS TO THE TRANSFER OF AUSTRALIAN FARMING	3307
CONTRIBUTIONS OF RURAL SOCIOLOGY TO TECHNOLOGY	3278
CREDIT FOR SMALL FARMERS: INDONESIA, MALAYSIA,	3151
CROP INTENSIFICATION IN RAINFED PADDY AREAS IN	3060
CROP YIELD DEVELOPMENT IN PAKISTAN: SOME	3279
CROPPING SYSTEMS RESEARCH AND DEVELOPMENT IN	3014
CROPPING SYSTEMS RESEARCH FOR AGROTECHNOLOGY	3280
CROPPING SYSTEMS RESEARCH IN FOUR RESEARCH SITES	3026
DESARROLLO DE ALTERNATIVAS PARA SISTEMAS DE	3293
DEVELOPING A REGIONAL NETWORK FOR	3328
DEVELOPING NOTIONAL TECHNOLOGIES IN A FARMING	3281
DEVELOPING NUTRITIONALLY SUPERIOR CULTIVARS	3082
DEVELOPMENT AND DELIVERY OF SCIENTIFIC FARM	3125
DEVELOPMENT AND TESTING OF A PORTABLE RICE HULLER	3159
DIMENSIONS OF THE INTERNAL STRATIFICATION OF	3106
DISARTICULATION OF FARMING SYSTEMS RESEARCH WITH	3329
DISTRIBUTION OF HIBISCUS L. SECTION FURCARIA IN	3083
DIVERSITY IN CROPS AND CROPPING SYSTEMS	3053
DOES FARMING SYSTEMS RESEARCH HAVE A FUTURE?	3330
DOMESTICATING THE FSR/E CONCEPT IN A LAND GRANT	3331
DRAFT TERMS OF REFERENCE FOR THE SOCIO-ECONOMIC	3258
ECONOMIC ANALYSIS OF A RESERVE STOCK PROGRAM FOR	3229
ECONOMIC ANALYSIS OF ON-FARM LIVESTOCK TRIALS	3316
ECONOMIC CONSIDERATIONS FOR SMALLHOLDER CATTLE	3035
ECONOMIC DIVERSIFICATION AND RISK MANAGEMENT:	3210
ECONOMIC JUSTIFICATION FOR THE FARMING SYSTEMS	3332
ECONOMICALLY OPTIMAL PLANT DENSITY AT DIFFERENT	3061
ECONOMICS AND RISK IN MULTIPLE CROPPING	3021
ECONOMICS OF INSECT CONTROL ON RICE IN THE	3098
ECONOMICS OF IRRIGATED CROPPING PATTERNS	3015
ECONOMICS OF TIMELINESS IN THE CROP	3177
EFFECTS OF DIFFERENT TYPES OF FARMER PARTICIPATION	3294
ENERGY-CONSERVING FARMING SYSTEMS FOR THE HUMID	3179
ENHANCING IRRIGATION THROUGH WATER USER	3072
ENTERPRISE BUDGETS: A MULTIPLE USE DATA BASE FOR	3126
ESTABLISHING STANDARDS: CRUCIAL STEP IN THE ART	3166
EVALUATING TECHNOLOGY FOR NEW FARMING SYSTEMS:	3235
EVALUATION OF NEW TECHNOLOGY ON FARMS:	3295
EVALUATION OF WHEAT AND OTHER ALTERNATIVE CROPS IN	3030
EVOLUCION DE LOS ENFOQUES DE INVESTIGACION	3127
EXAMINING DIVERGENT STRATEGIES IN FARMING SYSTEMS	3236
EXECUTIVE SUMMARY OF GENDER ISSUES IN FARMING	3104
EXPERIENCE IN MECHANIZATION OF EAST ASIAN RICE	3180
EXPLANATION AND IMPLEMENTATION OF MULTIPLE	3016

EXPLORATORY ANALYSIS OF FARMER PARTICIPATION IN	3237
EXPLORATORY SURVEY: CONTENT, METHODS AND DETAILED	3259
EXTENSION EVALUATION AND PLANNING IN THE HILLS OF	3147
FAR-OUT FEEDS: DAIRY BIOMASS, FOREST PRODUCTS AND	3036
FARM SIZE AND PRODUCTIVITY: A CASE STUDY OF	3211
