

WHY WE ALL WILL BE GARDENERS: Urban Agriculture on the Move

They require very little (sun, water, regular care). In return, they offer fresh, organic, local, inexpensive produce and a tool against climate change. The urban garden is experiencing a renaissance.

By Kirsten Dirksen and Nicolás Boullosa

No longer predominantly retirees or experienced "green thumbs", today's city gardeners run the gamut from global warming activists to young trendsetters.

In downtown Vancouver, a fashionable condo complex offers personal garden plots to residents. For an additional \$2,800 (Canadian) over the buying price of a unit, a buyer can purchase one of the 1.5-metre-square rooftop plots and a small tool locker. The sales team of the Freesia uses this extra amenity, like a gym or rooftop pool, to help sell the units: "Have the luxury of growing your own vegetation: ripe tomatoes, fragrant basil, fresh strawberries - or freesia, perhaps?"

In Chicago, well-known chef Rick Bayless supplies all the salad greens for his Topolobambo restaurant from his home garden and at his Frontera Grill, the menu's chiles and tomatoes grow on the roof.

In Barcelona, stylish planters- created by three small businesses (Horturbà, Leopoldo Group Design and Vaho Works)- filled with vegetables, herbs and spices line terraces, balconies, porches, patios and urban roofs. The Leopoldo is aimed at novice urban farmers (it's accompanied by seeds and a planting calendar) who are interested in the environment (it's made of recycled material) and who have a bit of disposable income (it's priced at 68 euros, or about 100 dollars).

Brave new world

It's an increasingly fashionable hobby and the trend is being driven by the power of urban agriculture to deliver on so many of our 21st century needs: healthy food, "buy local and organic", "slow food". Agricultural sociologist Henk de Zeeuw sees the movement in North America, Europe and Australia as a result of "concerns about the quality of industrially produced food or social and ecological concerns".

The creators of the 100 mile diet advise starting a garden as a way to reduce food miles, no matter how small your home: "Self-sufficiency feels good, and greens up our cities and towns. We live in a one-bedroom urban apartment but grow vine beans, tomatoes and herbs in pots on our balcony. We also have a 3'x12' plot in a community garden."

Those at Chicago's True Nature Foods market have planted crops like buckwheat, burdock, comfrey, and artichoke on their roof to ensure a "food supply that does not rely on fossil fuel for transportation that is dwindling in availability, and growing in expense."

And in Berkeley, California, Jim Montgomery and Mateo Rutherford grow all the food they need in their 6,000 square foot backyard garden: a move they compare with the backyard gardens in the US and UK planted during World War I and II to bolster the wartime food supply. "We're growing a victory garden against having to use so much oil."

The director of the Vancouver nonprofit organization City Farmer, Michael Levenston, sees this movement toward urban agriculture as a "brave new world". While he says most North Americans still garden for recreation, not food, this is changing as concerns over climate change and food safety are propelling the local food trend. "You can't get more local than your own home. We're going to see more of this in the future, no question."

Edible cities

Today, cities consume much more than they produce: they cover just 2% of the Earth's surface, but consume 75% of its resources. As more of the world's population moves to cities- nearly 80% of the world's population will live in urban centers by mid-century-, traditional farms won't sustain us.

Jac Smit, president of the Urban Agriculture Network, has been studying urban agriculture for several decades. Smit credits such unrelated elements as the Internet and breakthroughs in drip irrigation as helping drive the current trend, but he told faircompanies what we're seeing now is only the beginning. "Nutritionally self-reliant cities, metropoli, micropoli and megapolitani will increase as global warming reduces rural agriculture and as technology and systems improve."

Our cities are rich with potential. Smit cites a 2004 NASA study found that the 3% of the mainland US that was urbanized (seen from space as night lights) had the agricultural capacity of the 39% currently being farmed.

