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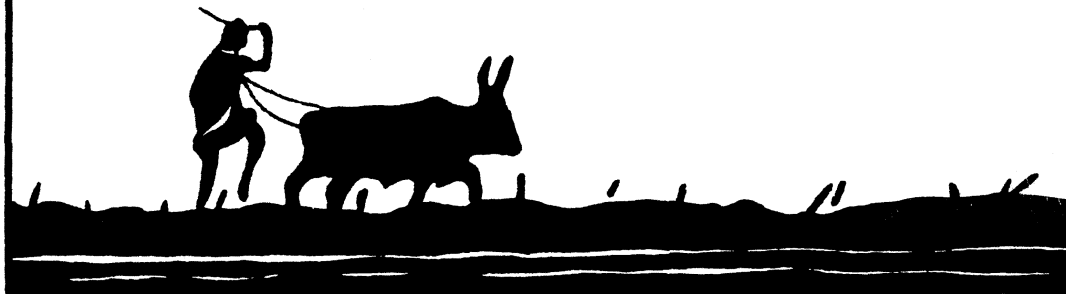
**A FARMING SYSTEMS RESEARCH
BIBLIOGRAPHY OF KANSAS STATE
UNIVERSITY'S VERTICAL FILE MATERIALS:
1992 SUPPLEMENT**

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

**Paper No. 4S4
Supplement Four
to the
Revised Edition
Fall 1992**

FARMING SYSTEMS RESEARCH

PAPER SERIES



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

Resources on developing countries

A FARMING SYSTEMS RESEARCH
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FARMING SYSTEMS RESEARCH AND THE KSU COLLECTION

Kansas State University is one of the increasing number of institutions involved in farming systems research/extension (FSR/E). 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."¹

¹Farming Systems Research at the International Agricultural Research Centers, Washington, World Bank for TAC Secretariat/FAO, 1978, page 8.

THE SUPPLEMENT . . .

lists FSR vertical file material and selected publications with Library of Congress classification numbers from KSU's Farrell Library. This Supplement continues the FSR documentation effort at KSU from the following four previously issued bibliographies:

Graham, Gretchen A., ed. A Farming Systems Research Bibliography of Kansas State University's Vertical File Materials (Revised Edition). 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.

Donoghue, Nancy H. and Dean A. Hargett, eds. A Farming Systems Research Bibliography of Kansas State University's Vertical File Materials: 1991 Supplement. Farming Systems Research Paper Series no. 4S3 (supplement 3 to the rev. ed.). Manhattan, Kan.: Resources on Developing Countries, Farrell Library, Kansas State University. 1991.

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.

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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. Those items marked with a "++" in the location code have not yet been assigned a Library of Congress classification number.

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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
ACDI	Agencia Canadiense para el Desarrollo Internacional
ACIAR	Australian Centre for International Agricultural Research
AD	Agricultural Administration
ADB	Asian Development Bank
ADC	Agricultural Development Council
ADNP	Agricultural Development Ngamiland Project
ADP	Agricultural Development Programme (Pakistan)
AFTRCW/UNEC	African Training and Research Centre for Women/United Nations Economic Commission for Africa
AHS	American Horticulture Society
AIA	Agricultor-Investigacion-Agricultor
AICRPDA	?
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
BARI	Bangladesh Agricultural Research Institute
BIFAD	Board for International Food and Agricultural Development
BDPA	Bureau pour le developpement de la production agricole
c	copyright
C.I.A.T.	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
CENDHARRA	? (San Juan, Rizal, Philippines)
CENTA/BID	Centro Nacional de Tecnologia Agropecuaria/? (El Salvador)
CENTA	Centro Nacional de Tecnologia Agropecuaria
CENTO	Central Treaty Organization
CEPAL	Economic Commision 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
CONAE	Coordinadora Nacional de Agricultura Ecologica (Peru)
CRDI	Centre de recherche pour le developpement international
CRISA	Central Research Institute for Agriculture (Indonesia)
CRIFC	Central Research Institute for Food Crops
CRSP	Collaborative Research Support Program
DAI	Development Alternatives, Inc.
DAP	Draught Animal Power
Dept.	Department
DEFIL	Development Strategies for Fragile Lands
DRSPR	Division de Recherches sur les Systemes de Production Rurale, Mali
ed., eds.	editor, editors
EFSaip	Evaluation of Farming Systems & Agricultural Implements Project (Sebele, Botswana)
EMBRAPA	Empressa Brasileira de Pesquina 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(?)/Development(?)(Project)
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 (?)/Development (?) (Project)
GERDA	Groupement d'etudes et du recherches pour le developpement de l'agronomie tropical
GIA	Agrarian Research Group (Chile)
GIS	geographic information systems
GRET	Groupe de Recherche et d'Echanges Technologiques, France
HYVs	high yielding varieties
I.A.P.M.P	International Agricultural Production and Marketing Project (KSU)
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
ICSU	International Council of Scientific Unions