FARMER FIELD PREPARATION AND TILLAGE PRACTICES:	3282
FARMER PARTICIPATION IN TERTIARY IRRIGATION	3073
FARMERS' LOCAL AND TRADITIONAL RICE CROP	3096
FARMING SYSTEMS APPROACH TO SMALL FARMER	3238
FARMING SYSTEMS APPROACHES IN INTERNATIONAL	3178
FARMING SYSTEMS OF SOUTHEAST ASIA	3017
FARMING SYSTEMS RESEARCH (FSR) APPLIED TO FISH	3049
FARMING SYSTEMS RESEARCH AND EXTENSION:	3333
FARMING SYSTEMS RESEARCH APPLICATIONS IN THE	3239
FARMING SYSTEMS RESEARCH AT THE INTERNATIONAL	3334
FARMING SYSTEMS RESEARCH IN A WATERSHED FRAMEWORK:	3074
FARMING SYSTEMS RESEARCH IN BANGLADESH	3240
FARMING SYSTEMS RESEARCH IN BANGLADESH: A REVIEW	3335
FARMING SYSTEMS RESEARCH IN THE EASTERN CARIBBEAN:	3241
FARMING SYSTEMS RESEARCH: DIAGNOSING THE PROBLEMS	3242
FARMING SYSTEMS RESEARCH: A PROBLEM-SOLVING METHOD	3243
FARMING SYSTEMS RESEARCH: AN APPRECIATION AND A	3244
FARMING SYSTEMS RESEARCH: CLARIFICATION OF TERMS	3245
FARMING SYSTEMS RESEARCH: HITTING A MOVING TARGET	3317
FARMING SYSTEMS RESEARCH: UPLAND AGRICULTURE AND	3336
FERTILIZER IN LES CAYES, HAITI: ADDRESSING MARKET	3066
FIELD DATA COLLECTION OF LIVESTOCK FEED	3037
FIELD SUPPORT FUNCTION OF THE AGRICULTURAL	3128
FIRST GREEN REVOLUTION: CHINESE AGRICULTURE IN THE	3134
FIRST SURVEY IN CROPPING SYSTEM RESEARCH SITES	3260
FODDER TREES AND LIVESTOCK PRODUCTION UNDER HARSH	3038
FRUIT PRODUCTION IN SOUTHEAST ASIA: STRATEGIES	3107
FSR IN EVOLUTION: PAST AND FUTURE	3337
FSR/E IN THE WORLD SYSTEM FOR AGRICULTURAL	3338
FUELWOOD SITUATION AND FARMERS' ADJUSTMENT IN	3181
GAME, FARMING, AND INTERETHNIC RELATIONS IN	3118
GOAT NUTRITION AND MANAGEMENT IN DEVELOPING AREAS	3039
GUIA METODOLOGICA PARA CONDUCCION DE ENSAYOS DE	3296
HALFWAY THERE: SOCIAL SCIENCE IN AGRICULTURAL	3246
HERBARIUM SURVEY OF AFRICAN CORCHORUS L. SPECIES	3084
HISTORICAL PERSPECTIVE ON INSTITUTIONAL TRANSFER	3339
HOME TECHNOLOGIES IN FOOD PRESERVATION	3230
HOUSEHOLD ECONOMY IN A RICE VILLAGE IN SOUTHERN	3201
HOUSEHOLD FOOD USE IN THREE RURAL COMMUNITIES IN	3119
HOUSEHOLD STUDIES IN PASTORAL SYSTEMS RESEARCH	3261
HOW PARTICIPATORY IS PARTICIPATORY DEVELOPMENT?	3105
HOW RAPID RURAL APPRAISAL AND OTHER SOCIO-ECONOMIC	3262
IDENTIFICATION AND CHARACTERIZATION OF	3202
IDENTIFICATION OF FARMERS' PRODUCTION PROBLEMS IN	3318
IMPACT EVALUATIONS: CONCEPTS, PROCEDURES AND	3340
IMPACT OF AN AGROFORESTRY PROJECT ON UPLAND	3319
IMPACTS OF PRICE AND YIELD VARIATION ON	3212

IMPLEMENTING A FARMING SYSTEMS RESEARCH PROGRAM:	3308
IMPROVED ANIMAL-DRAWN IMPLEMENTS FOR FARMING IN	3193
