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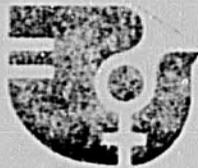
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WOMEN AND FOOD

AN ANNOTATED BIBLIOGRAPHY

ON FAMILY FOOD PRODUCTION, PRESERVATION AND
IMPROVED NUTRITION



BY: MARTHA WELLS LEWIS

FOR: OFFICE OF WOMEN IN DEVELOPMENT
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

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WOMEN AND FOOD
AN ANNOTATED BIBLIOGRAPHY ON
FAMILY FOOD PRODUCTION, PRESERVATION AND
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By Martha Wells Lewis

Prepared for:

Office of Women in Development
U.S. Agency for International Development
Washington, D.C. 20523

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The views and interpretations in this publication are those of the author and should not be attributed to the Agency for International Development.

Preface

This review of publications, papers, and resource materials was prepared for program planners working to help women in small scale agriculture and family food production. It describes material that should help raise the level of understanding of the crucial role women play in food production and gathering. It is intended to encourage rural development workers to appreciate the job that home gardening can do to improve the nutrition of the family and the economy of the community. And it presents information on practical and useful manuals and guides.

The materials reviewed cover general principles of vegetable raising, and more specific questions, such as the section on vegetable gardening for tropical climates. The collection presents resources which can be used in programs that teach vegetable gardening and family food self-sufficiency through nutrition education. Materials on food technologies appropriate to rural women in developing countries are included because food storing, preserving, and preparing skills are essential for good family nutrition.

Because many of the world's poor live in climates where no family food production through vegetable gardening is possible, materials on raising small animals and their importance to the food system are included. Also, there are descriptions and evaluations of a selected group of vegetable gardening projects and applied nutrition programs.

All materials and documents covered in this bibliography can be found in the Resource Center of the Office of Women in Development, Room 3243 New State, U.S. Agency for International Development, Washington, D.C. 20523.

Some of the materials are unpublished papers or publications no longer in print. Sources for publications available and suggestions of resources for additional materials and information are provided in the Resources Section at the back of this bibliography.

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INTRODUCTION

A number of forces are at work today, focusing the attention of development experts on women and food. Population pressures and rising production costs push more and more of the world's poor people to the margins of the cash food economy making women's work in the production, processing, preservation, and preparation of food in the non-monetary sector more crucial and more noticed.

The world's food crisis has not gone away while attention has been riveted on oil and energy. An unusual period of good luck in weather in the major food producing countries has blurred the true dimension of the crisis from any but the most expert attention, yet the worrisome signs are there. Anticipated increases in food production in developing countries have not materialized despite the concentrated efforts of national governments since the alarm provoked by the food crisis of 1973-75. Shortages of energy for irrigation pumps and shortages of fertilizer result in decreased food production -- even if supplies are adequate, production costs are higher. Making new land productive is costly, as is soil conservation treatment on old eroding lands. All indications are that increased supplies of food for the market place can be achieved only with high production costs. The result will be high-priced foods.

The price of food in the market will also reflect increased distribution costs from expensive energy used in processing and transportation. Food transported on a market woman's head or the back of a donkey also takes energy in the form of food for the woman or feed for the donkey, a seemingly minimal amount, but a consideration to the Third World woman.

In Jamaica, a veritable tropical garden, in the fall of 1979 locally grown vegetables and legumes sold in the local markets at prices higher than the same foods brought in the U.S. supermarkets. Red peas, a small kidney bean staple food item, cost \$4 Jamaican per pound, or about \$2.25 U.S. Onions were the same. Lettuce cost three times its cost in Washington, D. C. Other staples -- corn meal, rice, etc. -- cost less to the consumer, but they were imported and heavily subsidized by the government notwithstanding Jamaica's serious shortage of foreign exchange. The daily wage paid by the government for the unskilled work in the area where this survey was made was between \$4 and \$5 U.S.. There was severe unemployment.

The very efforts to increase food production, in the less developed countries often have the result of pushing groups of people out of their jobs and out of the market for food. These people are the unskilled agricultural laborers displaced by modern technology, particularly by current developments which concentrate on income producing crops. Women,

who make up the bulk of agricultural laborers in much of the world -- 60 to 80 percent in Africa and Asia -- are particularly vulnerable when there are changes in food production technology. This forces attention to the subsistence sector in food production, the non-monetary economy, because here is the unmeasured, uncounted reserve upon which the rural poor must survive.

Here at the margin is women's work. Food is women's work. Storing it, preserving it, preparing it. But because these functions are seen as women's work, and as outside the monetary economy, they are not seen or accounted for as economic activity in most nations' statistics. In the main, it is only in the production of cash crops that women's role is being acknowledged.

In the traditional cultures of the less developed countries, women have been responsible for nearly all stages of food raising and preparation while dominating marketing and processing as well. There is a large body of literature describing and documenting women's role in food production in all parts of the developing world. Women provide an important percentage of agricultural labor; in some countries they produce as much as 95 percent of the village food supply.

Migration patterns have intensified women's responsibility for producing the subsistence food supply, whether because of men migrating to the cities, the pattern in Africa, or the seasonal migration of men to work in cash crops in North America -- as in the Caribbean. Surveys reveal that 20 to 22 percent of the households in Sub-Saharan Africa and in the Caribbean are headed by women.¹ Migration patterns that produced those figures a few years ago are continuing and intensifying as the pressures in less developed countries to industrialize and modernize agriculture continue.

Food production for subsistence is still insufficiently recognized as proper economic activity. Not regarded as a viable economic activity in the eyes of developers and economists, it has not received the research and development efforts that have gone into cash crop production technology. A paper published by the Peace Corps proposes that "the role vegetables play in supplying energy and protein in a population's diet is often unknown because crop production figures do not reflect small farm and home garden production and consumption."²

1. Buvinic, M. et al. Woman-Headed Households: The Ignored Factor in Development Planning, available from AID/PP/WID.
2. Rupert, Brian. The Role of Home Garden in Improving the Nutritional Status of Developing Nations. Published in the Peace Corps' Small Vegetable Gardens Resource Packet, Washington, D.C. 1978.

Family economics can be affected as much by income conservation as by income generation. Women improve their family's and their community's economy when they store and preserve food that otherwise would go to waste. Producing nutritious food that conserves good health improves the family's quality of life and the nation's quality of life index. In producing nutritious food that gives strength for work and for production of mother's milk for babies, women again are performing a valuable economic activity. They also perform a productive economic task in teaching their children to produce food, store it and preserve it, purchase it wisely and use it to create and maintain good health.

In a country such as Jamaica, with severe unemployment, low wages for semi- or unskilled labor, a great deal of untilled land and a high percentage of women-headed households, the answer to survival for these families must lie in subsistence food production, small animals, and the family vegetable garden. Irene Tinker, in her excellent paper, describes the vital role of women in food production and their vulnerability because now the "control and profit of (agricultural production) technologies flow largely to men". She states that, "the garden plot where the poor woman can grow food to enhance her family's nutrition and then sell the surplus emerges as an important factor in survival," and "...greater attention to garden crops and to marketing of fresh vegetable and fruits should be a priority in any planning for rural development."³

Food grown close to where it is consumed takes less energy for transport; it saves foreign exchange; and by reducing losses and spoilage, makes an important contribution to the nation's food supply. There is a saving in energy too when food is grown in the home garden until harvested for use and is not stored, canned or refrigerated. Moreover, there is more nutrition in freshly picked vegetables. Home and locally grown vegetables effectively provide that nutrition so often lacking in the diets of tropical and less developed countries (especially dark leafy greens).

There is another factor that supports the position that self-help through vegetable gardening and small animal raising projects is a valid development strategy although it may be difficult to effectively evaluate. These types of projects can be most beneficial because they instill in the women a sense of some control and power over their lives.

3. Tinker, Irene. New Technologies for Food Chain Activities: An Equity Strategy. Equity Policy Center, Washington, D.C. 1979.

Conversely, it dispells the sense of helplessness and hopelessness that results from the inability to adequately feed oneself and one's family. With intensive gardening techniques, and sufficient water, it does not take much land to grow food enough to make a difference. The crucial role of food in the future world economic scene must place on that difference an economic value and social status it has not been accorded before.

VEGETABLE GARDENING - GENERAL

Principles of vegetable gardening and many of the problems encountered in that activity are universal. They do not change in different climates and soil conditions although the problems may vary in intensity. For example, diseases and destruction by insects are more severe in the tropics, but the same diseases and insects attack gardens in the cooler regions during hot humid periods. Soils respond to organic and chemical fertilizers depending on their nature, although tropical climates burn organic material faster. It is simply a matter of degree.

The greater bulk of material on vegetable gardening has been produced in the temperate, more developed countries. But because these works are good and the principles advanced in them apply generally, the following selection is presented.

JEAUVONS, JOHN. How to Grow More Vegetables -- than you ever thought possible on less land than you can imagine. A Primer on the Life-Giving Biodynamic/French Intensive Method of Organic Horticulture, Ecology Action of the Midpeninsula, Palo Alto, California, 1974. 82p

Presents an organic gardening technique based on ideas of Austrian Rudolf Steiner in the 1920s. Steiner refined and developed practices used by French market gardeners growing vegetables year round for the Paris market in closely planted raised beds highly fortified with horse manure. English Horticulturist Alan Chadwick brought the techniques to the University of California, Santa Cruz, where he developed and teaches his version which he calls the French Intensive/Biodynamic Method. This technique is based on four practices - deep spading, planting densely in raised beds, composting for fertilizer, and companion planting for disease and bug control. It is labor intensive requiring daily attention with frequent waterings and frequent transplanting from seeding flats into beds. The promised payoff is increased production and improved soil quality and health which can be an important benefit for small land holders striving for self-sufficiency in family food production.