It's not all hypothesis. Currently, some of the largest cities in Europe and North America have extensive urban gardens:

- Almost 10% of Greater London is farmland, cultivated by 30,000 urban gardeners.
- In Berlin, 15% of the city's land is used for agriculture. While the city has 80,000 allotment gardens, all are being used and there is a waiting list of 14,000 residents.
- Montreal has North America's largest community garden network with 8,000 18-square-meter city-owned plots, providing mostly organic fruits and vegetables for personal consumption.

10x10 meter plots to feed a family

City plots can be surprisingly effective. According to a report by the Community Food Security Coalition, "in a 130-day temperate growing season, a 10x10 meter plot can provide most of a household's total yearly vegetable needs, including much of the household's nutritional requirements for vitamins A, C, and B complex and iron."

According to Smit, government, private and institutional studies all show that the intensive production methods typical of urban agriculture produce 10 to 15 times as much food per square meter or acre as typical rural agriculture. "Studies in Russia following Perestroika found that the small Dacha Gardens produced ten times as much per acre as the State farms with one-tenth the capital investment." [See "Urban Agriculture: Improving the Environment for Living and Contributing to a Sustainable Ecosphere" near the end of the page.]

Even in colder climates, personal gardens can flourish. Alisa Smith and James MacKinnon, founders of the 100-mile-diet and Vancouver residents (where the average temperature in January is 0-5 °C), grow a winter garden. "We keep garlic, kale, mustard greens, turnips and cabbage going throughout the winter. Spinach and Swiss chard are other good winter greens. Friends as far north as Whitehorse, Yukon, have extended the growing season with a backyard greenhouse."

Mandatory urban gardens

City governments have begun to give weight to the movement. Cities like Chicago, Tokyo and Atlanta now mandate that a percentage of all new buildings have roof gardens. In Vancouver's new downtown neighborhood Southeast False Creek, developers are required to include "edible landscaping" and productive food garden spaces for rooftops and balconies.

In 2004, San Diego (California, US) city planner Nancy Hughes began pushing to make San Diego America's first "edible city". Her vision includes setting aside tracts of land inside city limits for organic urban farming as a way to combat her city's reliance on well-traveled food. "Why are San Diegans eating tomatoes from Florida when we're blessed with a year-round growing season?"

While traditionally city officials haven't given farming the attention they do housing, crime and transportation, this is changing, according to the Worldwatch Institute's State of the World Report 2007. "Fortunately, urban politicians, businesses, and planners are beginning to regard urban agriculture as a tool to help cities cope with a range of ecological, social, and nutritional challenges-from sprawl and malnutrition to swelling landfills and the threat of attacks on the food chain."

Gardens against climate change

Despite their power to produce, Smit explained to faircompanies that the real strength of urban gardens is not their fruits and vegetables. "Urban agriculture's greatest 21st century strength and purpose is in mitigating Climate Change. Producing products for the economy is secondary."

Bill Clinton has touted the beneficial effects of rooftop gardens on the overall greening of cities. Greener roofs can provide a source of rainwater capture, as well as, help control temperatures of cities- the heat-island effect- and buildings, thereby reduce heating and cooling needs. The rooftop garden on Chicago's True Nature Foods market "helps regulate temperature making the inside naturally 15 degrees warmer in winter and 15 degrees cooler in summer."

Smit lists other ecological benefits of urban agriculture, including:

- Reduce the greenhouse effect. Smit cites a study that "found that a tree in Los Angeles has 3 to 5 times the beneficial effect of a tree in the Amazon rain forest."
- Reduce deforestation and loss of prairie, given that urban farming is 5 to 15 times more productive per acre as rural agriculture.
- Reduce pollution from food miles (see our report Food (I): counting miles per bite).
- Sequester carbon and enrich the soil with nitrogen fixation, particularly because urban gardens involve multi-cropping versus the heavily mono-cropped rural agriculture.
- Reduce the use of chemical fertilizers because urban waste can be used as a fertilizer.

A place for waste

Not only can using urban waste on city gardens help reduce chemical fertilizer use, but urban gardens also give city dwellers a place to recycle their wastewater and organic waste.

