# TROPICAL HOME GARDENS

*Edited by* Kathleen Landauer and Mark Brazil

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*Selected papers from an international workshop held at the Institute of Ecology, Padjadjaran University, Bandung, Indonesia, 2–9 December 1985*

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# Introduction

Home gardening has a long tradition in many tropical countries. Tropical home gardens comprise an assemblage of plants which may include trees, shrubs, and herbaceous plants or vines growing in or adjacent to a homestead. These gardens are planted and maintained by members of the household and their products are intended primarily for household consumption. They hold promise as an ecologically sound land management scheme and as a means of providing for a range of basic human needs: food, fuel, medicines, animal feed, and building materials, as well as social, aesthetic, and cultural functions. Little quantitative information has been available, however, on uses or management of tropical home gardens that could be used to evaluate, improve, or extend home garden practices.

The United Nations University, as part of its programme on the Use and Management of Natural Resources, sponsored a workshop on tropical home garden systems in December 1985. It was organized and held at the Institute of Ecology (IOE), Padjadjaran University, Bandung, Indonesia.

The workshop was designed to bring together scientists who were doing field research on the ecological, socio-economic, and nutritional aspects of home gardens and people who were developing programmes to encourage the use of home gardens in the tropics. The objectives were to review the currently available information and research results on home gardens from different tropical regions (South and South-East Asia, Latin America, Africa, and the tropical Pacific Islands); to identify gaps in this knowledge; and to discuss future research in the light of information needed for the implementation of home garden programmes. The workshop emphasized field observation and working group discussions.

Papers submitted to the workshop included a regional overview for each of the four regions and topical papers that focused on some particular aspect of home garden research or project development. The topical papers and workshop discusssions centred around three main areas: (1) ecology; (2) socio-economic and nutritional aspects; and (3) management and development of home garden programmes.

This volume contains the set of recommendations drafted by the workshop participants and a selection of the papers submitted. They are presented to provide some of the information needed by researchers, planners, and officials interested in the development of home garden programmes.

# Recommendations

The main conclusion of the workshop is that the promotion of tropical home gardens (THGs) is a direct and cost-effective means of assisting appropriate socio-economic, cultural, and nutritional development; efficient land use; and environmental improvement in both urban and rural areas. They can benefit people of all socio-economic levels, especially the poor. Existing research shows that, although there are limitations to these programmes, the advantages far outweigh the disadvantages. Several areas were identified (as listed below) in which further work is needed to improve the design, promotion, and quantitative assessment of the impact of home garden programmes. The group recognizes that there are many organizations interested in home garden development which were not represented at the workshop and stresses the need for further consultation with these groups in developing action plans.

## 1. INFORMATION, COMMUNICATION, AND NETWORK DEVELOPMENT

### Problem

During the meeting, it was pointed out that there is at present no comprehensive information exchange network (clearing-house) for information on THGs which would be useful to researchers, planners, decision makers, funding agencies, and the people and agencies at the implementation level. It was also evident that those

intent on presenting projects on THGs for funding need to have access to information on existing models for THG improvement and development. A network that involves continuous exchange of information appears highly desirable to promote these objectives.

### Recommendation

Every effort should be made to promote local, national, regional, and world-wide networks and to encourage the development and interchange of information on programme design and evaluation, research, classification, incentives for implementation, education and training, co-ordination among organizations, and meetings, as elaborated in recommendations 2–8 below. It is suggested that existing clearing-houses be consulted, encouraged to co-operate in this endeavour, and utilized or strengthened as appropriate. To initiate this, a task force should be constituted to study and promote the most effective mechanisms for enhancing networking. The initial focus should be on data base formation and retrieval and providing assistance to those seeking information and co-ordination for various activities that will strengthen ongoing or planned THG efforts. It is critical that international organizations be approached to lend financial and technical support.

## 2. PROGRAMME DESIGN

### Problem

Agencies and individuals interested in establishing home garden programmes would often benefit from assistance in programme design. A particularly difficult aspect of THG promotion is their establishment in areas where they have not previously existed or contributed significantly to household production or where they might be used to assist the rural landless. Strategies for development will undoubtedly be more problematic in such areas when compared to areas where there has been a long tradition of tropical home gardening. There is, however, also a need for assistance in programme design to improve THGs in areas where they are already significant.

### Recommendations

2a. General guide-lines should be developed for home garden promotion, establishment, and monitoring, indicating steps that should be taken, pitfalls to be avoided, possible avenues for improvement, and factors to be considered when writing projects for funding.