L.I.F.E. (League for International Food Education). Small Scale Intensive Food Production. Workshop Proceedings, Santa Barbara, California, 1976. 130p, L.I.F.E., 1126 16th St., NW, Washington, D.C. 20036.

Summarizes presentations of experts in French Intensive/Biodynamic Gardening Method, Private Voluntary Organizations'

gardening projects and workshop discussions on small-scale, low-input, high-output systems of food production as a technology to improve nutrition of the poor. Impressive paper by Y.H. Yant, "Home Gardens as a Nutrition Intervention", presents studies on nutrition deficiencies in Asian and Pacific countries and describes varieties of vegetables suitable to soils, climate and culture that require little space and provide high nutrition.

L.I.F.E. NEWSLETTER. Intensive Gardening: An Appropriate Technology. November 1976 issue, L.I.F.E., 1126 16th St., NW, Washington, D.C. 20036.

Article describes historical development and nature of intensive gardening systems, and reports on workshop held to evaluate them.

U.S.D.A. Gardening for Food and Fun. The Yearbook of Agriculture/1977, Washington, D.C. 392p

Practical instruction and reference book with useful information on raising vegetables, fruits and nuts; on home food preservation; tools, equipment and structures; and "pest management". Describes climate and soil conditions in the various regions of the U.S. and the elementary biology of plants. Written for the literate hobby gardener with access to the tools, insecticides, commercial fertilizers, etc. of a high consumption society. No information on human nutrition.

U.S.D.A. Growing Your Own Vegetables. Agricultural Information Bulletin 409, Washington, D.C. 1977. 102p

This is a reprint of Part 2 from the 1977 Yearbook of Agriculture, "Gardening for Food and Fun". Gives instruction in raising all the usual and many unusual vegetables. Direct, to the point, and understandable to the non-technical gardener.

U.S.D.A. Growing Vegetables in the Home Garden. Home and Garden Bulletin No. 202, Washington, D.C. 1972. 49p

For hobby gardeners with U.S. climate, soil conditions, and gardening supply markets. As U.S. climates vary, information is general and widely applicable. Availability of good seeds, fertilizers, tools, etc. is assumed. Sound advice given on selection and use of these inputs. Much information, concisely given, on planting dates, fertilizer requirements, specific vegetable culture and succession planting. Little information on pest and disease control. (A specific USDA bulletin is recommended).

U.S.D.A. Insects and Diseases of Vegetables in the Home Garden. Agriculture Information Bulletin No. 380, Washington, D.C. 1975. 50p

Tells how to recognize the more common insects and diseases that attack vegetables in Continental U.S., and how to prevent the damage they cause with the use of chemical sprays and dusts. Gives little information on natural non-chemical techniques.

U.S.D.A. Living on a Few Acres. Yearbook of Agriculture/ 1978, Washington, D.C. 432p

Directed to an American audience, those who have or want to have a part-time, hobby or retirement farm. Gives sound advice on selecting a place, remodeling and constructing new buildings, small scale equipment and a number of income generating activities. While presenting the positive rewards in self-sufficiency and country living, the authors stress the difficulties in making a profit on small scale farming and warn the inexperienced of production and marketing problems. Provides instructions on raising vegetables, grapes, berries, ornamental plants, herbs, nuts, poultry, pigs, goats, rabbits, Christmas trees and earthworms.

VEGETABLE GARDENING FOR DEVELOPING COUNTRIES AND TROPICAL CLIMATES

Enthusiasm for vegetable gardening has waxed and waned. World War II produced the Victory Garden in the U.S., in Great Britain brussel sprouts were planted in the urban version of "fence row to fence row". Before that in the Great Depression of the 30's, the Resettlement Administration of the U.S. Department of Agriculture promoted food production and preservation among poor tenant farmers and share croppers to improve family welfare and nutrition. Europe and the U.K. have rich traditions of market and family vegetable gardening.

What is new is the development in research and literature on vegetable raising in the tropics. Many popular temperate climate vegetables originated in the tropics but have been improved and selected for growing in the temperate climates to the point where they are now ill-adapted to growing in the tropics. Solanaceous vegetables like tomatoes, egg plants, and peppers come immediately to mind.

Long overlooked tropical wild plants potentially valuable as food crops, are being investigated. Popular vegetables are being selected for survival in the tropics, and new cultivars resistant to tropical bugs and blight are being developed.

Great population pressures on food supply and forest resources exist in the tropical and sub-tropical countries. So it follows that subsistence food production will be crucial to those populations.

The following collection of materials are products of this new work on the culture of vegetables and fruits in the tropics.

HAWAII STATE DEPARTMENT OF EDUCATION. The School Garden - A Module on Growing Foods. A teacher's guide developed by the Consumers Education and Food Education Projects of the College of Education, University of Hawaii, Honolulu, Hawaii, 1978. 42p

This module claims to be built upon accepted concepts of child development and is designed for classes from kindergarten through 6th grade. The purpose is to teach children about food and its place in the human experience.

Good ideas with simple line illustrations, gardening instruction, resource and reading lists, nutrition information about tropical vegetables.

MARTIN, FRANKLIN W., AND RUBERTE, RUTH. Principles of Insect Control in the Small Garden. Mayaguez Institute of Tropical Agriculture, Mayaguez, Puerto Rico. 9p

Emphasizes benefits of natural controls over chemical practices and describes a variety of pest control practices such as pre-planting and post-planting, resistant varieties, companion planting, biological control and removal and destruction techniques.

MARTIN, FRANKLIN W., AND RUBERTE, RUTH. The Round Garden - Plans for a Small, Intensive Vegetable Garden for Year Round Production in the Tropics. Mayaguez Institute of Tropical Agriculture, Mayaguez, Puerto Rico. 8p

A small, high output garden designed for western Puerto Rico although the principles given could be applied generally. Gives lists of crops and best varieties, planting times and intercropping suggestions.

MARTIN, FRANKLIN W., AND RUBERTE, RUTH. Survival and Subsistence in the Tropics. Mayaguez, Puerto Rico, 1978. 243p

There is not as much literature on self-sufficiency, survival techniques, and small farms for the tropics as there is in great variety for temperate climates. This book, based on the assumption that mankind faces inevitable catastrophies and that "some individuals through timely preparation will avoid these catastrophies", fills much of the gap for the tropics.

The assumptions are supported with data on population growth, depletion of energy sources, environmental degradation, limited food supplies and human nature. Nutrition and shelter survival requirements are reviewed. The material on human nutritional needs is well done, thorough yet comprehensible to non-technical readers. Sources for each of the nutritional needs are described -- both wild and cultivated -- with some information on cultivation, hunting, trapping and fishing. Very good lists of references with each chapter.

A section on small-scale agriculture, as with the nutrition information, presents good, understandable but not

overly simplified information on tropical soils, fertility problems, agricultural practices and climatic conditions.

While the theme is crisis survival, this is a useful handbook for persons wanting to develop some self-sufficiency in family food production and health care.

MAYAGUEZ INSTITUTE OF TROPICAL AGRICULTURE. Simple Techniques for the Tropical Home and Farm. Three papers by Franklin W. Martin and Ruth Ruberte, Mayaguez, Puerto Rico. 2p

Production and Use of Okra Seed Meal. Detailed instructions for making high protein meal from okra seeds and recipes for its use. 3p

Vegetable Curd from Okra Seed. Instructions for making okra curd that is 32% protein and 66% oils. 1p

Green Protein Concentrate from Leaves by Home Scale Processing. Instructions for making green curd and suggestions for its use. 2p

NATIONAL ACADEMY OF SCIENCES. Making Aquatic Weeds Useful: Some Perspectives for Developing Countries. Report of Ad Hoc Panel of the Advisory Committee on Technology Innovation, Board on Science and Technology for International Development, Commission on International Relations. National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418. Summaries in Spanish and French. 1976. 174p

Directed toward the menace of water weeds that have created a problem of alarming proportions particularly in tropical nations. Describes the use of herbivorous animals -- fish, crayfish, manatees, ducks, geese and swans and others to control weeds and produce food. Harvesting techniques are described as are various uses for the harvested weeds.

NATIONAL ACADEMY OF SCIENCES. Tropical Legumes: Resources for the Future. Report of the Advisory Committee on Technology Innovation of the Academy. National Research Council, 2101 Constitution Ave., Washington, D.C. 20418, 1979. 331p

A report on underexploited legumes either unknown universally or to science and having attributes that could make them major food crops in the future. Nitrogen affixing properties of legumes make them important in a fertilizer scarce world. Contains an interesting section on leguminous

tubers -- a possibility for more nutritious tubers in an established root crop diet.

NATIONAL ACADEMY OF SCIENCES. Underexploited Tropical Plants with Promising Economic Value. Report of Ad Hoc Panel of Advisory Committee on Technology for International Development, Commission on International Relations, Washington, D. C. Summaries in Spanish and French. 1975. 188p

Thirty-six plants showing promise for improving the quality of life in the tropics are described; advantages, limitations and special growing requirements given; research needs outlined; lists of published material on each provided; and organizations and individuals involved in relevant research listed.

