

Livelihoods grow in gardens

Second edition

FAO Diversification booklet 2



Diversification booklet number 2

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Preface

The purpose of the FAO Diversification booklets is to raise awareness and provide decision support information about opportunities at farm and local community level to increase the incomes of small-scale farmers.

Each booklet focuses on a farm or non-farm enterprise that can be integrated into small farms to increase incomes and enhance livelihoods. The enterprises profiled in the FAO Diversification booklets selected are suitable for smallholder farmers in terms of resource requirements, additional costs, exposure to risk and complexity. The products or services generated by the enterprises are suitable for meeting demand on a growing, or already strong, local market and are not dependent on an export market.

The main target audience for these booklets are people and organizations that provide advisory, business and technical support services to resource-poor small-scale farmers and local communities in low- and middle-income countries. It is hoped that enough information is given to help these support service providers to consider new income-generating opportunities and how these might enable small-scale farmers to take action. What are the potential benefits? What are farmer requirements and constraints? What are critical 'success factors'?

The FAO Diversification booklets are also targeted to policy-makers and programme managers in government and non-governmental organizations. What actions might policy-makers take to create enabling environments for small-scale farmers to diversify into new income-generating activities?

The FAO Diversification booklets are not intended to be technical 'how to do it' guidelines. Readers will need to seek more information or technical support, so as to provide farmer advisory and support activities relating to the introduction of new income-generating activities. To assist in this respect, each booklet identifies additional sources of information, technical support and website addresses.

A CD has been prepared with a full series of FAO Diversification booklets and relevant FAO technical guides, together with complementary guides on market research, financing, business planning, etc. Copies of the CD are available on request from FAO. FAO Diversification booklets can also be downloaded from the FAO Internet site.

If you find this booklet of value, we would like to hear from you. Tell your colleagues and friends about it. FAO would welcome suggestions about possible changes for enhancing our next edition or regarding relevant topics for other booklets. By sharing your views and ideas with us we can provide better services to you.

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Acknowledgements for the series

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■ Preface	v
■ Acknowledgements	vii
■ Introduction	1
■ Gardens and agriculture	1
■ Gardens, market potential and livelihoods	4
■ Purpose of the booklet	6
■ Garden advantages	7
■ Enhancing local agriculture and food security	7
■ Improved nutrition, diet and health	10
■ Increased household income	13
■ Opportunities for women, youth, the elderly and the disabled	16
■ Environmental benefits	20
■ The garden as a livelihood activity	23
■ Diversification, innovation and market entry	23
■ Types of gardens	25
■ Crops, livestock and fish in gardens	32
■ Initiatives to increase benefits	35
■ Market appraisal	35
■ Garden products	38
■ Adding value	40
■ Marketing	42
■ Organization	46
■ Support services for garden development	49
■ Support services for all	49
■ Development programmes	52
■ Local authorities	54
■ Information systems	56
■ Training	57

■ Challenges	59
■ Hygiene, sanitation, safety and quality	59
■ Transition from home to market gardens	63
■ Sustainability of resource management	67
■ Selected further reading	71
■ Sources of further information and support	77

Table of contents

Introduction

■ *Gardens and agriculture*

People have had gardens for thousands of years. It is not so hard to imagine: fruit, vegetables and grains gathered from the wild were taken to family huts for meals. Some seeds fell to the ground; other seeds were released after the fruit had been eaten. The seeds germinated and grew, and were cared for by those in the family who knew what the plants were. People settled were food plants

grew, and learned to cultivate and breed them. Living near the garden made it easier to water and protect the crops from foraging wildlife, and was less work than gathering food from the wild.

Gardens are ancient forms of agriculture, and with the current issues of growing population, scarce resources and food crises, gardens can provide many people with improved livelihoods.