For Berkeley's (California) Jim Montgomery and Mateo Rutherford, it all works as a closed loop between them, their animals and their backyard garden. "What we take from the garden and animals goes into the kitchen, and garden waste goes to the animals", says Montgomery. Rutherford adds: "And the animal waste goes into the garden."

In Brisbane, Australia, Scientist Vivienne Hallman feeds her worm-farmed compost to her fish farm and harvests rainwater for their tanks. The fish waste, in turn, fertilizes her plants. "As water is fouled by fish excreta and decomposing food waste, it is used to irrigate vegetables and fruit trees, which also gain from additional fertiliser from worm castings."

Each of her five 4,000-liter, unheated tanks "is capable of raising 17 to 20 kg of silver perch under the non-stressful growing conditions I favour. It's a total potential output of 80 to 100 kgs - more than enough for my family's needs, plus the potential of a small saleable surplus."

\$1 invested = \$6 of food

From a financial standpoint, it makes sense to plant, or raise, your own food. For every \$1 invested, community gardeners receive about \$6 worth of vegetables. In 1991, the average urban garden produced about \$160 worth of produce.

This even seems more productive if you consider that the alternative is often quite costly. Americans spend 30 billion every year maintaining their lawns, according to Heather Flores who started the guerrilla gardening group Food Not Lawns (she gave us a tour of some of the fruit and vegetable gardens she has planted in Eugene, Oregon. See the video Food Not Lawns).

"The lawns in the United States consume around 270 billion gallons of water a week-enough to water 81 million acres of organic vegetables, all summer long." According to Flores, lawns also use ten times as many chemicals per acre as industrial farmland.

As an added bonus, while gardeners are saving "food dollars" by harvesting their own produce, they also become more aware of what they eat and their diets improve. Several studies have shown that "the fruit and vegetable intake, as measured in terms of recommended servings per day, is higher among gardeners than among non-gardeners".

As Jac Smit told Brian Halweil for his book Eat Here (we have a video with Halweil explaining the local food trend): "It's a no-brainer. In contrast to pure greenspace or parks, which taxpayers generally have to finance, urban agriculture can be a functioning business that pays for itself."

Walls and windowsills

To get started with a garden, it doesn't take much. Barcelona's urban garden shop Horturbà helps novices begin to garden in their city apartments. Owner Josep Maria Vallès told faircompanies that "many people are city people who don't know where to begin". He gave us his some basic pointers (as seen in Spanish in this video):

- A sunny spot: a roof top, courtyard, wall, windowsill, balcony.

- A container- the one in their beginner kit is 66x48cm (26x19 inches).
- Instead of regular dirt, they suggest an organic humus, like worm compost, because it retains water better.
- The easiest vegetables to begin with are those like lettuce, arugula, radish, onion, garlic, and leeks.
- Vegetables like tomatoes, melons and eggplant are good container plants, but with a bit more experience: they require longer cycles and larger containers.

Space should never be an impediment to getting started. Vallès even has a recipe for the smallest garden possible. "A 2 liter bottle, cut in half: turn over the upper portion, with a rag in the neck, place it on the inferior half . . . fill the upper portion with earth and plant lettuce. In a month, eat it. It's a microgarden, a portable garden!"

Urbaculture tech

On the other end of the spectrum, the biggest urban garden may be yet to come. Farmscrapers (aka sky farming, or vertical farming) are highrise greenhouses, so far are only conceptual, but they're receiving interest from some of the world's largest food companies.

Columbia University professor Dickson Despommier envisions a 21-story vertical farm that could be as productive as 588 acres of land. Not only would sky farming cut food miles, but given that transport costs are one of the most expensive parts of traditional agriculture, it could prove a successful business model. Currently, The Sustainable Agriculture Initiative, with member companies including Coca-Cola, Kraft, McDonald's, and Nestlé, has expressed interest.

The tipping point is close

Cities flush with urban gardens may be a reality in our future, but for now, there's no excuse not to take back our gardens: whether a windowsill or a wall. In the words of the Green Guerillas- an urban gardening educational group that has spent decades setting up community gardens in New York City-, "it's your city; dig it". (Dirksen & Boullosa, n.d.)