Certain selections are particularly relevant to home gardens:

The Winged Bean, not efficiently grown in large scale plantings because of drawn out harvesting period; has unusually high protein levels in leaves, seeds, pods and roots. Grows well in wet tropics where protein deficiency is great and hard to remedy. It is soil enriching through its nitrogen affixing capability. The Perennial Arracacha produces excellent large thick edible roots that are cheaper to plant and harvest than potatoes, and its young stems can be used as a cooked or salad vegetable. Old plants make good livestock feed. The fast growing Chaya, an mental and shade shrub, produces nutritious green leaves and shoots, is free of pests and diseases, and is easily grown.

PEACE CORPS. Vegetable Gardening Handbook. American Peace Corps, Andhra Pradesh, India. 47p (out of print)

Describes tools, seed selection, plant protection and techniques required to raise vegetables in the dry central part of India. The manual is not dated but as it advises use of chemical insecticides now banned, it was probably produced in the 60s. It is useful for its lists of varieties and instructions in the use of irrigation.

PEACE CORPS. Small Vegetable Gardens. Information Collection and Exchange Packet No. 4, 806 Connecticut Ave., NW, Washington, D.C. 20525. 1978

The Packet is a collection of materials on vegetable gardening and nutrition for use by volunteers and other workers in development. The most relevant items include

Local Agricultural and Nutritional Assessment Tool. 42p

This is "a guideline for examining local food preferences and cultivation practices, for identifying agricultural resources, and for inquiring into the local nutritional situation".

Intensive Vegetable Gardening for Profit and Self-Sufficiency. Program and Training Journal No. 25, written and illustrated by Deborah and James Vickery, Peace Corps Volunteers, 1977. 159p

This gardening manual was prepared for use in Jamaican projects but is useful in any area. It starts at the beginning with simple botany, soils analysis, components of fertility and methods for soil management and improvement. Instruction concentrates on intensive gardening systems, describes and pictures simple tools, composting, irrigation, rotation and companion planting. Useful charts and illustrations.

Journal Articles on Vegetable Gardening and Nutrition. 104p

A collection of articles and unpublished papers by authorities from AID, the World Bank, and various college and university faculties. Included are the following:

The Role of the Home Garden in Improving the Nutritional Status of Developing Nations, by Brian Rubert. Decries that vegetables are overlooked when world food production is examined even though vitamin and mineral deficiencies are as important problems as protein-calorie malnutrition. Outlines research priorities and questions to consider when designing a vegetable garden project.

Home Gardens: Principles and Experiences, by C.L.M. van Eijnatten.

Describes conditions favorable for home gardens and restraints. Reviews the literature on their nutritional contribution, yields and evaluations of projects in different developing countries.

Home Garden, a Low-Input and High-Output Food Resource for Rural Families in Asian and Pacific Countries, by Y. H. Yang.

Presents the results of nutrition surveys in three Asian countries and the U.S.A. indicating that anemia and Vitamin A deficiency are major public health problems. The relation of Vitamin A deficiency with a low intake of dark green leafy vegetables is identified. Problems of home garden programs in different countries are discussed.

Seeds, by Rene A. Ryter.

Gives the reasons and the rules for selection, storing and germinating seeds.

Improving Food Value of Vegetables, by J.F. Kelly;

Discusses the potential for improving food value of vegetables through plant breeding and selection.

Mother's Milk: A Wasted Food, by Alan Berg.

Decries loss of food resource and human nutrition through decline of maternal nursing.

A New Look at Multimixes for the Caribbean, by E. F. Patrice Jelliffe.

Presentation of design for Caribbean nutrition education program using diets based on a mixture of food (called multimixes) which when eaten together will compliment existing amino acids deficiencies in the foods utilized.

Nutritional Functions of Maternal and Child Health Programs in Technically Underdeveloped Areas, by N. S. Scrimshaw.

Discussion of principles for nutrition programs in technically underdeveloped regions and the relation between infant mortality and malnutrition. Proposes nutritional rehabilitation demonstration centers.

Small Vegetable Gardening/Nutrition Reports from Peace Corps Volunteers. 48p

This section broadens the scope by reporting experiences of Volunteers in the field. Included are the following:

Small Vegetable Gardening/Nutrition Reports from Peace Corps Volunteers. 48p

This section broadens the scope by reporting experiences of Volunteers in the field. Eight reports give interesting descriptions of cultural

diversity and anecdotes on the trials of being a "change agent".

One article, Vegetable Gardening in Zaire, by Stephanie Hannapel, presents solid useful instructions on how to make a garden in Zaire. She covers buying seeds, garden design, mulching, seed beds, shade requirements, and vegetable selection giving cultural requirements for each vegetable.

Indigenous, United States, and International Based Resource Organizations. 24p

A listing of organizations that operate, fund and/or advise small scale gardening, agricultural, and nutrition projects in developing countries.

Suggested Materials for Vegetable Gardening and Nutrition from the ACTION/Peace Corps Information Collection and Exchange.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Better Farming Series.

Handbooks designed for a two-year intermediate level agricultural education and training course. Each booklet gives an outline of the material it will cover and a plan of work. Written in basic, direct English and illustrated with simple drawings. The series includes:

For the First Year

The Plant: the living plant; the root. 1976, rev. ed. 29p.

The Plant: the stem; the buds; the leaves. 1976, rev. ed. 30p.

The Soil: how the soil is made up. 1976, rev. ed. 29p.

The Soil: how to conserve the soil. 1976, rev. ed. 29p.

The Soil: how to improve the soil. 1976, rev. ed. 29p.

Crop Farming. 1976, 29p.

Animal Husbandry: feeding and care of animals. 1976, rev. ed. 38p.

Animal Husbandry: animal diseases; how animals reproduce. 1976, rev. ed. 33p.

For the Second Year

The Farm Business Survey. 1976, 39p.

- Cattle Breeding. 1978, 63p.
- Sheep and Goat Breeding. 1978, 51p.
- Keeping Chickens. 1978, rev. ed. 48p.
- Farming With Animal Power. 1978, 51p.
- Cereals. 1978, 51p.
- Roots and Tubers. 1978, 58p.
- Groundnuts. 1978, rev. ed. 40p.
- Bananas. 1978, 27p.
- Market Gardening. 1978, rev. ed. 56p.
- Upland Rice. 1978, rev. ed. 40p.
- Wet Paddy or Swamp Rice. 1978 rev. ed. 30p.
- Cocoa. 1978, rev. ed. 40p.
- Coffee. 1978, rev. ed. 36p.
- The Oil Palm. 1978, rev. ed. 40p.
- The Rubber Tree. 1978, 31p.
- The Modern Farm Business. 1978, 55p.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Fruits and Vegetables in West Africa by H. D. Tindall. Rome, 1965. 259p.

A comprehensive reference book covering nutritional values of fruits and vegetables, principles of cultivation, extension education techniques, soil conservation and developing school gardens. The stated intention is "to stimulate interest in food crop production and serve as a foundation for more comprehensive reference books on the cultivation of horticultural crops in West Africa."

U.N. FOOD AND AGRICULTURE ORGANIZATION. Grain Legumes in Africa, by W.R. Stanton et al. Rome, 1966, 180p.

A text book for advanced students of grain legume agriculture (i.e. soybeans, cowpeas, etc.), covering their contribution to African diets, biology and botanical classification, general agronomic principles and techniques for improvement.

What isn't covered is notable. It reflects the concentration on cash cropping of the period in which it was published and has but a brief mention of "...the products of garden culture, which make use of sporadic women and child labor as distinct from the main labor force..." Yet it speculates, "It is likely that this is one of the most important sectors in which the culture of grain legumes will increase." No information on garden production is given.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Growing Native Vegetables in Nigeria, by C.W. van Epenhuijsen. Rome, 1974, 113p.

This reference book concentrates mainly on leafy vegetables which have immense potential for improving tropical diets yet are little known to horticulturists, and which are not adequately appreciated for their nutrition by local people. Gives well illustrated concise account of 43 local vegetables with details of their sowing, cultivation, yields, pests and diseases and their controls. Gives general information on seed production, processing, drying and storage and identification of vegetables in seedling stage. Has index of native vegetables by Yoruba name.

U.N. FOOD AND AGRICULTURE ORGANIZATION. How the Soil is Made Up -- An Illustrated Guide. Rome, 1978, 34p.

Adapted from a basic text of the FAO Better Farming Series. This booklet is a lesson outline and picture book on soil composition and types. Pictures are well done. They make the point quickly and effectively.

U.N. FOOD AND AGRICULTURE ORGANIZATION. How to Grow Rice. Developed by the Agricultural Extension Training Centre, Monrovia, Liberia, Rome 1974, 62p.

A picture book illustrating step-by-step methods to be followed in growing irrigated rice on a permanent site. It was prepared to change farmers from the conventional method of growing upland rice through shifting cultivation to irrigated rice on a permanent site.

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT/GHANA. Better Vegetables -- Ghana Handbook by Daniel A. Sekyere and Sandy J. McCorvey. Accra, 1966, 48p.