FIGURE 1 *Homes and gardens: an ancient association. A traditional forest garden in Southeast Asia has a diverse mix of species in a random structure, which reduces risks of serious losses to pests, diseases, and climate variation, while also providing dietary diversity. (Photo by C. Landon-Lane)*

Broad scale agricultural techniques evolved from simple, manually-worked gardens; even today in many parts of the world the difference between farms and gardens is blurred. The main visible differences are important and telling: agriculture is a defining feature of rural areas, but not urban areas; while gardens are found in both rural and urban areas; gardens generally cover a smaller area than farms, yet they have a wider diversity of crops and livestock. Using small plots of land or even plant pots in urban high-rise apartments, gardens can be established and maintained with little capital and labour to provide a range of products including food, fuel, herbal medicines, and environmental

services like shade, beauty, and organic waste disposal.

Garden types may be divided according to their primary purpose. Structure and function are closely related. **Home gardens** have a long history of adapting diverse plants and small livestock to meet a range of household needs and conditions, mixing traditional and new technologies. Home gardens often combine the natural functions of a forest with the socioeconomic needs of the people. The natural functions of a forest encompasses hydrologic and erosion control, gene bank, and microclimate effects, whereas its socioeconomic functions include subsistence and commercial production, and social and aesthetic values.

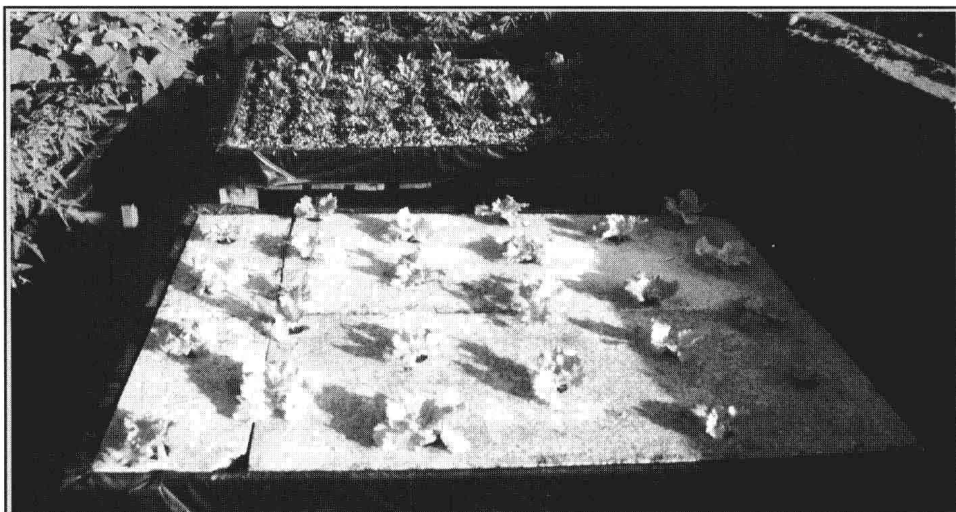


FIGURE 2 Growing lettuce in a micro-garden on a roof terrace
(Photo: FAO/22166/A. Casset)

Market gardens are larger, and have more specialized production systems to supply specific commercial markets. While commercial orientation

makes market gardens a mainstream form of agriculture, both home gardens and market gardens make significant contributions to livelihoods.



FIGURE 3 *A home garden in Viet Nam*

(Photo: FAO/21340/J.M. Micaud)

