

With micro-gardens, urban poor “grow their own”

Leafy vegetables, tubers and herbs grown in simple containers help low-income families meet their daily needs for fresh, nutritious produce



Key points

By growing vegetables in micro-gardens, the urban poor can improve their own food and nutrition security

Modern micro-gardening integrates horticulture production techniques with rainwater harvesting and household waste management

Micro-gardens are highly productive, easily managed and can yield surplus produce for sale

To be successful, micro-gardening programmes need to establish at the outset a training and demonstration site and engage with public and private sector support services

To boost the overall supply of horticultural produce to the world’s developing cities, FAO promotes the sustainable intensification of commercial market gardening on urban peripheries. In densely populated areas, it has a complementary strategy: to help low-income households improve their food and nutrition security by growing their own vegetables in micro-gardens.

“Micro-gardening” is the intensive cultivation of a wide range of vegetables, roots and tubers, and herbs in small spaces, such as balconies, patios and rooftops. While urban residents have long grown vegetables in backyard plots, modern micro-gardening makes use of containers such as plastic-lined wooden crates, custom-built tables and even old car tyres. It integrates horticulture production techniques with environmentally friendly technologies suited to cities, such as rainwater harvesting and household waste management.

Micro-gardens allow low-income families to meet their needs for vitamins, minerals and plant protein by providing direct access to fresh, nutritious vegetables every day. They also offer a source of extra income from the sale of small surpluses.

Highly productive, easily managed

Micro-gardens are highly productive and can be easily managed by anyone – women, men, children, the elderly and the disabled. Where no land is available, vegetables can be planted in a container filled with garden soil or a “substrate” made from local materials, such as peanut shells, coconut fibre, rice husks, coarse sand or laterite. If substrates are unavailable, there is another option: growing the vegetables on water enriched with a soluble fertilizer.

A micro-garden can be grown on an area of just one square metre. Water requirements are modest, an important consideration in developing cities, where good quality water is often scarce and expensive. In a year, a one square metre micro-garden consumes about 1 000 litres of water, or less than 3 litres per day.

To ensure a regular water supply, micro-gardeners can channel rainwater into storage via a system of gutters and pipes. Rainwater is virtually free (after the investment in harvesting equipment) and usually



Bumper harvests from one square metre

FAO studies show that a micro-garden of one square metre can produce any one of the following:

- around 200 tomatoes (30 kg) a year
- 36 heads of lettuce every 60 days
- 10 cabbages every 90 days
- 100 onions every 120 days

of good quality. From a roof of 20 sq m, growers can collect 2 000 litres of water for every 100 mm of rainfall, enough for the year-round cultivation of a micro-garden of two square metres.

Keeping micro-gardens productive is also fairly simple. They can be fertilized regularly, at no cost, with compost produced from household organic waste. Pests are controlled by non-chemical means, including coloured sticky traps, insect proof nets and intercropping with aromatic herbs that naturally repel insects, such as basil, parsley and mint.

Leafy greens in poor barrios

With FAO support, governments and municipal authorities have successfully launched micro-garden programmes in several Central and South American countries – a programme in Caracas helped 10 000 families in the city's poor *barrios* to grow leafy vegetables, cabbages, pumpkin, tomatoes and eggplant in micro-gardens. More recently, urban micro-gardens have been introduced in several African countries, including Gabon, Namibia, Niger, Senegal and Rwanda.

FAO says low-income families master micro-garden technology very quickly. Micro-gardens are particularly popular with women, who use income from sales of surplus produce to improve their families' well-being. Studies in Senegal found that around 35% of produce is kept for home consumption, while the rest is sold. Typical income from a family micro-garden of 10 sq m ranges from US\$15 to US\$30 a month.

With support from an FAO project, Cairo residents have grown an estimated 6 000 sq m of micro-gardens on the city's rooftops



This factsheet was prepared by Wilfried Baudoin, of FAO's Plant Production and Protection Division



Homeless following the Haiti earthquake

alternative to vegetable cultivation on salt-affected land. In Haiti, FAO recommended micro-gardens to help homeless earthquake victims "help themselves".

To be successful, micro-gardening programmes should establish, at the outset, a training and demonstration centre, and identify local sources of inputs, such as containers, seeds, substrates and fertilizer. Creation of a local technical "help desk" (for example, in a municipal horticulture office), engagement of private sector suppliers, and partnerships between NGOs and community gardeners' associations contribute to the sustainability of micro-gardening programmes.

How home gardens improve family food and nutrition security

Because poor urban households spend up to 80% of their income on food, they are highly vulnerable when food prices rise or their incomes fall. They are also heavy consumers of cheap "convenience" foods often deficient in micronutrients. Micro-gardens help poor families diversify their diet. They also increase the poor's *economic access* to food – by reducing family food bills, they allow more spending on milk and meat, and provide growers with a new source of income from the sale of surpluses.

Senegal micro-gardens won international prize

With assistance from FAO, more than 4 000 urban residents, mostly women, have started micro-gardens in backyards and on patios and terraces in Dakar. The most popular crops are tomato, lettuce, cucumbers for salads, mint for tea, as well as coriander, chive, green onion and leaf celery as condiments for stuffing fish. In 2008, the micro-gardens programme – which is jointly funded by Italy and the City of Milan – won UN-HABITAT's Dubai Award for Best Practice to Improve the Living Environment. The US\$30 000 prize is being used to consolidate and expand the programme.



Ripe vegetables grown in micro-gardens in inner-city Dakar



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