Prepared for all Ghanaian climatic zones, coastal, forest and savanna so it has applicability in West Africa as a whole. Covers all basics of vegetable gardening, planting times, use

and care of tools, pests and diseases and gives some vegetable recipes. Heavy emphasis on chemical control of pests. Somewhat dated, as it recommends the now banned DDT.

Stated purpose "is to stimulate interest in increased vegetable production for consumption in homes, schools, hospitals, and hotels. And...to assist prospective gardeners toward growing a quality product for market."

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT. Handbook of Tropical and Subtropical Horticulture, by Ernest Mortensen and Ervin T. Bullard. Washington, D.C., revised 1970, 186p.

Written in layman's language for workers in the field in rural development. Provides extensive bibliographies and reference lists for research workers and students. Major fruit, nut and tree crops are discussed with emphasis on spacing, pruning, fertilizing, budding, and disease and bug control. A few temperate zone fruits with chilling requirements are included. They can be grown only at higher elevations in the tropics. Scientific names of crops given for reference purposes. The handbook describes major vegetable crops. Information is presented on seed storage, vegetable varieties, fertilizer recommendations, soil and cultivation. Major diseases with their control are presented.

NOTE: This 1970 revision still recommends DDT for control of certain pests -- a practice no longer followed or allowed. To check current environmental procedures see AID Handbook 3, Appendix 4B as amended 5/3/78.

U.S.D.A. Cultivation of Neglected Tropical Fruits With Promise. Mayaguez Institute of Tropical Agriculture, Mayaguez, Puerto Rico.

A six part series discussing little known tropical fruits of "exquisite flavor and high nutritional value".

Part 1. The Mangosteen by Narciso Almeyda and Franklin W. Martin, ARS-S-155, 1976, 18p.

The mangosteen, with its beautiful color and delicate flavor, has the most delicious and valuable fruit in the tropics even though it is not widely known. Its wood makes fine furniture, the tree is a handsome ornamental, the seeds are edible and the fruit is delicious. Early cultivation is difficult although the mature tree is sturdy.

Part 2. The Mamey Sapote by Narciso Almeyda and Franklin W. Martin, ARS-S-156, 1976, 13p.

This pre-Columbian favorite in the tropics of the new world, has not fared well under cultivation. The wood is hard and durable, the fruit delicious; but propagation is not easy. Methods of propagation, growing requirements, diseases, pruning and care are described.

Part 3. The Pummelo by Franklin W. Martin and William C. Cooper, ARS-S-157, 1977, 13p.

An excellent fruit underutilized and often unknown. It is easy to ship, keeps well and is as easily grown as other citrus, although it is the most tropical of all. The booklet presents a thorough description of its origin and migration, cultivation, diseases, harvest, and uses.

Part 4. The Lanson by Narciso Almeyda and Franklin W. Martin, ARS-S-171, 1977, 15p.

A popular Southeast Asian fruit that is tasty, easy to peel, and versatile in its uses. The tree can be cultivated in the tropics for both home garden and market. Its origin, cultivation and care are thoroughly described.

Part 5. The Canistel and Its Relatives by Franklin W. Martin and Simon E. Malo, 1978, 12p.

Well known by the Pre-Columbian civilizations of South and Middle America, the group is now only known and enjoyed in a few localities. They have an attractive appearance, aroma and taste. They are high in Vitamin A and can be consumed either fresh or processed into many home or commercial products. Grown in the tropics or sub-tropics and some species in the temperate zones.

Part 6. The Rambutan, by Narciso Almeyda and Franklin W. Martin, 1979, 11p.

A fruit of the humid tropics, popular in Southeast Asia but little known in the Western Hemisphere. It is sweet, high in Vitamin C and suitable for processing. Cultural Techniques are discussed as are its origin, variety, diseases, harvest and uses.

U.S.D.A. Vegetable Gardening in the Caribbean Area by Harold W. Winters and George W. Miskimen. Agriculture Handbook No. 323. (This Handbook supercedes Circular 32, "Vegetable Gardening in the Tropics.") Washington, D.C., 1967, 114p. Out of print.

Comprehensive manual describes the key climatic variables in the Caribbean -- temperature and moisture, the effect of light, problems of latosolic soils that predominate there,

and the pervasive problem of wind. The climatic requirements for raising vegetables there are covered as are all aspects of garden management from soil improvement and preparation to harvest. Specific information on a number of vegetable crops -- their fertilizer needs, enemies and diseases, horticultural requirements, varieties to select and some recipes for use.

The information given on insecticides such as DDT is no longer acceptable. (The book is currently not available at the Government Printing Office and subsequent printings will probably be revised.)

U.S.D.A. Vegetables for the Hot Humid Tropics, Agricultural Research Service, New Orleans, Louisiana, 1978.

A three-part series about little known vegetables that are especially productive during the tropical rainy season when high water tables and disease make food production difficult.

Part 1. The Winged Bean, by Franklin W. Martin and Herminio Delpin. 2p.

The winged bean is a tropical legume easy to grow, resistant to pests and diseases, productive, appealing to the eye and palate, and is highly nutritious.

"The greatest potential for (it) is in the home garden or in small-scale, high-intensity agriculture, because the vines need staking, bear over a long time and require regular harvesting."

The botany of the bean, varieties, cultivation, uses and nutritional value are covered.

Part 2. Okra, by Franklin W. Martin and Ruth Ruberte, 22p.

"Because it is easy to cultivate and because of dependable yields, okra is one of the best vegetables for the tropics." It bears early, can be harvested over a long period, has significant nutritional value and its edible leaves are high in protein.

Part 3. Chaya, by Franklin W. Martin and Ruth Ruberte, 11p.

Chaya is an ancient vegetable from the Yucatan Peninsula of Mexico with leaves of known exceptional high nutrition and reported benefits in folk medicine. It is a small tree that can be harvested year round and is used as an

ornamental, a living fence and animal feed. The leaves, poisonous until cooked, have a superb content of nutritional requirements that can help alleviate lysine and niacin deficiencies in a diet based principally on corn.

VIETMEYER, NOEL. Poor People's Crops. Article in Agenda, AID magazine, Sept. 1978, Vol. 1, No. 8, Washington, DC.

Five overlooked and underappreciated garden plants which show potential for nutritious food source are described. They are the Marama Bean, Winged Bean, Tarwi, Bambara Ground Nut, and Amaranth. Nutritional quality, cultivation requirements and history of culture are described.

RAISING SMALL ANIMALS

Often land is too steep to farm or too boggy and wet. Many climates are too harsh. Yet people live in these lands and must eat. Here ruminants play a crucial role in survival by converting grasses and brush indigestible to humans into nutritious human food. Seventy-five percent of the world's agricultural land can only be utilized by ruminants. Moreover, 12 percent of the world's population derive almost their entire support from ruminants.¹

Taking care of small animals is women's work in most pastoral and agricultural societies, and there is great need for improved technology and skills. The Sri Lanka government found in a study of farm women that although they had some skills in homemaking arts, 50 percent of the women in the study wanted training in animal husbandry.²

Rabbits and poultry also turn vegetable matter into animal protein with impressive efficiency, making them productive components of the small farm or family subsistence enterprise.

THE AGRICULTURAL DEVELOPMENT COUNCIL. Improving Ruminant Livestock Production on Small Holdings. Seminar report on a Workshop on Small-holder Livestock Production held at the Winrock Conference Center, Morrilton, Arkansas, June 1976, by O. J. Scoville. ADC, 1290 Ave. of the Americas, N.Y. 12p.

Presents importance of ruminant livestock as a source of human nutrition; provider of fiber, bovine power, fuel and fertilizer; and the special importance in utilizing grazing lands, by-product feeds and family labor of low opportunity cost.

Concludes that livestock is a crucial component which can be used to improve smallholder agriculture and essential to advancing human nutrition over the next two decades. Identifies limitations on improvement of livestock ownership for smallholders and recommends research and action.

ATTFIELD, HARLAN D. Raising Rabbits. A VITA Publication,

1. WINROCK INTERNATIONAL. The Role of Ruminants in the Support of Man. Morrilton, Arkansas, 1978.
2. Sri Lanka Agrarian Research and Training Institute. Study of Income Generating Activities of Farm Women, by C.N. Wijayarathne et al. Colombo, 1978.

Mt. Ranier, Md., 1977, 82p.

VITA says, "This manual presents an overview of the entire process of raising rabbits...from selecting healthy animals to preparing proper foods to treating disease. A separate section of the manual includes step-by-step procedures for the construction of a hutch to house two does and one buck."

Understandable instructions in clear, direct language. Describes raising earthworms as an ancillary enterprise. Illustrated with good drawings.

CORNELL UNIVERSITY. The Goat as a Producer of Meat by R.E. McDowell and Lea Bove. Cornell International Agriculture Mimeo No. 56, Ithaca, N.Y., 1977, 40p.

Growing world needs for protein, especially animal protein to avoid the spread of malnutrition, have stimulated interest in goats. On small farms, feed supplies are limited, often making meat production with large animals inefficient or impossible.

Because of the way goats are kept, information on their potential as a meat animal are very limited. This report is concerned with estimates of the factors influencing the suitability of the goat as a meat animal. It attempts to draw attention to factors needing further investigation. An extensive bibliography is included.

CORNELL UNIVERSITY. The Potential of the Goat for Milk Production in the Tropics by Michael Sands and Robert E. McDowell. Cornell University International Agriculture Mimeo, Ithaca, N.Y., 1978, 53 p.