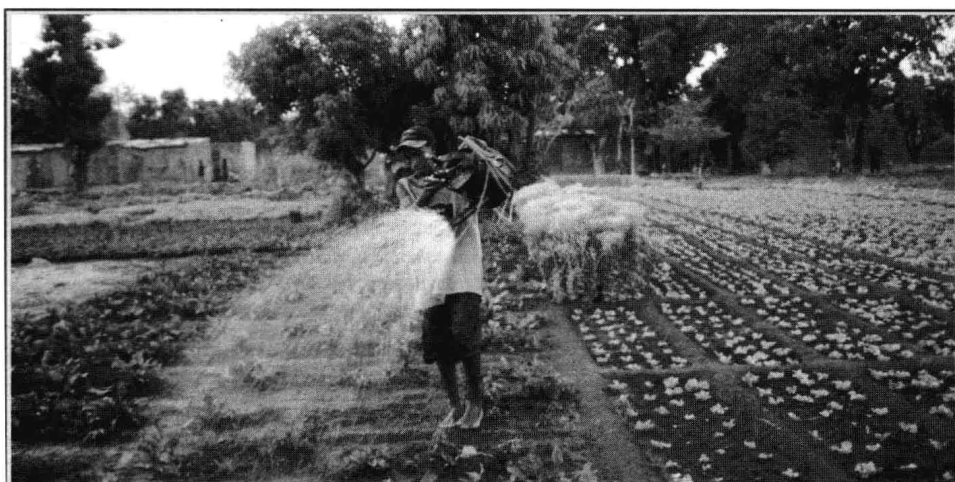


FIGURE 4 *A young man in Mali watering his market garden where salad vegetables and mint are grown*

(Photo: FAO/22994/I. Balderi)

■ *Gardens, market potential and livelihoods*

A small-scale farmer or a group of small-scale farmers can make choices on the size and nature of the garden system and its purposes, depending on their livelihood strategy and business plan - priorities, resources and market opportunities. Some market gardens are run by community or cooperative groups on community land, particularly in urban and peri-urban areas, providing members with food, income, and skills development. Many people in the increasing urban population establish or join community gardens to maintain a direct link with agriculture, as a buffer against fluctuating food supplies and prices, and often simply to have the varieties of food they prefer.

Intensively managed, gardens can be highly productive all year round in tropical and mild temperate areas. They can be worked seasonally to avoid difficult cold or dry seasons, or managed part-time to fit in with other livelihood activities such as daily employment, fishing and farming. A garden can be a significant health and livelihood asset amongst urban households.

Garden diversity can include vegetables, fruit, staple foods,

livestock, aquaculture and nursery production; plants and livestock that produce fuel and fibre; plants for medicinal use¹, and plants for social or spiritual functions such as flowers. All these items not only have an economic value in the livelihood system and may be traded but offer more and diverse market opportunities for small-scale farmers and others involved in gardens.

In addition to the direct livelihood contributions for consumption and income, a garden area can support other livelihood activities as work area and a place to store products and equipment. Gardens strengthen well-being through providing space and products for social functions, and environmental services like privacy and protection from sun, wind, and dust.

¹ See also FAO Diversification booklet: No. 17 *Health and wealth from Medicinal Aromatic Plants*. Also fit for gardens are other enterprises covered in the FAO Diversification series: No 1 *Beekeeping for sustainable livelihoods*; No. 3 *Products and profits from poultry*; No. 4 *Value from village processing*; No. 5 *Processing for prosperity*; No. 6 *Milk for health and wealth*; No. 7 *Make money by growing mushrooms*; No. 9 *Sheep and goats for diverse products and profits*; No. 11 *Growing vegetables for home and market*; No. 12 *Non-farm income from non-wood forest products*; No. 13 *Farm ponds for water, fish and livelihoods*; No. 14 *Small animals for small farms*; No. 15 *Pigs for prosperity*; No. 16 *Fruit products for profit*; No. 18 *Selling street and snack foods* and No. 20 *Spices and herbs for home and market*.

CASE STUDY 1 Famous gardeners

While Nelson Mandela was a prisoner in South Africa, he grew vegetables, at one time up to 900 plants. This improved his diet, the diet of fellow prisoners and even the prison wardens. In Viet Nam, Ho Chi Minh practiced and promoted a traditional mixed gardening system integrating fruit trees, vegetables, fishponds and livestock. These gardens helped many people survive years of war and famine, and provided a platform for recovery assisted by agricultural diversification. Michelle Obama (see Figure 5) started a kitchen garden at the White House, with local students involved in producing vegetables to be cooked in the White House Kitchen and given to Miriam's Kitchen, which serves the homeless in Washington DC.



FIGURE 5 *The White House kitchen garden*
(Photo by J.N. Boghosian , courtesy of The White House)

Potential benefits from integrating gardens into livelihood systems include:

- Income and enhanced employment through additional or off-season production;
- Improved household food security;
- Increased availability of food and better nutrition through food diversity;
- Decreased risk through diversification;

- Alleviation of seasonal food shortages and seasonal supply bottlenecks of labour, transport, power or equipment;
- Local environmental benefits from recycling water and waste nutrients, from shade, dust and erosion control and from maintaining or increasing local biodiversity;
- Education and skills development;
- Strengthening communities.