2b. Guide-lines should be elaborated that specifically address the needs of households that want to establish or improve THGs in areas where they have not been of

traditional significance. Such guide-lines must account for the prevailing ecological, socio-economic, and cultural conditions and availability of land and planting materials. They should also consider those cases where THGs are deemed desirable for new settlements, schools, hospitals, and other compounds and might include suggestions for appropriate incentives.

2c. In view of the current rapid growth of urban populations in most developing countries, the problems of urban home gardeners could be addressed through special projects designed to include research, extension, education, and training in an effectively integrated manner.

## 3. PRIORITIES FOR RESEARCH

### Problem

There are serious gaps in the knowledge of the structure, functions (i.e., ecological, economic, social, cultural, and nutritional characteristics), and potentials of various THG systems. Quantitative data are needed in order to improve existing THGs; design new THGs; extrapolate the information to other potential areas; provide policy makers and funding agencies with the types of hard data they require; and evaluate the performance of THGs.

### Recommendations

3a. A general format (questionnaires and observation schedules) should be devised for the study of THGs in a scientific and comparable way. It is possible to draw upon methodologies from appropriate disciplines which could be used to develop standardized methodologies for collection and compilation of quantitative data on THGs. Special modules may be designed to facilitate in-depth studies on such specific aspects of THGs as ecology, cultural importance, economics, nutrition, productivity, sustainability, contribution to national development, etc.

3b. Research priorities should be identified for national, regional, and international groups to deal with specific THG issues.

3c. Data should be systematically gathered on the ecological, social, economic, cultural, and nutritional aspects of various THGs, including their structure, function, and performance (actual and potential). Among specific research areas suggested were

- the relationship of productivity, soil conservation, and sustainability of THG production to the chosen mixture of plant and animal species, vertical and horizontal arrangement of crops (i.e., architecture), and production technologies used;
- crop requirements under mixed gardening conditions, including variations in shade, competition from associated crops, phenological and allelopathic effects;
- nutritional values of crops grown under different conditions;

- social and economic costs and benefits;
- inventory of existing genetic resources in different THGs and action programmes to propagate, manage, utilize, and conserve them;
- the crucial role of women in planting, managing, and utilizing home garden products.

In all cases, local organizations should be involved in these tasks as much as possible and the results of the research efforts should be applied to both the improvement of existing THGs and the establishment of new ones.

3d. Indicators should be identified which could be used to measure success or failure (performance) in THG programmes as seen from the donor, national, and participant perspectives, along with methodologies for their correct application in different situations.

## 4. NEED FOR DEFINITIONS AND CLASSIFICATION

### Problem

Standard definitions and classification systems are needed as a framework in which to compare results of home garden research and programmes. During the meeting it became evident that definitions of tropical home garden differ due to such factors as the presence or absence of trees and/or animals, the proximity to the house, the degree of emphasis on food production, size, and geographical regions, among other factors. Besides "tropical home garden," the terms "mixed garden," "mixed home garden," "urban garden," "dooryard garden," and "site stable garden," among others, were used. Moreover, as in the case of Indonesia, many variations of home gardens are possible and useful for classification.

### Recommendation

On the basis of the existing world literature and careful consultation among leading THG specialists, a committee of three or four such specialists should prepare a comprehensive paper on comparative terminologies and classifications and present its own suggested definitions and a classification scheme, to be published in a leading journal, such as the *Food and Nutrition Bulletin*, *Agroforestry Systems*, or *Unasylva*.

## 5. INCENTIVES FOR IMPLEMENTATION

### Problem

Home gardening can often be encouraged by the provision of adequate incentives. This must be done carefully, however, to avoid creating increased dependency, the

misuse of free inputs, and the displacement of local cultivars, nursery enterprises, and other existing THG support agencies that are well adapted to local dietary patterns and social, cultural, and ecological conditions.

Recommendation

Incentives should be carefully designed which maximize self-help and are adapted to local conditions and the perceptions of the people who actually design and manage THGs. Emphasis should be placed on such techniques as

- developing better marketing and credit structures;
- using such techniques as periodic contests and awards for the best designed gardens (structure, species composition, wise addition of animals, productivity, sustainability, use of crops, etc., could be part of the criteria);
- the selective distribution and/or encouragement of planting material, which could lead to careful improvements in existing THGs (e.g., enriching the food species composition, increasing use of multipurpose trees, adding ornamentals or improving present stock) or the design of new THGs;
- assistance in the establishment of community nurseries.