IMPROVING IRRIGATION SYSTEM MANAGEMENT THROUGH	3075
INCORPORATING GENDER INTO DIAGNOSTIC FIELD	3263
INCREASING THE PRODUCTION CAPACITY OF SMALL FARM:	3167
INCREASING THE PRODUCTION OF FOOD CROPS IN THE	3187
INCREASING THE PRODUCTIVITY OF SMALL FARMS IN	3135
INDONESIAN FARMING SYSTEMS RESEARCH AND	3247
INDUCING INSTITUTIONAL RESPONSE TO FARMING SYSTEMS	3341
INLAND FISHERIES AND AQUACULTURE IN PAKISTAN; A	3050
INSTITUTIONALIZING SUSTAINABLE DEVELOPMENT:	3342
INTERCROPPING WITH SWEET POTATO (IPOMOEA BATATAS)	3022
INTERNATIONAL LINKAGES IN RICE FARMING SYSTEMS	3343
INTRODUCTION TO CROPPING SYSTEMS RESEARCH	3309
IRRIGATION AND RICE PRODUCTION IN THE PHILIPPINES:	3076
IS FARMING SYSTEMS RESEARCH THE CART BEFORE THE	3344
JAMAICAN SMALL-SCALE FARMER: AN ANNOTATED	3129
JUEGO DE REGISTRO: USING A REGISTRATION GAME IN AN	3264
KENYA TOP-BAR HIVE AS A BETTER HIVE IN DEVELOPING	3194
LABOR HETEROGENEITY AND RICE PRODUCTION IN	3223
LAND AND WATER MANAGEMENT IN RAINFED FARMING	3062
LAND CLASSIFICATION FOR LIVESTOCK FARMING SYSTEMS	3067
LAND TENURE AND RICE PRODUCTION IN FOUR VILLAGES	3203
LESSER-KNOWN PLANTS OF POTENTIAL USE IN	3085
LESSONS FROM LADAKH	3182
LESSONS FROM SURVEY OF SUCCESSFUL EXPERIENCES IN	3136
LIMITS OF FARMING SYSTEMS RESEARCH AND	3345
LIVESTOCK COMPONENT FARMING SYSTEMS RESEARCH IN	3283
LOCAL INSTITUTIONS AND MANAGEMENT OF COMMUNAL	3108
LORENA STOVE: AN ENERGY-EFFICIENT, ECONOMICAL, AND	3183
MAJOR ISSUES TO ADDRESS IN THE INCORPORATION OF A	3346
MAKING EXTENSION WORK	3148
MANAGING SMALL FARMER CREDIT PROGRAMS: A CASE	3152
MARKETING POLICIES ON FARM INPUTS: IMPLICATIONS	3140
MARKETING THAILAND'S POTATOES: PRESENT PATTERNS	3155
METHODOLOGY FOR ENTOMOLOGICAL RESEARCH IN CROPPING	3099
METHODOLOGY FOR THE DEVELOPMENT OF AN AGRICULTURAL	3195
METHODOLOGY FOR THE PARTICIPATION OF SMALL FARMERS	3297
MINIMUM DATA SETS FOR AGROTECHNOLOGY TRANSFER	3188
MISSOURI EXTENSION PROGRAM FOR SMALL FARM FAMILIES	3149
MODEL TO EVALUATE THE ECONOMIC MERITS OF DRY	3040
MOUNTAIN PASTORALISTS OF THE SULTANATE OF OMAN:	3041
MULTIDISCIPLINARY APPROACH TO DEVELOPMENT RESEARCH	3248
MULTIPLE CROPPING TRIALS AND DEVELOPMENT ON THE	3303
MULTIPLE CROPPING WITH LEGUMES AND STARCHY ROOTS	3023
MULTIPLE USE OF MEDITERRANEAN RANGE LANDS: NEW	3063
NATURE AND IMPACT OF THE GREEN REVOLUTION IN	3227
NEPAL AGRICULTURAL RESEARCH AND PRODUCTION PROJECT	3347
NORTHEAST RAINFED AGRICULTURAL DEVELOPMENT PROJECT	3249
OBSERVATIONS ON INDIAN AGRICULTURAL UNIVERSITIES	3137
OFF-FARM LABOUR SUPPLY OF PADI FARMERS IN	3228