With the growth of interest in research and development of small farms, has come interest in the goat as a small farm alternative to the cow. Its popularity in developed countries has declined due to its labor intensive requirements but its use is increasing in developing countries.

General characteristics of the dairy goat, its reproduction, milk yields, and milk composition of the different breeds are presented. Extensive bibliography.

FLORIDA COOPERATIVE EXTENSION SERVICE. Rabbit Production in Florida, by L.R. Arrington and K. C. Kelley. Circular 442, Gainesville, Florida, 1978, 23p.

Information on breeds, breeding, caging and care, disease and disease control, management and marketing.

U.S.D.A. A Dairy Goat for Home Milk Production, by Ivan L. Lindahl, Leaflet No. 538, Washington, D.C., rev. 1978, 8p

Basic information about keeping a dairy goat for a home milk supply. Prepared for families in Appalachia but the information can be used almost anywhere. Presumes a county agent and veterinarian available. Little information on techniques for dehorning, castrating and treating diseases.

U.S.D.A. Farm Poultry Management, by Graham H. Purchase. Farmers' Bulletin No. 2197, Washington, D.C., rev. 1977, 37p.

Directed to market production rather than family food supply and assumes availability of prepared feeds, hatcheries and breeding farms for replacement chicks. Covers aspects of economics, space and equipment requirements, flock management, marketing of meat or eggs and diseases and pests.

U.S.D.A. Selecting and Raising Rabbits. Agriculture Information Bulletin No. 358, Washington, D.C., 1972, 24p.

Manual designed for an American audience with access to pelletized rabbit food and commercial equipment. Direct and to the point, it covers all aspects of rabbit raising and marketing. Describes characteristics of a number of breeds.

WINROCK INTERNATIONAL. The Role of Ruminants in the Support of Man. Morrilton, Ark., 1978, 136p.

A study by the Winrock International Livestock Research and Training Center to inventory world population of ruminants, to identify resources and constraints to improved efficiency of production, to develop priorities for research and to provide an information base.

Study asserts the importance of ruminants to the viability of the small holder where the majority of the world's ruminants are found (12% of world population derive almost their entire support from ruminants). The world's food supply depends on ruminants because only ruminants can utilize 75% of the world's agricultural land. Ruminants use residuals and waste from human food crops and convert them into human food.

What was not described was the important role that women play in animal raising, particularly in the developing world. In India the members of the large dairy cooperatives are almost

exclusively women producers. This oversight is a serious flaw in an otherwise useful, interesting and comprehensive study.

The study concludes that humans do not want to give up ruminants, need not and should not.

BETTER NUTRITION THROUGH VEGETABLE GARDENING

The customary approach to teaching nutrition to women, whether they are urban dwellers or rural, has been to teach wise food purchasing practices, treating all homemakers as though they were consumers, instructing them how to spend money wisely. This approach prevails in U.N. Food and Agriculture materials as well as in State Extension Service materials in the United States.¹ The truth is that many poor rural women are outside the monetary economy. The best education for them is to learn the food value of the many uncultivated plants growing around them and to raise their own food.

The belief that through teaching vegetable gardening one can teach good nutrition prompted the writing of this bibliography. Publications in this section emphasize this.

MEALS FOR MILLIONS FOUNDATION. Teaching Nutrition in Developing Countries or the Joys of Eating Dark Green Leaves. Report from workshop on nutrition education techniques used in developing countries, edited by Kathryn W. Shack, 1800 Olympic Blvd., Santa Monica, California 90406, 1977, 193p.

This report includes nineteen papers with practical ideas from field workers teaching semi-literate to illiterate people. An essay on the philosophy which leads to self-reliance and growth propounded by Paulo Freire; description of mass media approach; directions for evaluating programs; educational tools to use; and descriptions of programs in selected countries.

Material is directed more to education for good nutrition than to self-sufficient food production or delivery systems. List of references in each section.

NATIONAL ACADEMY OF SCIENCES. The Winged Bean - A High-Protein Crop for the Tropics. Report of Advisory Committee on Technology Innovation, Board of Science and Technology for International Development, Commission on International Relations, 2101 Constitution Ave., Washington, D.C. 20418, 1975, 27.

1. It is revealing that U.S. home economic extension agents have not studied nor have they taught vegetable gardening. In the relatively new U.S. Expanded Food and Nutrition Program which uses para-professional aides rather than professional Home Economists as extension workers among the poor, a vegetable gardening unit is included in the lesson plans.

The report proposes that with intensive testing and investigation, the winged bean may be as significant for world agriculture in the future as the soybean has been in the recent past. All parts of the winged bean can be eaten -- tubers, seeds, leaves, flowers and shoots; and all are rich in protein which is as good quality as that in soybeans. Its seeds are a source of edible oil. It grows in the humid tropics, a high protein deficient area, in poor soil -- even in newly cleared land, and has unusual ability to fix nitrogen from the air into the soil. It is particularly suited to a small farm or family garden because a drawn-out harvesting period provides a continuing source of family food and disallows large scale production. Selected references are given and a list of researchers working with winged beans.

A 1978 addendum to the booklet reports that the winged bean is catching on. It has been introduced to more than 70 countries, research on it is being done all over the world and a second edition of the booklet is in preparation to incorporate new information.

DOMEN, H.A.P.C. AND GRUBBEN, G.J.H. Tropical Leaf Vegetables in Human Nutrition. Communication 69, Department of Agricultural Research, Kninklijk Instituut voor de Tropen, Amsterdam, The Netherlands, 1977, 133p.

Serious Vitamin A deficiencies and resulting blindness in children in many developing countries can be remedied by increased consumption of leafy green vegetables. The authors present background arguments and documentation to support the case and are critical of the underdevelopment and underemphasis on leaf vegetables in world food programs despite their potential value in individual household nutrition. Varieties are described, cultivation and household preparation discussed and down-to-earth suggestions for nutrition education and other applications of the information are presented.

The crucial role of woman as caretaker of the infant and child, as cook for the household, and as sole producer of the home garden is affirmed.

The book is persuasive argument for more universal and greater use of leaf vegetables in the tropics. It is a useful handbook for tropical nutrition workers. Under the heading "Green Literature", is a selection of other publications on the production and consumption of leaf vegetables.

PACEY, ARNOLD. Gardening for Better Nutrition, OXFAM, Intermediate Technology Publications, Ltd., London, England, 1978, 64p.

Presents persuasive argument for nutrition oriented gardening as opposed to commercially oriented agriculture. Shows examples of good and bad nutrition projects. Describes approaches to community development and achieving participation for lasting social improvement.

Conscious that family gardens are generally the responsibility of women, gardening instructions were developed with women in mind. The book points out the various demands of different climates and soils and give nutritional strengths and weaknesses of vegetable varieties with their horticultural requirements.

SHURTLEFF, WILLIAM. New Food From Old Ways, Office of Public Affairs, AGENDA, Vol. I, No. 8, Sept., 1978, Agency for International Development, Washington, D. C. 20523.

Predicts that soybeans will be a key source of protein for the future. They are currently the least expensive source of protein in virtually every country of the world, and because of high lysine content can boost the protein available in cereal grains. Soybeans produce 1/3 more protein per acre than other conventional farm crops, and food products made from them are a product of cottage industries using village level or intermediate technology. They are grown under a wide range of climatic conditions, need little fertilizer and are relatively resistant to diseases and pests.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Food and Nutrition in the Primary School. FAO Nutritional Studies No. 25, Rome, Italy, 1971, 107p.

This is a guide for introducing nutrition education in primary schools. Describes the importance of doing so, the instruments necessary and the simplest form of evaluating the results.

Material on teaching nutrition through a school garden is adaptable to home gardens.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Human Nutrition in Tropical Africa, by Michael C. Latham. Rome, Italy, 1965, 268 p.

"A textbook for health workers with special reference to community health problems in East Africa... It is designed to teach the health worker how to gauge what the problems are in a family or a community, in an institution or a district, and to suggest specific ways in which problems can be approached and solved."

This booklet concentrates on infant and child nutrition and food habits in the home. Africa is a young population. As children are particularly vulnerable to the ravages of poor nutrition, so is a young continent.

U.N. FOOD AND AGRICULTURAL ORGANIZATION. Learning Better Nutrition, by Jean A.S. Ritchie. Rome, Italy, 1967, 264p.

A treatise on nutrition -- good and bad. Covers theories on how food habits are formed and how changed, gives guidelines for developing a nutrition policy and a nutrition education policy. Presents practical ways to provide nutrition training and education of the public, for workers in other fields and for food and nutrition specialists. Describes a number of successful programs.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Visual Aids in Nutrition Education -- A guide to their preparation and use, by Alan C. Holmes, Rome, Italy, 1968, 154p.

An appropriate technology handbook on audio/visual aids for nutrition education in developing countries, but equally useful to teachers of horticulture, home economics, nutrition, etc. It covers construction and use of duplicating equipment; drawing, coloring and lettering techniques; and the use of modern mass media.

U.S.D.A. Expanded Food and Nutrition Education Program Materials. Extension Service, U.S. Department of Agriculture, Washington, D.C.

This U.S.D.A. program is designed to improve the dietary level of low-income families and youth through education and improved use of resources. The program used aides from the community in which they work to extend the information to low-income families in their homes and in small groups. Of the families in the program, 61% were from minority groups. The aides are hired, trained and supervised by Extension Service home economists.