## 6. EDUCATION AND TRAINING

Problem

The formal and non-formal education and training programmes presently available on THGs are not sufficient to provide the amount of training needed to implement adequate programmes. There is a need to develop more programmes and to augment existing ones. Another need is THG-oriented extension activities that make effective use of research findings. The extension programme should focus on the community and household levels and will thus require knowledge of the local culture, especially existing agricultural and food systems and the natural environment by those responsible for the promotion of home gardening. Local community groups and non-governmental organizations (NGOs) can play an important role in strengthening government efforts.

Recommendations

6a. Government agencies and NGOs should place higher priority on the development of adequate and appropriate education and media materials for the understanding and promotion of THGs such as textbooks, syllabi, manuals, and audio-visual materials for use in both formal and non-formal situations.

6b. Appropriate THG extension activities should be designed and implemented at both the interpersonal and mass media level and should be made integral parts of existing agricultural extension programmes. A training programme should be de-

veloped involving both government and non-government field workers in the technical and organizational aspects of promoting THGs. Follow-up activities should include adequate funding to ensure smooth implementation.

## 7. ROLE OF ORGANIZATIONS AT INTERNATIONAL, NATIONAL, AND LOCAL LEVELS

### Problem

Given the potential contribution of THGs as avenues for sustainable and more equitable development, co-operation among international, national, and local organizations concerning THG programmes needs to be facilitated.

### Recommendations

7a. International organizations should support local efforts to improve awareness of and co-operation in THG research and development. International organizations must work jointly with governmental organizations and local NGOs in promoting such activities as meetings, national communication networks, publications, and training and education programmes. They should also promote improvements of research methodologies and assessment and monitoring criteria.

7b. At the national level, policies and appropiate structures should be developed or strengthened to incorporate THGs as part of the development process. Special emphasis should be placed on adapting training materials to specific local conditions. In this context, the role of non-governmental organizations, including local co-operatives, appears fundamental, particularly in increasing communication between the rural and urban people who are engaged in THG activities and among the various organizations involved in THG development programmes.

## 8. FUTURE MEETINGS

### Problem

Based on the representation at this international workshop on THGs of home garden experts from different geographical regions, there is a clear need to continue exchanging ideas and proposals for action programmes. Further meetings may be convened to elaborate on specific avenues for future development or to take stock of progress achieved.

Recommendation

Future meetings may consider covering the topics listed below. These are not listed in any order of priority but may be considered according to the specific interests of organizations that may sponsor them.

- Incorporation of THG projects into the planning of development projects.
- THG research and methodologies, including the collection and evaluation of data on the ecological, genetic, economic, social, and nutritional characteristics of THGs.
- Development of networks and communication systems.
- Home garden action programmes designed to expand tropical home gardening and/or to improve existing THG systems.
- Urban THGs.
- The net economic returns of THGs and the cost effectiveness of different strategies and programmes of THG development.
- THGs in specific ecological environments or regions, such as tropical highlands, arid and semi-arid lands, island environments, and others.

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Part 1

# Regional Overviews

# 1

# Home Gardens in Tropical America: A Review

*Gerardo Budowski*

## INTRODUCTION

Traditional home gardens have lately received increased attention in tropical Latin America and appeals towards better knowledge of them have been made by various researchers (Budowski 1977; Price 1983; Brownrigg 1985). Explanations for this trend can be found from various sources. Above all, interest in agro-forestry is increasing and home gardens are considered a legitimate agro-forestry subdivision as described by Nair (1985). As such, home gardens benefit from the various agro-forestry activities, such as the increasing availability of short courses, workshops, conferences, including formal training opportunities.

The international scene has also helped agro-forestry, notably through the role of the International Council for Research in Agroforestry (ICRAF), the Tropical Agricultural Research and Training Center (CATIE), and the International Institute of Tropical Agriculture (IITA), where research and education are stressed, and the recent interest of various intergovernmental organisations, notably the United Nations University (Soedjatmoko 1985), the Food and Agriculture Organization (FAO), the International Union of Forestry Research Organizations (IUFRO), the International Society of Tropical Foresters, and the International Union of Societies of Foresters. There has been in fact a significant increase in awareness by many forestry organisations, recognizing that forestry cannot isolate itself from rural development problems, a fact eloquently reflected in the last four FAO organised World Forestry congresses. Several authors have advocated the greater involvement of foresters in programmes for the improvement of rural populations instead