ON DEVELOPING UPLAND RICE-BASED TECHNOLOGIES IN	3284

ON FARM RESEARCH, TECHNOLOGY GENERATION AND	3310
ON-FARM AGRONOMIC TRIALS IN FARMING SYSTEMS	3298
ON-FARM PERFORMANCE OF SMALL RUMINANT TECHNOLOGIES	3299
ON-FARM RESEARCH IN ECUADOR BY THE NATIONAL	3348
ORGANISATIONAL CONSEQUENCES OF SOCIAL AND ECONOMIC	3130
OUTLINE OF PROPOSED KSU - UNIVERSITY OF UDAIPUR	3250
PARTICIPATORY METHODS FOR IDENTIFYING, ANALYZING,	3320
PASTORAL NOMADISM IN MONGOLIA: THE ROLE OF	3109
PEASANT STRATEGIES TO DEAL WITH RISK	3213
PERU'S AGRARIAN TRANSFORMATION	3168
PHASES OF FARMING SYSTEMS RESEARCH: THE RELEVANCE	3321
PIGEONPEAS (CAJANUS CAJAN MILLISP): A VALUABLE	3086
PLANES DE INVERSION PARA GRANOS BASICOS EN	3220
PLANT BREEDING AND THE NUTRITIVE VALUE OF CROP	3047
POSSIBLE FUTURE DIRECTIONS OF FARMING SYSTEMS	3349
POSTHARVEST PROBLEMS OF VEGETABLES AND FRUITS IN	3087
POTATOES, PEASANTS, AND PROFESSORS: A DEVELOPMENT	3138
POTENTIAL FOR BREEDING HEAT TOLERANT VEGETABLES	3088
POTENTIAL FOR LIVESTOCK SMALLHOLDER FARMING	3042
PRINCIPLES OF CLIMATE/CROP YIELD MODELING AND	3070
PROBLEMS OF THE SMALL FARMERS	3214
PRODUCT MARKETING SYSTEM IN PAKISTAN: PROBLEMS	3156
PRODUCTION LOANS TO GROUPS OF FARMS: EXPERIMENTS	3153
PROGRESS TOWARD TRIPLE CROPPING IN CHINA	3027
PROJECT PAPER: FARMING SYSTEMS DEVELOPMENT	3169
PROSPECTS FOR AGROFORESTRY RESEARCH IN INDIA'S	3265
PUBLIC AND PRIVATE SECTOR EXTENSION SYSTEMS IN	3141
PUTTING FARMING SYSTEMS RESEARCH DATA COLLECTION	3266
QUANTIFYING CAUSES OF LOW RICE YIELDS IN FARM	3267
RECORDS FOR SMALL FARMS IN HONDURAS: A	3204
REFLECTIONS ON THE NEEDED DEVELOPMENTS IN TRAINING	3170
REGIONAL ANALYSIS, FARMING SYSTEMS, AND SOCIAL	3285
REGULAR RESEARCH FIELD HEARING (RRFH): A	3268
RELEVANCE OF STRUCTURAL VARIABLES FOR FARMING	3251
REPORT OF THE SEVENTH SESSION OF THE FAO REGIONAL	3131
REPORT ON PRELIMINARY RESULTS OF CROSS-SITE	3018
RESEARCH AND VALIDATION IN AGRICULTURAL PRODUCTION	3286
RESEARCH ON FARMER BEHAVIOR AND SOCIAL	3110
RESEARCH PROGRAM DEVELOPMENT AND GOAL HIERARCHIES:	3132
RESEARCH, RECOMMENDATION, AND DIFFUSION DOMAINS: A	3252
RESOURCE EFFICIENT SYSTEMS FOR THIRD WORLD FARMERS	3054
RESOURCE USE AMONG RICE FARMERS IN PAKISTAN: A	3055
RESOURCE USE IN THE TAMBOPATA VALLEY, PERU: STATE	3111
RESOURCES ACCESS AND UTILIZATION	3221
REVERSE TRANSFER: ADAPTING AGRICULTURAL RESEARCH	3287
REVIEW OF A.I.D. EXPERIENCE: FARMING SYSTEMS	3350
REVIEW OF FAO-SPONSORED FARMING SYSTEMS	3351
REVIEW OF THE RESEARCH SYSTEM OF THE MINISTRY OF	3171