This collection of materials is an example of the kind of material designed for groups at the margin of the U.S. economy. In the collection are:

1. Fact sheets on the EFNEP program and a 43-page analysis of it.
2. Photo brochures describing the program.
3. Instruction materials for aides to use in preparing for visits and handouts relating to the subject to be covered in the visit.

4. Inservice and supplemental lesson books for training extension aides.
5. Eight lessons on home gardening with a handout for each lesson. Each lesson describes its goal and gives supporting facts; instructions for pre-visit preparation by the aide; points to be made during the visit; and a summary of things to do with the family on the visit.

The handouts are attractive drawings that illustrate the major points in the lesson. The gardening instruction is concise and direct, containing good information.

U.S.D.A. Nutritive Value of Foods. Home and Garden Bulletin No. 72. Washington, D.C., rev. 1977, 40p.

Tables show nutritive values of 730 foods commonly used, usually in ready-to-eat form and in well-known units of measure. Recommended daily dietary allowances for calories and other essential nutrients are shown, and lists of foods that have special value are also given. This is a useful tool in analysing the nutritional adequacy of local diets. The minimum daily requirements given are U.S. standards which are often higher than those of developing countries.

YANG, Y.H. Home Gardens as a Nutrition Intervention. A Low-Input and High-Output Food Resource for Rural Families in Asian and Pacific Countries. The Food Institute, East-West Center, Honolulu, Hawaii.

This paper was presented at the League for International Food Education workshop on Small Scale Intensive Food Production, Santa Barbara, California, 1976. Analyses nutritional deficiencies and the foods eaten in these countries. Proposes home production of certain highly nutritious leafy green vegetables as a nutrition intervention. Varieties given can be harvested over a period of time, are commonly grown and produce high levels of nutrition in a small garden plot.

MAKING A HOME

Homemaking is often called "the traditional role" for women. More properly it should be called one of the traditional roles, because many women have spent "traditional" lives performing a variety of roles beyond keeping house. Women work as farmers, as skilled and unskilled laborers, live in religious communities, or in a situation that does not include a providing husband and the children as their sole responsibility.

Certainly all aspects of nurturing -- preserving and preparing food for others, raising the children, tending the sick, passing on the culture's values and making a home -- are roles most often performed by women. In this work there are skills and crafts to be learned.

Two diverse interests converge to rediscover the old food preservation arts and simple technologies of our frontier ancestors. Citizens in developed countries looking for environmentally sensitive, energy conserving simple life styles share this interest with development workers in less developed countries trying to prevent post-harvest losses and alleviate pressures on insufficient food supplies. The materials in the following section on food preservation reflect a different kind of technology transfer -- from an older age to the present, and from less developed to modern societies.

ASSOCIATED COUNTRY WOMEN OF THE WORLD. Happy Healthy Homes - Series Two. 50 Warwick Square, Victoria, London SW1V 2A5, England.

Three booklets designed for students that contain basic explanations of the subject material and line drawings.

Book 1 Food and Health, A.M. Copping. Simplified explanation of nutritional needs and description of 6 food groups. 16p.

Book 2 Food Production and Storage, Helen Wallis. Concise instructions for vegetable growing and storage. 15p.

Book 3 You and Your Money, Marjorie Stewart and Helen Wallis. Sections on planning expenditures; information about banks; and discussion guides on thrift, money and citizenship.

UNITED NATIONS. Manual on Child Development, Family Life, and Nutrition, by Jean A.S. Ritchie with illustrations

by Jill Poole. African Training and Research Center for Women of the Economic Commission for Africa and FAO, 1978. 209p.

Essentially a practical nutrition manual for rural workers covering all aspects of nutrition education. It also has a section on child development and growth and one on family life education. It presents ideas for practical learning experiences to be organized around each topic as well as discussion outlines. It contains food composition tables and energy and nutrients requirements.

UNITED NATIONS. Workshop on Food Preparation and Storage. Economic Commission for Africa and the Government of the United Republic of Tanzania, New York, 1976, 102p.

Report on a workshop held in Tanzania in 1975. The subjects were practical projects with emphasis on equipment and methods within the reach of rural families and communities. Participants drew up action plans for passing on their knowledge of food preservation and storage. Demonstrations were directed at reducing loss in the basic food supply crops through preservation, storing and protection from insects, rats, etc.; ensuring a year-round supply of vegetables and fruits through preservation; and animal food storage techniques.

UNICEF. Food Preservation in Bangladesh - A Manual for Instructors, by Mrs. Meherunnesa Islam. Annexure No. VII to Feasibility Survey of Productive Income Generating Activities for Women. Women's Development Program, Dacca, Bangladesh, 1977.

Relates history of food preservation instruction programs in Bangladesh. The income generation potential in exporting chutneys was the motive behind republishing this work. It concentrates on bottle canning and chutney recipes.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Rural Home Techniques. Economic and Social Development Series No. 5, Rome, Italy.

Six folders, each containing illustrated practical ideas and suggestions for easing the workload of farm/household tasks and to improve processing and storing of food. Designed for rural development workers to use in planning and preparing their demonstrations and home visits.

Each folder contains approximately 20 sheets with drawings which demonstrate the materials needed, instruction for constructing devices, and methods used in each technique

being taught. Instructions are written in English, French and Spanish.

Series I

Food Preservation: Fish, Meat, Equipment. No. 5/1, 1976.

Labour-saving Ideas: Laundry, Water, Transport. No. 5/2, 1976.

Food Preparation: Cookers, Cleaning, Work Surfaces and Storage. No. 5/3, 1977.

Series II

Labour-saving Ideas: Food, Water, Transport. No. 5/4, 1977.

Food Preservation: Vegetables. No. 5/5, 1977.

Series III

Labour-saving Ideas: Sanitation, Food, Water. No. 5/6, 1977.

U.S.D.A. Drying Foods at Home. Home and Garden Bulletin no. 217, Washington, D.C., 1977, 20p.

Developed by the University of California, Davis, Division of Agricultural Sciences. Details of drying food in the kitchen oven, in a portable vegetable dehydrator, and in the sun. Gives instructions for constructing dehydrator, recipes for fruit leathers and meat jerkies.

U.S.D.A./A.I.D. Homemaking Handbook - for Village Workers in Many Countries. Extension Service, USDA in cooperation with Agency for International Development, Washington, D.C., PA-953, 1971, 237p. Out of Print.

A guide for village workers, plus a teaching aid and text for their teachers. This is a composite book: a treatise on techniques for rural development through "extension" work; subject matter manuals (i.e. food, nutrition, gardening, poultry, goats, rabbits, food preservation, child care, health, home improvement, home management, and clothing); a pedagogy text for use in the home, the group sessions and through the mass media.

U.S.D.A. Storing Vegetables and Fruits - in Basements, Cellars, Outbuildings and Pits. Home and Garden Bulletin No. 119, Washington, D.C., 1973, 17p.

Low technology-no equipment techniques for storing food as described in the title. Storage facilities described

depend on outdoor temperatures averaging 30 degrees or less.

U.S.D.A. Sun Dry Your Fruits and Vegetables - A guide for home economists around the world. Extension Service, Washington, D.C., 1958, 26p.

Simple clear step-by-step instructions on how to dry and sulphur fruits and vegetables, on constructing the necessary equipment, storing and using dried foods.

UTAH EXTENSION SERVICES. Home Drying of Fruits and Vegetables, by Flora H. Bardwell and D.K. Salunkle. Utah State University, Logan, Utah, 16p.

Directions for drying fruits and vegetables by the sun, ovens, and dehydrator methods, and for making fruit leathers.

WOMEN AND RURAL DEVELOPMENT

The following selection of handbooks and treatises on rural development particularly address women and food. They can provide the Women in Development worker with ideological and practical support.

THE MELANESIAN COUNCIL OF CHURCHES. Liklik Buk, A Rural Development Handbook Catalogue for Papua New Guinea. English edition, 1977, 270p.

From the title page: "Liklik Buk gives community level leaders and trainers in Papua New Guinea better access to rural development information sources, with the goal of village self-help action. Short, rich articles on crops, animals, processes, designs, health, animating rural development; lists of books, pamphlets and organizations; plus comments and editorials from a broad range of contributors. Information given on particular topics is not complete, but it is basic, technically sound, and helps the reader define an interest and find further information."

It contains a great deal of information on farming, gardening, livestock raising. It goes into processing these products and has a wealth of ideas and instructions for designing tools and machines for these activities. Other areas are building and road construction, arts and crafts, and designs for tools for these activities.

("Animate", as in Animating Village Development, means "to breath life into; enliven; inspirit; inspire;".)

RUIZ DE SOUZA, NORACY. Women in Food Production - A Critical Demension for the Advancement of Science and Technology for Development. ESA/CSDHA/Advancement of Women Branch, 1978, 7p.

This paper describes women's responsibility in agricultural production, supply and distribution. Urges collection of data on women as food producers - "The situation of rural women as an indicator of the impact of the transfer of science and technology from developed to developing countries as well as from urban to rural areas is best documented in the case of food production, both for cash crops and subsistence farming."

SRI LANKA AGRARIAN RESEARCH AND TRAINING INSTITUTE. Study of Income Generating Activities for Farm Women, by

C.M. Wijayarathne and A.M.T. Gunawardana and Samir Asmar,
Colombo, 1978, 73p.