Despite the considerable potentials gardens offer, the contribution of gardens to livelihoods is often wrongly considered too small and their establishment too complicated for inclusion in urban and rural development policy and investment projects. Economists and even households themselves sometimes find it hard to describe and value all of the benefits from diverse gardens.

Planners, researchers, community development and extension officers often lack the information to identify situations where garden programmes can achieve policy goals, and the skills to plan and evaluate garden programmes. Gardening is traditionally handled as a minor activity by specialized horticulturists in agriculture research and extension

institutions, independent of field crop, livestock and aquaculture institutions.

Increasingly the health benefits of gardens are perceived by public health organizations, but they need linkages with expertise. In an urban context, there is often a need for local government, NGOs and community groups to collaborate. To introduce gardens for livelihoods successfully, policy-makers and planners must take sufficient account of diverse and often location-specific economic, cultural and environmental conditions.

■ *Purpose of the booklet*

The main objective of the booklet is to create awareness about the numerous opportunities available for improving livelihoods through appropriate garden technologies and organizational structures. This book provides examples of successes and lessons learned, and points out considerations that are crucial to the successful integration of gardens into livelihood systems around the world. Further the publication will help development specialists to understand the livelihood benefits of gardens and how they can be integrated with other components of livelihood systems. The main focus is on semi-intensive, small-scale, diverse and integrated gardens for food, income and well-being.

Garden advantages

■ *Enhancing local agriculture and food security*

Gardens, and the people who work them, help local agriculture to develop and diversify by exchanging knowledge of practices and technologies, trading seeds and animal breeds, and also by sharing knowledge and/or collaboration in marketing. Some skills and technologies learned and developed in a garden later support local agriculture. In a community with gardens there are always different crops and small livestock at different stages of production, resulting in a fairly regular supply of surplus garden produce for trade in local markets, and for supply of farm inputs such as seeds and livestock for growing on. A regular supply of local produce supports the viability of local markets, which in turn provide growers the sales outlets for income. People tend to trust and prefer local markets and food from local gardens and agriculture. Gardens enhance this interdependent system of local agriculture, markets, and local consumers.

Farm work efficiencies can be gained by integrating a garden into

a farming system. Nursery beds can provide advanced seedlings, which when planted in fields require less weeding and take more rapidly than when seeded directly as field crops. Winnowing, drying, milling and other post-harvest processing may be more efficiently done near a home and a garden (see FAO Diversification booklet No.4 *Value from village processing*). Working in the garden near drying crops ensures that they can be brought in from rain; a gardener can also keep watch for browsing domestic animals. Waste from crops processed in or near the home garden provides feed for livestock and compost for garden fertilization.

Field crops are usually cultivated as a monocrop - a single species all planted at the same time - in order to maximize growth and labour efficiency. This low species diversity increases the risk of loss from disease and pests, which easily multiply and spread under such conditions. Planting the crop at a single time exposes it to loss by drought and bad weather. In contrast to this, a home garden's high species diversity and staggered planting times increase the