RICE YIELD CONSTRAINTS RESEARCH: SIND, PAKISTAN	3056
RICE-WHEAT PATTERN IN THE NEPAL TERAI: ISSUES IN	3028
RISK AND ITS MANAGEMENT IN TRADITIONAL AND MODERN	3215
RISK AVERSION, RISK PERCEPTION, AND CREDIT USE:	3216

ROLE OF FARMING SYSTEMS IN SUSTAINING	3352
ROLE OF ON-FARM TRIALS IN THE EVALUATION OF ALLEY	3300
ROLE OF THE CAMPESINO SECTOR IN THE HONDURAN	3112
ROLE OF THE INFORMATION SPECIALIST IN THE	3311
RURAL MARKETS SERVING SMALL FARMERS IN SRI LANKA -	3157
SCENARIO ANALYSIS OF IMPACTS OF CHANGES IN	3158
SCRUTINY OF THE BOUNTY: CHEMICAL FOG OVER	3120
SEED POTATO SYSTEMS IN ECUADOR: A CASE STUDY	3089
SEVENTEENTH CENTURY ORGANIC AGRICULTURE IN CHINA	3057
SHIFTING TOWARDS A MORE COMPREHENSIVE FARMING	3312
SHORT METHODOLOGICAL ACCOUNT OF A DYNAMIC SYSTEMS	3029
SILAGES MADE FROM TROPICAL AND TEMPERATE CROPS:	3090
SILAGES MADE FROM TROPICAL AND TEMPERATE CROPS:	3091
SMALL WATERSHED HYDROLOGY	3077
SMALLHOLDER FARMING SYSTEMS IN TRANSMIGRATION	3058
SOCIAL ECONOMY OF COASTAL RESOURCES: SHRIMP	3051
SOCIAL STRATIFICATION AND MULTIPLE ENTERPRISES:	3288
SOCIO-CULTURAL EFFECTS ON THE FARMING SYSTEMS	3253
SOCIO-ECOLOGICAL PARADIGM FOR ANALYSING PROBLEMS	3217
SOCIO-ECONOMIC RESEARCH ON CROPPING SYSTEMS	3269
SOCIO-ECONOMIC STUDY OF FARMING SYSTEMS IN AZAD	3270
SOCIOCULTURAL AND ECONOMIC DIMENSION OF THE	3114
SOCIOLOGICAL AND ANTHROPOLOGICAL ASPECTS IN	3301
SOCIOLOGICAL DIMENSIONS OF EXTENSION ORGANIZATION:	3150
SOCIOLOGY OF PRODUCTION IN RURAL MALAY SOCIETY	3113
SOILS AND ENVIRONMENTAL CONDITIONS OF IDIAP	3068
SOME AGRICULTURAL POLICY EFFECTS OF ENCOURAGING	3172
SOME ASPECTS OF CROP PRODUCTION WITH REFERENCE TO	3222
SOME INNOVATIONS DON'T WAIT FOR EXPERTS: A REPORT	3196
SOME OBSERVATIONS ON THE CHANGES IN RICE	3115
SORGHUM ADOPTION FOR SMALLHOLDER SELF-SUFFICIENCY	3289
SORGHUM PRODUCTION IN THE SMALL-FARMER SECTOR OF	3059
SORJAN CROPPING SYSTEM AS A METHOD OF GROWING A	3052
SPECIAL REPORT: A HOLISTIC APPROACH TO RURAL	3271
STAPLE FOOD CONSUMPTION IN THE PHILIPPINES	3121
STATISTICAL METHODS FOR MULTIPLE CROPPING	3024
STATUS AND PERFORMANCE OF IRRIGATION IN INDONESIA	3078
STATUS OF THE BANGLADESH LIVESTOCK INDUSTRY IN	3048
STOCHASTIC EFFICIENCY ANALYSIS AND FARMERS' CHOICE	3218
STRATEGIES AND DESIGNS FOR AFFORESTATION,	3032
STRATEGY FOR SURVIVAL OF SMALL	3254
STRUCTURE OF ASSET HOLDINGS OF HOUSEHOLD IN A RICE	3205
STUDY OF SOCIOECONOMIC ISSUES IN BRUCELLOSIS	3033
STUDY OF THE CHANGES IN CROPPING PATTERNS, INCOMES	3206
STUDY ON THE CREDIT BEHAVIOR OF FARM FAMILIES IN	3154