The study, of five separate villages, attempts to examine the role of farm women in farming and household tasks, their employment in agriculture and non-agricultural activities, the extent of unemployment and underemployment, the skills possessed by them and the extent of utilization of those skills for employment purposes.

Study showed that while 50% of the families have land to produce vegetables for home needs, such production is low. Recommends introduction of profitable home gardening and poultry keeping programs.

THOMAS, SHERRY AND TETRAULT, JEANNE. Country Women - A Handbook for the New Farmer. Illustrated by Leona Walden, photographs by Sally Bailey, Anchor Books, Garden City, N.Y., 1976, 381p.

Sub sub-title: "How to negotiate a land purchase, dig a well, grow vegetables organically, build a fence and shed, deliver a goat, skin a lamb, spin yarn, and raise a flock of good egg-laying hens, all at the least possible expense and with minimum reliance on outside and professional help."

This is a book for the North American woman farmer interested in developing a small non-commercial, self-sufficient homestead. It assumes a developed, commercial economy, market sources for tools, availability of livestock antibiotics, lumber, rural electrification, etc. There are many good descriptions such as building construction, a sheep and goat feeder, and organic gardening techniques that have wide applicability. The authors' city backgrounds give a fresh and wide-eyed approach to the rural know-how they are passing on. Instructions and descriptions start at the very basics. Readable, interesting and instructive. Poetry and personal essays stress the satisfactions in self-sufficiency and freedom from dependence on men.

TINKER, IRENE. New Technologies for Food Chain Activities: An Equity Strategy. Equity Policy Center, 1302 18th St., N.W., Washington, D.C. 20036, 1979, 39p.

A review of the impact of current development policies and new technologies on women's work in the production, processing, preservation and preparation of food. It concludes that women's traditional economic contribution to the survival of their families is being eroded by technology as the control and profit of technologies flow largely to men.

UNITED NATIONS. Women in Food-Production, Food-Handling and Nutrition, Final Report prepared by Wenche B. Eide et al. Protein-Calorie Advisory Group, New York, 1977.

Study shows there is considerable evidence in the developing world that the conditions under which women live and work have a bearing upon the availability of food and the nutritional levels of their families and communities. There is also a prevailing lack of awareness as to the importance of women as transmitters of nutritional opportunities. This study shows how development strategies fail to utilize women effectively as channels to desired improvements in food availability and nutritional levels.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Women in Agriculture and Rural Development Kit.

CONTENTS

Working paper for Expert Consultation on the Integration of Rural Women in Development, Rome, Italy, September 1977, Review of Conditions Affecting the Integration of Rural Women in Development in Ten Countries of FAOs Asia and the Far East and the Near East Regions by Frankie Hansell.

Annotated Bibliographies by Purveen Kharas on: Women in Development -- Latin America, Africa, Asia and Near East.

A Brief for FAO Representatives by Natalie D. Hahn.

Annotated Bibliography on Women and Family in Rural Development, 15 pages of printout of a bibliographical list, analytical index and index by authors. 1977.

FAO Statement to the Economic Commission for Western Asia Conference on the Regional Plan of Action for the Integration of Women in National Development, Amman, Jordan, 1978.

Report of the Expert Consultation on the Integration of Rural Women in Development, Rome, 1977.

Picture Book - The Missing Half - Woman 1975.

Catalogue of FAO Film Strips.

WORLD NEIGHBORS. Newsletter for Project Personnel, IN ACTION. 5116 North Portland Ave., Oklahoma City, Okla.

The newsletters in this collection are on the subject of food production. Titles are: "Crops Need Good Soil to

Grow Well," "Food Production for the Family," "Learning to Raise Rabbits," "Why Keep Honey Bees," "Children Need Love and Food to be Healthy," "The Best Milk is Breast Milk," "Women -- A Key to Development," and "Agents of Change".

World Neighbors also produces materials for development projects. Concentration is on films for person-to-person education projects in health, family planning, agriculture and community development.

TECHNOLOGY APPROPRIATE TO WOMEN AND FOOD

Transfer of high agricultural technology to developing countries has hurt women by taking away their traditional roles in food production without providing a new role in the new technology. There are technologies, however, that can ease women's heavy burden of work and yet not deprive her of control over her work.

Handbooks describing the appropriate technology and its applicability to women follow.

BRACE RESEARCH FOUNDATION. A Handbook on Appropriate Technology. Macdonald College of McGill University and The Canadian Hunger Foundation, 75 Sparks St., Ottawa, Canada, 1976, 100p.

Presents concepts of appropriate technology and 12 case studies of application with relevance to development. These are demonstrated with pictures and diagrams. The book lists sources for information and a bibliography. It contains a glossary and a catalogue of tools and implements.

UNITED NATIONS. Appropriate Technology for African Women, by Marilyn Carr. The African Training and Research Centre for Women of the Economic Commission for Africa, 1978, 90p.

A thesis on the relevance and application of appropriate technology in Africa; the importance of women in development and their need for improved technologies; and descriptions of village-level technologies currently available.

Describes the development work through appropriate technology and through women of the various organizations in Africa. Includes an annotated bibliography and useful names and addresses in the field of appropriate technology and development.

UNICEF. Simple Techniques for Rural Women in Bangladesh by Elizabeth O'Kelly. Women's Development Programme, 1977, 48p.

The selections for this handbook were determined by the needs of rural Bangladesh women and include: instructions for making or buying manually operated machines that could ease women's heavy workload; instructions for food preservation; techniques, devices and structures for improvement of wells; and a list of suppliers of machines and

pumps. A bibliography provides sources for information and instruction on agriculture, Bio-gas, building, wind, water and solar energy, fish culture, food preservation, irrigation, nutrition and soap making.

UNICEF. Village Technology in Eastern Africa - A report on a regional seminar on "Simple Technologies for the Rural Family", Nairobi, June 1976, edited by Jim McDowell, 63p.

A statement of the points raised in discussion and covered in the papers presented at the 1976 seminar, the first of its type held in Eastern Africa. The basic concepts of simple technology are covered, as are the social aspects and social considerations. The report presents guidelines for application of appropriate technology and precautions to be taken. Lists participants and papers presented.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Appropriate Technology and Women Kit Home Economics and Social Programmes Service, Rome, Italy, 1978.

I. Annotated Selected Bibliography of Literature on Appropriate Technology and Women.

Part 1. Selected References on AT

Part 2. Selected References on Women and AT

Part 3. Practical Teaching Guides

Part 4. Annotated Bibliographies on AT and Women

II. Review of Resolutions from World Conferences Which Relate to Women and AT

III. A Sample Project Proposal for an Appropriate Technology Center.

VITA. Village Technology Handbook, Volunteers in Technical Assistance, 3706 Rhode Island Ave., Mt. Rainier, Md., 1970, 387p.

"This handbook describes techniques and devices which can be made and used in villages." Subjects include: water resources, health and sanitation, agriculture, food processing and preservation, construction, home improvement, crafts and village industries and communications. Practical items as privy construction and soap making may be of special interest.

DESCRIPTIONS AND EVALUATIONS OF A SELECTED GROUP
OF VEGETABLE GARDENING PROJECTS AND APPLIED
NUTRITION PROGRAMS

Food production and better nutrition through vegetable gardening is commanding more attention from economic developers. In the past, wars and droughts have intensified this interest, and low market prices and local gluts decreased it. Now, exploding populations are pressuring food supplies; rural to urban migration is unsettling family life and traditional food sources in much of the developing world. Women left behind by migrating husbands must provide for the children and the old people. The family vegetable garden is again seen as an aid to survival.

There have been a variety of development programs promoting kitchen gardens, backyard gardens, school and community gardens, applied nutrition programs with a vegetable garden component, and projects for income generation through vegetable gardening.

To help program planners appraise the strengths and weaknesses of some past programs, a selection of program evaluations and project descriptions have been collected in the Resource Center of the Office of Women in Development, Agency for International Development, Room 3243 New State, Washington, D. C. 20523. They are briefly described below.

BLUMENFELD, G. Suggestions for an Economic Approach to Horticulture in ANP (Applied Nutrition Program) in India. New Delhi, India, 1968.

Paper prepared by FAO horticulture advisor that proposes that ANPs would be more successful if the horticulture production component were directed to producing market vegetable crops.

BLUMENFELD, G. School Gardens - Why and How. Reprint of an article in Indian Horticulture, July-Sept. 1968.

Proposes that school gardens should be an educational "media" to teach children to grow vegetables, to teach nutrition, to show the basic life cycle in nature, to demonstrate the value of manual work and promote community spirit and to serve as a demonstration to the community.

DIRECT RELIEF FOUNDATION, P. O. Box 1319, Santa Barbara,
Calif. 93101.

Intensive Gardening demonstration sites in Milagro and Guayaquil, Ecuador. Described in "Report of L.I.F.E. 'Workshop' on Small Scale Intensive Food Production", Santa Barbara, Calif., 1976.

The volunteer worker reported success in introducing new foods and new gardening techniques to impoverished displaced Inca Indians.

INTERNATIONAL HUMAN ASSISTANCE PROGRAMS, INC. 345 E. 46th
St., N.Y., N.Y. 10017.

Backyard Gardens - for better nutrition. A program for Filipino women to expand their traditional role in agriculture and supply them with training and material for producing their own food.