ICTA	Instituto de Ciencia y Tecnologia Agricolas- 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 Interamericano de Documentacion e Informacion Agricola
IIED	International Institute for Environment and Development
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Center for Africa
ILEIA	Information Centre for Low-External-Input and Sustainable Agriculture (Netherlands)
ILO	International Labour Organisation
ILRAD	International Laboratory for Research on Animal Diseases, Kenya
IMF	International Monetary Fund
INCAP	Instituto de Nutricion de Centroamerica y Panama
INIA	Instituto Nacional de Investigaciones Agrarias
INIAA	Instituto Nacional de Investigacion Agropecuaria y Agroindustrial (Peru)
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)

INTSOIL International Soil Management Program
 INTSORMIL International Sorghum/Millet/Collaborative Research Support Program
 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 Institut de recherche du coton et des textiles exotiques (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
 IT Intermediate Technology
 IUFS&T International Union of Food Science & Technology (Goteborg, Sweden)
 IUNS International Union of Nutritional Sciences (Zurich)
 KIT Koninklijke Instituut voor de Tropen (Royal Tropical Institute), Netherlands
 KKU Khon Kaen University, Thailand
 KCU/KFCSP 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)
 NFTA Nitrogen Fixing Tree Association
 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)
 NRECA National Rural Electric Cooperative Association
 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
 PAC Pakhribas Agricultural Centre (Nepal)
 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
 PATA Provincially Administered Tribal Areas (Pakistan)
 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
 Mejoramiento de Cultivos Alimenticios
 PGRCE Plant Genetic Resource Center for Ethiopia
 PN publication number
 PR progress report
 PRC People's Republic of China
 PROGETTAPS Proyecto de Generación y Transferencia de
 Tecnología Agropecuaria y Producción de Semillas
 (Guatemala)
 PROTAAL Proyecto Cooperativo de Investigacion sobre
 Tecnología 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 ? (World Bank)/International Finance Corporation
 RRFH regular research field hearings
 RTN Research and Training Network
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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	? (Zaire)
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
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

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3.F TECHNOLOGICAL AND MECHANICAL FACTORS