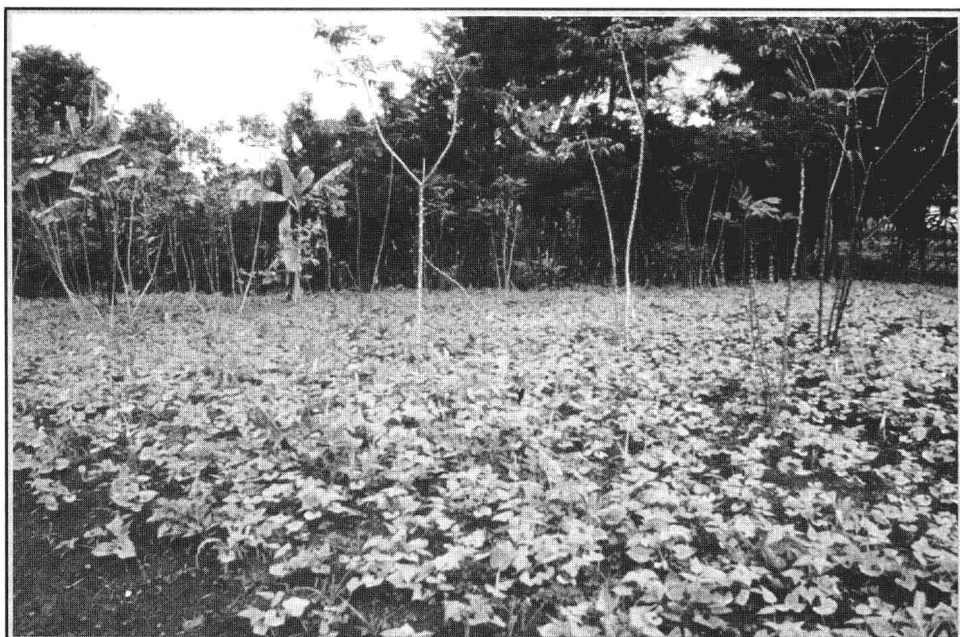


FIGURE 6 *Diversity enhances food security: A garden in Burundi where cassava, sweet potatoes, beans and bananas grow*

(Photo: FAO/23927/M. Bleich)

likelihood that some crops survive (see Figure 6). In the Philippines and the Pacific Islands, for example, patches of taro (*Colocasia*) grown in gardens ensure that a family has food after a typhoon or tropical cyclone has wiped out other crops. Plants such as the onion family (*Allium* sp.) and neem tree (*Melia azadirach*) are planted in gardens to repel pests. Shade and shelter for the home also protect the home garden crops, which is not the case in open fields. The home garden also provides a secure place to process and store crops.

Supply of agricultural inputs is often controlled by large state or private corporations, which may offer only a narrow range of high-volume items such as fertilizer and main crop seeds such as rice and maize. In contrast, viable gardens require a wide range of high-quality vegetable, herb and spice seeds, grafted fruit trees, young livestock for fattening, materials for pest exclusion and environment modification, and services such as para-veterinary services. This diverse demand provides additional trade opportunities for local entrepreneurs.

Schools, training centres, research institutions and extension services can also benefit from this demand for inputs, services and products. When research and development is applied to the innovations being made in gardens, viable commercial applications often result. Many of the improved varieties of fruit and vegetables popular in markets today were originally selected by observant and skilled gardeners.

Breeders of plants and livestock have for centuries utilized the diversity of genetic resources to improve productivity and choices. Gardens enhance the diversity of local agriculture. Agricultural diversity strengthens food security by reducing the risk that an economic shock, unusual weather, disease, or market failure will affect all of the diverse forms of food, their means of supply, or the sources of income to purchase food.

When climate and other factors caused global food price crises in 2008 and 2010, people with gardens were buffered from the worst impacts by having a living food store and ability to adapt the garden quickly. At such times of food security stress, the food and income potential from diverse gardens greatly

increases household resilience and reduces vulnerability. Leafy green vegetables can grow rapidly (see Figure 7) and edible leaves can be taken from them soon after planting, without harvesting the whole plant. Intensive, inexpensive, fast growing garden systems and varieties have been researched and promoted in many countries by the Asian Vegetable Research and Development Center (AVRDC) through its headquarters in Taiwan, Regional Center for Africa in the United Republic of Tanzania, and collaborative research with research and development stations in many countries.

Food security from traditional gardens comes not only from vegetables, tree crops and small livestock, but also root crops and 'emergency store' food plants used mostly as living fence and for fuel. In Southeast Asia and the Pacific Islands emergency food is available from plants such as the roots of the hardy shrub *ti* (*Cordyline humilis*) that survive cyclones and salt water inundation. In Africa and Central America, plants are cultivated that can withstand drought or plague locust and still yield some food, such as seed from certain Acacia trees, cassava roots, and fruit prickly pear cactus (*Opuntia sp.*).