MEALS FOR MILLIONS FOUNDATION, P. O. Box 42622, Tucson, Ariz.

Food Production and Nutrition Education Project, in 15 village communities in the Papago Indian Reservation, Arizona. Project stresses use of locally available materials, low-cost and fuel conserving methods, the use of traditional Papago food crops and horticultural techniques adapted to the heat and draught conditions of the desert.

Traditional Southwestern Crop Conservancy Garden and Seed Bank. Model garden designed for year round cultivation and maximum nutritional value. Traditional desert-adapted seed varieties, now abandoned and becoming extinct, are being collected and entered into international seed storage facilities.

Urban Community Gardens in low-income housing projects in Tucson, Ariz. Goals are to improve nutrition, cut food costs, provide recreation and build a community.

SAVE THE CHILDREN FEDERATION, 48 Wilton Road, Westport,
Conn. 06880.

Demonstration garden to explore the advantages of incorporating the French Intensive/Bio-dynamic Method of gardening as part of an integrated strategy for rural development, set up in Eltablon, Honduras.

WORLD NEIGHBORS, 5116 North Portland Ave., Oklahoma City,
Okla. 73112.

This group concentrates on developing cooperative self-help through providing educational materials. They produce film strips with discussion guides and teaching instructions. Among other topics featured are films on nutrition and vegetable gardening.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Report to the Government of The Sudan, School Gardening and Nutrition Project, by M.M. Hamed, No. TA 2886, Rome, Italy, 1970, 16p.

Recommendations indicate need for more teacher training and more reliable source of irrigation water.

Report to the Government of Ceylon on Horticultural Development Through School Gardens in Applied Nutrition and Agricultural Education Programs, Haim Gratch, Rome, Italy, 1967, 12p.

Applied Nutrition Programme in India, "Theory into Practice", by Dr. G. Blumenfeld, New Delhi, India, 1966, 21p.

A pamphlet distributed to workers in a program in India. It describes steps to be taken in planning, operating and maintaining home, school and community gardens.

Report to the Government of India, Horticultural Development in the Applied Nutrition Program, by Haim Gratch, No. T.A. 2249, Rome, Italy, 1966, 25p.

Report to the Government of India, Aspects of the Applied Nutrition Programme, by Barbara M. Purvis, CEP Report No. 57, Rome, Italy, 1969, 53p.

Report to the Government of India, Horticulture in the Applied Nutrition Programme and Its Relation to General Horticultural Development, by G. Blumenfeld, CEP Report No. 62, Rome, Italy, 1970, 56p.

Report to the Government of Nigeria on Home Gardens for Improved Nutrition, 1966 - 1968, First Phase, by C. L. M. van Bijnatten, No. 39, Rome, Italy, 1969, 43 p. Report 1968 - 1970, Second Phase, by C.L.M. van Bijnatten, No. 75, Rome, Italy, 1971, 51p.

Report to the Government of Turkey, The Development of School Gardens, by L.B. Thrower and R.J. Martinez, No. TA 2231, Rome, Italy, 1966, 27p.

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, OFFICE OF WOMEN
IN DEVELOPMENT. Building a Woman's Component,
Dr. Elsa Chaney, Room 3143 New State, Washington, D.C.
20523, 9p.

A report on building a women's unit into an agriculture/
soil conservation project, the Integrated Rural Development
Project in two watersheds in the hills of Central Jamaica.

The unit will concentrate on food the for family taken
through a "Family Food Production Plan". This is a planned
cycle for continuous harvesting of nutritious vegetables
chosen to compliment the nutrition in the basic diet and
provide good nutrition. Nutrition education accompanies
vegetable garden instruction.

SOURCES FOR INFORMATION AND MATERIALS ON
FAMILY FOOD PRODUCTION, NUTRITION AND
TECHNOLOGY FOR WOMEN

COOPERATIVE EXTENSION AND STATE EXTENSION SERVICES.

A rich variety of materials to instruct the vegetable gardener, homemaker and small farmer in the production and preservation of food have been produced and published by the U.S.D.A. Cooperative Extension Service and the various State Extension Services.

Copies of many of the U.S.D.A. publications can be obtained by writing to the Office of Governmental and Public Affairs, U.S.D.A., Washington, D. C. 20250.

The U.S.D.A. has also developed Urban Garden Programs in 15 large cities in the U.S. Each project has produced material of its own in addition to using federal and state materials, and these are usually designed for an inner city audience, often printed in Spanish as well as English. Materials from the Chicago and New York programs are particularly outstanding. They can be obtained by writing to:

Urban Garden Program
36 Wabash Street
Room 1402
Chicago, IL. 60603

and

Urban Garden Program
Gateway National Recreation Area
Floyd Bennett Field, Bldg. 272
Brooklyn, N.Y. 11234

The following cities have an Urban Garden Program: Atlanta, Baltimore, Boston, Cleveland, Detroit, Houston, Jacksonville, Los Angeles, Memphis, Milwaukee, Newark, New Orleans, Philadelphia and St. Louis. To find the programs contact the State Extension Service in the various states.

Materials produced by the State Extension Services vary from state to state, both in quality and emphasis, and with the particular cultural and climatic demands of each region. For instance, the University of Arizona State Extension Service does a great deal of work in arid lands gardening and agriculture - Wisconsin in temperate climate gardening and milk production. State Extension materials can be ordered from the Agricultural Extension

Departments of the land grant college of the state. Many of these might be applicable for use by women in less developed countries.

DARROW, KEN AND PAN, RICK. Appropriate Technology Sourcebook. Volunteers in Asia, Inc., 1977, 305p.

"For tools and techniques that use local skills, local resources, and renewable sources of energy." "A Guide to practical books and plans for village and small community technology."

Reviews 375 publications on alternative sources of energy, farm implements, shop tools, agriculture, low-cost housing, health care, water supply, peddle power, and the philosophy of appropriate technology.

The introduction is a thoughtful essay on the appropriate technology movement in which Darrow discusses principles he calls basic to the philosophy. One "prime principle" is the demystification of knowledge, a triumph of common people over the expert, through plain speaking. Another is concern for who controls the technology, who participates in the innovation and who uses it: Thus, if it is for people and not with people, it is not truly appropriate technology.

INTERNATIONAL WOMENS' TRIBUNE CENTER, 305 East 46th St., Sixth Floor, N.Y., N.Y. 10017. Newsletter #7, Women and Appropriate Technology, Part I, 1978.

Newsletter #9, Women and Appropriate Technology, Part II, April, 1979.

Issues are devoted to the subject of appropriate technology, with a collection of quotes and comments from other publications and unpublished papers; descriptions of AT projects; a bibliography; and a list of AT groups.

Newsletter #10, Women and Food Production, August 1979, 32p.

Briefly describes projects for women in marketing, credit in agricultural training. A resource section lists government and non-government development agencies, articles and papers, and periodicals concerned with food production.

THE MELANESIAN COUNCIL OF CHURCHES. Liklik Buk, A rural Development Handbook Catalogue for Papua New Guinea.

(See review in Rural Development Section.)

RUCH, DR. H.C. Sources of Information on Kitchen Gardening.
Unpublished list prepared by FAO horticulturist.
October 1976.

TAICH. News. Monthly Publication of the Technical Assistance
Information Clearing House, 200 Park Ave., South, New
York, N.Y. 10003.

The Clearinghouse serves as a center for information
on development programs. The newsletter gives notice of
new materials and documents related to development and in-
formation about conferences and meetings.

TRANET, Transportational Network for Appropriate/Alternative
Technologies. A newsletter directory of, by and for
those individuals and groups around the world who are
actively developing Appropriate/Alternative Technologies.
P. O. Box 567, Rangeley, Maine 04970.

No. 8, Fall 1978. Director of AT Centers on Women and
Technology. A section on "The Impact of Technology on
Women" introducing publications and projects explains, "The
traditional women's roles as provider of food, maker of clo-
thing, fetcher of water, and mainstay of the home suggests
that the end use of technologies by women oriented."

No. 9, Winter '78/79. Directory of AT Centers on Bio-
logical Agriculture, Urban Farming and Rural Development.

U.N. FOOD AND AGRICULTURE ORGANIZATION. FAO Books in Print.
A catalogue of books that can be ordered from UNIPUB,
Box 433, Murray Hill Station, New York, N.Y. 10016.

U.N. FOOD AND AGRICULTURE ORGANIZATION. Horticulture: A
Select Bibliography, by H.C. Ruch, Horticulturist,
Plant Production and Protection Division, Rome, Italy,
1976, 50p.

Subjects covered: general horticulture; fruits and
products, vegetables, herbs and spices; environmental con-
trol and protected cultivation; nuts, ornamentals and
gardening; publishers, institutes, and societies.

U.S.D.A. List of Available Publications of the United States
Department of Agriculture, Washington, D.C.

Tells how to order free publications from the Department and publications that are for sale from the Government Printing Office and those that are available only from the National Technical Information Service.

U.S.D.A. Computer Printout of Items in the National Agricultural Library, Beltsville, Maryland, 13 June, 1979.

Descriptions searched: garden -- tropical and arid; garden and nutrition; garden and families.

VITA, Volunteers in Technical Assistance. Catalogue of Books, Bulletins and Manuals. 3706 Rhode Island Ave., Mt. Ranier, Md. 20822.

Publications on village, community-level and small-to-medium-scale technologies.