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- 3635 **COW DUNG "OPLA" AS AN ALTERNATIVE CHEAP SOURCE OF FUEL IN PAKISTAN.** Lullo, R.J. [n.d.]* Peshawar, Pakistan: R.J. Lullo. (Also available from Heifer Project International, P.O. Box 808, Little Rock, Ark. 72203; tel.:501-376-6836; request no.6602) 3p. KEYWORDS: Asia, South Asia, Pakistan, manures, fuels, waste utilization 3.F.2
- 3636 **DIAGNÓSTICO SOCIO-ECONÓMICO SOBRE EL CONSUMO Y PRODUCCIÓN DE LEÑA EN FINCAS PEQUEÑAS DE LA PENINSULA DE AZUERO, PANAMA.** Jones, J.R. (1982) Turrialba, Costa Rica: Centro Agronomico Tropical de Investigacion y Enseñanza (CATIE). (Serie Tecnica Informe Tecnico no.32; USAID Doc. No. PN-AAM-107) 83p. KEYWORDS: Latin America, Central America, Panama, CATIE, fuelwood, fuels, demographics, forestry, interviews, energy PA.3.F.2
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- 3657 **ECOFARMING: A SYNTHESIS OF OLD AND NEW.** IN: ILEIA Newsletter. Egger, K. (1990) (Vol.6 no.2 p.3-5, June 1990; Also available from Heifer Project International. P.O. Box 808, Little Rock, Ark. 72203; tel: 501-376-6836; request no.5502) 3p. KEYWORDS: tropics, ecology, agroecology, ecosystems, indigenous knowledge systems, traditional farming, traditional technology, modernization, technology transfers, agroforestry, integrated systems, green manures, manures S494.5/.S86/I44
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- 3667 **IMPROVED TECHNOLOGY FOR HIGHER FARM YIELDS.** IN: Development and Cooperative. Reeves, J. (1991) (No.1 p.29, 1991) 1p. KEYWORDS: Africa, ILCA, appropriate technology, animal traction, implements, plowing HC60/.D455
- 3668 **INDIGENOUS SOIL AND WATER CONSERVATION IN AFRICA.** Reij, C. (1991) London: International Institute for Environment and Development (IIED), Sustainable Agriculture Programme. (Gatekeeper Series no.SA27) 32p. KEYWORDS: Africa, soil conservation, water conservation, indigenous knowledge systems, traditional technology, socioeconomic conditions AFRICA.3.F.4
- 3669 **LESS IS MORE: AGROECOLOGY AND PEASANT FARMING IN LATIN AMERICA.** IN: WEI Reports. Alturi, M. (1991) (no.29 p.17-20, 1991; Also available from Heifer Project International., P.O. Box 808, Little Rock, Ark. 72203; tel: 501-376-6836; request no.6308) 4p. KEYWORDS: Latin America, Chile, peasant farming, appropriate technology, self sufficiency, fertilizers, agroecology, training LATIN AMERICA.3.F.4
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- 3672 **NEW IMPLEMENTS FOR CROP PRODUCTION IN THE SEMI-ARID TROPICS.** Awadhwal, N.K. (1989) Patancheru, India: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). (Information Bulletin no.27, 1989) 16p. KEYWORDS: ICRISAT, semiarid zones, tropics, implements, appropriate technology 3.F.4
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- 3681 **THRESHING TECHNIQUES IN BANGLADESH.** IN: Postharvest technologies; implications for food policy analysis. Greeley, M. (1991) Washington, D.C.: World Bank. (p.21-43, 71-75) 28p. KEYWORDS: Asia, South Asia, Bangladesh, case studies, appropriate technology, threshing, postharvest technology, socioeconomic conditions, economic analysis HD9046/.B22/G74/1991
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- 3684 **WEEDER MULCHER.** Intermediate Technology, [n.d.] London: Intermediate Technology Publications Ltd. 8p. KEYWORDS: IT, farm equipment, tools, mulching, implements, handbooks 3.F.4
- 3.F.5 RECOMMENDED TECHNOLOGY**
- 3685 **APPLICATION OF MICRO-COMPUTER TECHNOLOGY TO INTERNATIONAL AGRICULTURAL RESEARCH AND DEVELOPMENT.** IN: Agricultural Administration. Duff, B. (1984) (Vol.17 p.135-48, 1984) 8p. KEYWORDS: IRRI, agricultural research, multidisciplinary research, computers HD1401/.A36
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- 3691 **ENTERPRISE ANALYSIS FOR SUSTAINABLE FARMING: CASE STUDIES AT HOUSEHOLD AND COMMUNITY LEVELS.** (Paper submitted for presentation at the 11th Annual FSR/E Symposium, Michigan State Univ., E. Lansing, Mich., Oct. 5-10, 1991). Das, C.S. [1991?]* Narendrapur, India: C.S. Das, Ramakrishna Mission Lokasiksha Parishad. 14p. **KEYWORDS:** Asia, South Asia, India, on-farm research, farmer participation, inputs, yields, rain-fed farming, rice, households, income, vegetables, women, mixed farming, livestock, fish, poultry, goats IN.4
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- 3698 **IMPORTANCIA DEL CACAO EN LA PRODUCCION INGRESO Y USO DE RECURSOS EN FINCAS DE LA REGION BRUNCA DE COSTA RICA.** Jiménez V., G. (1982) Turrialba, Costa Rica: G. Jiménez V., Centro Agronomico Tropical de Investigación y Enseñanza (CATIE), Dept. de Produccion Vegetal. 21p. **KEYWORDS:** Latin America, Central America, Costa Rica, cocoa, income, economic resources, crop production, inputs CR.4