SUNFLOWER: THE NEW ENTERPRISE IN A RICE-BASED	3031
SURVEY RESEARCH IN SUPPORT OF CROPPING SYSTEM	3272
SUSTAINABLE AGROECOLOGICAL TECHNOLOGY: AN EMERGING	3197
SYSTEMS ANALYSIS FOR SMALLHOLDER DEVELOPMENT	3322
TANK IRRIGATION IN SEMI-ARID TROPICAL INDIA	3079
TECHNICAL CHANGE AND LABOR ABSORPTION IN ASIAN	3224
TECHNOLOGICAL INNOVATIONS AND IMPACT OF CROPPING	3290

TECHNOLOGY ADOPTION AMONG LIMITED RESOURCE	3189
TECHNOLOGY FOR THE SMALL FARMER	3190
TECHNOLOGY TRIANGLE: LINKING FARMERS, TECHNOLOGY	3353
TEMPORAL LAND RESOURCE CONCERNS AND FARMING	3313
TENANCY, FARMING PRACTICES AND INCOME DIFFERENCES:	3207
TESTING THE EXPECTED VALUE-VARIANCE CRITERION IN A	3302
TIPIFICACION DE SISTEMAS DE PRODUCCION AGRICOLA	3273
TOLAKI FARMING SYSTEMS IN KECAMATAN WAWOTOBI OF	3208
TOWARD FARM-BASED POLICY RESEARCH: LEARNING FROM	3173
TOWARDS A FRAMEWORK FOR PASTORAL SYSTEMS RESEARCH	3323
TRAINING PROGRAMS FOR AGRICULTURAL DEVELOPMENT	3133
TRAINING RESOURCE BOOK FOR AGRO-ECOSYSTEM MAPPING	3274
TRAINING THIRD WORLD STUDENTS IN AGRICULTURAL	3354
TRIALS ON SOYBEANS AT TIRUPATI	3092
USE OF COMMUNICATION AND INDIGENOUS INNOVATION IN	3116
USE OF RRA IN CROSS-SECTIONAL AND LONGITUDINAL	3275
USE OF THE "NON-WEED" CONCEPT IN TRADITIONAL	3097
USE OF TRADITIONAL KNOWLEDGE IN DEVELOPMENT AND	3198
USING ANTHROPOLOGY IN IMPROVING FOOD PRODUCTION:	3255
USING LOCAL PERCEPTIONS IN TARGET GROUPING FOR	3276
VARIABILIDAD DE LOS RENDIMIENTOS DE MAIZ EN EL	3071
VARIETY DEVELOPMENT FOR MULTIPLE CROPPING SYSTEMS	3025
VEGETABLES AND THE QUALITY OF LIFE IN THE YEAR	3093
WHEAT IN THE COTTON-WHEAT FARMING SYSTEMS OF THE	3291
WHY DEVELOPMENT FAILS: THE EVALUATION GAP IN	3174
WILD PHASEOLUS ECOGEOGRAPHY IN THE SIERRA MADRE	3094
WOMEN IN DEVELOPMENT AND NEPAL'S RESOURCE	3175
WOMEN'S CONTRIBUTION TO ANIMAL PRODUCTION AND	3043
WOMEN'S ROLE IN CARIBBEAN AGRICULTURE: REPORT OF	3209
WOMEN'S ROLES IN BANGLADESH DEVELOPMENT: A	3176
WORK AND PRODUCTION AMONG SHIFTING CULTIVATORS OF	3225
WORKSHOP OF THE TROPICAL LAND CLEARING FOR	3355
WORKSHOP ON THE PROBLEMS AND PROSPECTS FOR	3256
WORLD NEEDS FOR IMPROVED NUTRITION AND THE ROLE OF	3095

## AUTHOR INDEX

- Abedin M.Z.  
3312
- Abegunawardana P.  
3212
- Adelski E.  
3059
- Ahmad K.U.  
3240
- Ahmad R.M.  
3135
- Ahmed R.  
3139
- Akhtar M.R.  
3291
- Alauddin M.  
3327
- Ali M.M.  
3167
- Amarasuriya N.  
3123
- Ames G.  
3354
- Amir P.  
3030, 3055, 3061, 3170,  
3279, 3299, 3316, 3341
- Anderson D.C.  
3072
- Anderson E.N.  
3134
- Anderson F.M.  
3334
- Anderson J.R.  