- 3699 **OPPORTUNITIES FOR ECONOMIC ANALYSIS OF COMPONENT TECHNOLOGY AT FIELD SITES.** Flinn, J.C. [1980?]* Los Baños, Laguna, Philippines: J.C. Flinn, International Rice Research Institute. (p.69-96) 27p. **KEYWORDS:** economic analysis, yields, income, budget analysis, project appraisal 4
- 3700 **PAYSANS DU NORD-CAMEROUN FACE AU RISQUE CLIMATIQUE.** (Paper prepared for the International Conference on the Impact of Climatic Variation on Sustainable Development of Semi-arid Regions - ICID, Forteleza, Brasil, Jan. 27-Feb. 1992). Bikoi, A. [1992?]* Yaounde, Cameroun: A. Bikoi, Mesires/ORSTOM (Office de la Recherche Scientifique et Technique Outre-Mer). 8p. **KEYWORDS:** Africa, West Africa, Cameroon, rain-fed farming, erosion, climatic factors, risk, mountains, plains, indigenous knowledge systems CM.4
- 3701 **PRODUCCION Y PRODUCTIVIDAD DE LOS RECURSOS ASIGNADOS A GRANOS BASICOS EN FINCAS PEQUEÑAS DE MATA GALPA, NICARAGUA.** Treminio Ch., R. (1981)* Turrialba, Costa Rica: R. Treminio Ch., Centro Agronomico Tropical de Investigacion y Enseñanza (CATIE). 16p. **KEYWORDS:** Latin America, Central America, Nicaragua, CATIE, models, food grains, food production, cost benefit analysis, resource allocation, labor requirements, pesticides, fertilizers NI.4
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4.A GOALS AND RISKS

- 3703 **CLIMA A LA COMERCIALIZACIÓN: UN RIESGO PUEDE OCULTAR OTRO: EJEMPLOS SOBRE EL ALTIPLANO PERUANO.** IN: Agricultura y Sociedad. Morlon, P. (1987) (No.45 p.133-82, Oct./Dec. 1987) 50p. **KEYWORDS:** Latin America, South America, Peru, Altiplano, commercialization, climatic factors, risk, temperature, frost protection, traditional farming, resource allocation, food security PE.4.A
- 3704 **STRATEGIES TO PROMOTE LIVESTOCK INSURANCE - INDIA'S EXPERIENCE.** IN: Asian Livestock. (1991) (p.78-81, July 1991) 4p. **KEYWORDS:** Asia, South Asia, India, Nepal, insurance, livestock, program implementation ASIA.4.A

3705 **RAPPORT SUR LES CARACTÉRISTIQUES DE RISQUE DES TECHNOLOGIES MIL-NIÉBE TESTÉES EN MILIEU RÉEL À MAÏGUÉRO ET RIGIAL OBANDAWAKI.** Lowenberg-DeBoer, J. (1992) Niamey, Niger: Institut National de Recherches Agronomiques du Niger, Departement de Recherches en Economie Rurale. (Programme de Recherche sur le Systemes de Production Agricole, Doc. no.27F) 33p. **KEYWORDS:** Africa, West Africa, Niger, millets, cowpeas, risk, technology analysis, on-farm trials NE.4.A

4.B ECONOMIC INPUTS

3706 **CONTRAINTES SOCIO-ECONOMIQUES AU NIVEAU DE L'EXPLOITATION POUR L'INTENSIFICATION DE LA CULTURE DE NIEBE AU NIGER.** Abdoulaye, T. (1991) Niamey, Niger: Ministere de l'Agriculture et de l'Elevage, Institut National de Recherches Agronomiques de Niger, Departement de Recherches en Economie Rurale. (Programme de Recherches sur les Systemes de Production Agricole, Doc. no. 24F) 66p. **KEYWORDS:** Africa, Sahel, West Africa, Niger, cowpeas, family labor, soil fertility, capital, socioeconomic constraints, millets, intercropping, improved varieties, crop rotations NE.4.B

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4.B.1 LAND

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