3233
- Andrew C.O.  
3184
- Andrews S.B.  
3197
- Ashby J.A.  
3282, 3294, 3297
- Aslam M.M.  
3031, 3191
- Attah-Krah A.N.  
3300
- Bailey C.  
3113, 3210
- Bansal R.K.  
3044, 3193
- Banta G.R.  
3015
- Barichello R.R.  
3132
- Barlow C.  
3235
- Barnum H.N.  
3223
- Bartlett C.  
3243
- Bates L.  
3082
- Behrman J.R.  
3158
- Bejarano W.  
3293
- Bemis J.H.  
3305
- Bennagen E.C.  
3121
- Bennett J.W.  
3110
- Bernsten R.H.  
3272
- Berube C.  
3194
- Birks S.  
3041
- Blanc-Szanton M.C.  
3249
- Box L.  
3081, 3287, 3314
- Brammer H.  
3196
- Bressani R.  
3095
- Brinkman M.A.  
3080
- Brokken R.F.  
3035
- Brown A.L.  
3349
- Brown T.  
3149
- Butler L.M.  
3266
- Byrnes K.J.  
3347, 3350
- Calkins P.H.  
3174
- Calub A.D.  
3037

Carangal V.R.	de Morais C.S.
3343	3112
Castillo G.T.	de Silva M.D.
3105	3157
Cernea M.	De Vries J.
3150, 3258	3144
Chacón J.C.	Delman J.
3097	3146
Chambers R.	DeWalt B.R.
3231	3246
Chandler R.F.	Dickey J.R.
3088	3048
Chandrapanya D.	Dupont E.
3026	3308
Chapman J.A.	Eastman C.
3281	3168
Chew T.A.	Edelman M.
3228	3162
Chong K.C.	Edmonds J.M.
3049	3083, 3084
Choudhury B.	Effendi S.
3093	3318
Colfer C.J.	Elder J.F.
3225	3117
Collinson M.	Elena M.A.
3242, 3259, 3337	3202
Cook C.D.	Escobar G.
3116	3273
Cordova V.	Espinosa P.
3186	3348
Coronado L.	Esquivel Alvarez C.
3286	3071
Coronel R.E.	Estrella Chulin N.
3107	3127
Crissman C.C.	Ferguson D.S.
3089	3304
Crotty R.	Finck J.
3219	3271
Crowder L.V.	Fiske E.P.
3141	3331
Cummings R.W.	Flinn J.C.
3164	3056, 3267
Davenport A.A.	Flora C.B.
3175	3178
Davidson A.P.	Flora J.L.
3330	3339, 3351
Davis J.C.	Francis C.A.
3023	3025, 3053, 3054,
Dazhong W.	3192, 3199
3057	Frankenberger T.R.
de Haan C.	3346
3323	

Galt D.L.	Illo J.F.
3262	3221
Garrett P.	Ismail I.G.
3163, 3244, 3251, 3257,	3014
3263, 3288, 3321	ISNAR
Gee-Clough D.	3171
3190	Jaramillo S.
Germain A.	3068
3176	Jayasuriya S.K.
Gibbon D.	3224
3335	Jiggins J.
Gliessman S.R.	3301
3064, 3198, 3232	Jodha N.S.
Gonzales L.A.	3238
3140	Johnson S.H.
Goodell G.E.	3313
3102	Kabagambe J.C.K.
Grandin B.E.	3276
3261	Kamar S.K.
Greene B.A.	3226
3344	Kampen J.
Gupta A.K.	3065
3217	Karimizadeh R.
Hagerman H.H.	3222
3052	Khan A.S.
Hamal K.B.	3214
3211, 3216, 3218	Khan M.J.
Harrington L.	3270
3028	Kikuchi M.
Harriss B.	3200, 3201, 3205
3143	Kirkby R.
Hayami Y.	3195
3115	Kishore D.
Herdt R.W.	3185
3098, 3180	Kistner W.
Hildebrand P.E.	3120
3298	Knapp R.
Honduras. Secretaria	3166
de Recursos Naturales	Koppel B.
3296	3189
Horwith B.	Lawrence P.
3104	3045
Hossain M.	Leeming F.
3227	3027
Hughes D.T.	Leesberg J.
3147	3264
Humphrey C.	Leones J.P.
3109	3319
ICRISAT	Levine J.
3077	3042, 3058, 3208
IICA	Lightfoot C.
3129	3029, 3234, 3274, 3320

Lionberger H.F.  
 3125, 3338  
 Liu M.S.  
 3087  
 Lockwood L.M.  
 3159  
 Lone K.P.  
 3050  
 Long M.  
 3151  
 Lowry K.  
 3342  
 Lynam J.K.  
 3021  
 Mader E.L.  
 3092  
 Manalo E.B.  
 3069  
 Maranan C.G.  
 3206  
 Marcotte P.  
 3289, 3324, 3329  
 Martinez J.C.  
 3173  
 Mathema S.B.  
 3260, 3269  
 Maturan E.  
 3114  
 Maxwell S.  
 3317  
 May T.  
 3036  
 McCauley E.H.  
 3136  
 McIntosh J.L.  
 3247, 3280, 3016  
 Mead R.  
 3024  
 Meltzoff S.K.  
 3051  
 Merrill-Sands D.  
 3245, 3353  
 Michie B.H.  
 3137, 3250, 3265  
 Moreno R.A.  
 3022  
 Morlon P.  
 3213  
 Morton J.F.  
 3086  
 Nabhan G.P.  
 3094  
 Narendran V.  
 3241  
 Naveh Z.  
 3063  
 Nitis I.M.  
 3038  
 Nix H.A.  
 3188  
 Noor H.  
 3248  
 Norem R.H.  
 3277  
 Norgaard R.B.  
 3215  
 Norman D.W.  
 3130  
 Norman M.J.  
 3017  
 Nyberg A.J.  
 3078  
 Oasa E.K.  
 3345  
 Odell M.J.  
 3108  
 Okali C.  
 3236  
 Ongkingco P.S.  
 3076  
 Opio-Odongo J.M.A.  
 3278  
 Othman Y.  
 3073  
 Oxby C.  
 3043  
 Page J.A.  
 3182  
 Painter M.  
 3111  
 Pakistan Agricultural  
 Research Council (PARC)  
 3325  
 Paris T.R.  
 3124  
 Parks L.L.  
 3126, 3133, 3152,  
 3153, 3204  
 Partohardjono S.  
 3290  
 Peterson J.T.  
 3118  
 Petheram R.J.  
 3067, 3283, 3307

Poey F.	3306	Smith D.T.	3070
Pomeroy C.R.	3128	Smith M.E.	3019
Pradhan N.C.	3075	Spooner B.	3165
Price E.C.	3018	Srivastava K.L.	3062, 3074
Quijandría B.	3315	Stanton T.	3039
Rambo A.T.	3328	Subhadhira S.	3181
Ranjhan S.K.	3046	Suradisastra K.	3268
Rao M.R.	3020	Swaminathan M.	3154
Ray D.	3172	Swanberg K.G.	3332
Reed J.D.	3047	Te A.	3229
Rhoades R.E.	3255	Tew B.V.	3302
Rohrer W.C.	3103	Thahir S.M.	3303
Roxas N.M.	3177, 3284	Thapa H.B.	3145
Safo M.	3148	Thiessen E.M.	3142
Sanders J.H.	3295	Thomas D.E.	3275
Satjanata S.	3187	Thompson G.S.	3183, 3230
Sattar A.	3311	Thompson K.S.	3119
Schmink M.	3209	Tongpain S.	3207
Schulman M.D.	3106	Tripp R.	3292
Schutjer W.A.A.	3122	Tutwiler R.N.	3256
Scott G.J.	3155	Ul-Hasan S.	3156
Scudder T.	3100, 3101, 3160, 3161	Uquillas J.	3285
Shahid A.	3203	Van Der Veen M.G.	3309
Sigman V.A.	3237	Van Muilwijk T.	3322
Sison O.F.	3352	Vietmeyer N.D.	3085
Sjahri S.	3060	von Oppen M.	3079

Voth D.E.  
3033, 3239  
Wadsworth J.  
3040  
Watson G.A.  
3096  
White L.G.  
3340  
Whyte R.O.  
3034  
Whyte W.F.  
3138  
Wijewardene R.  
3179  
Wilkinson J.M.  
3090, 3091  
Williams T.T.  
3254  
Wilson K.K.  
3253  
Wotowiec P.  
3252  
Yates M.  
3066  
Zandstra H.G.  
3333