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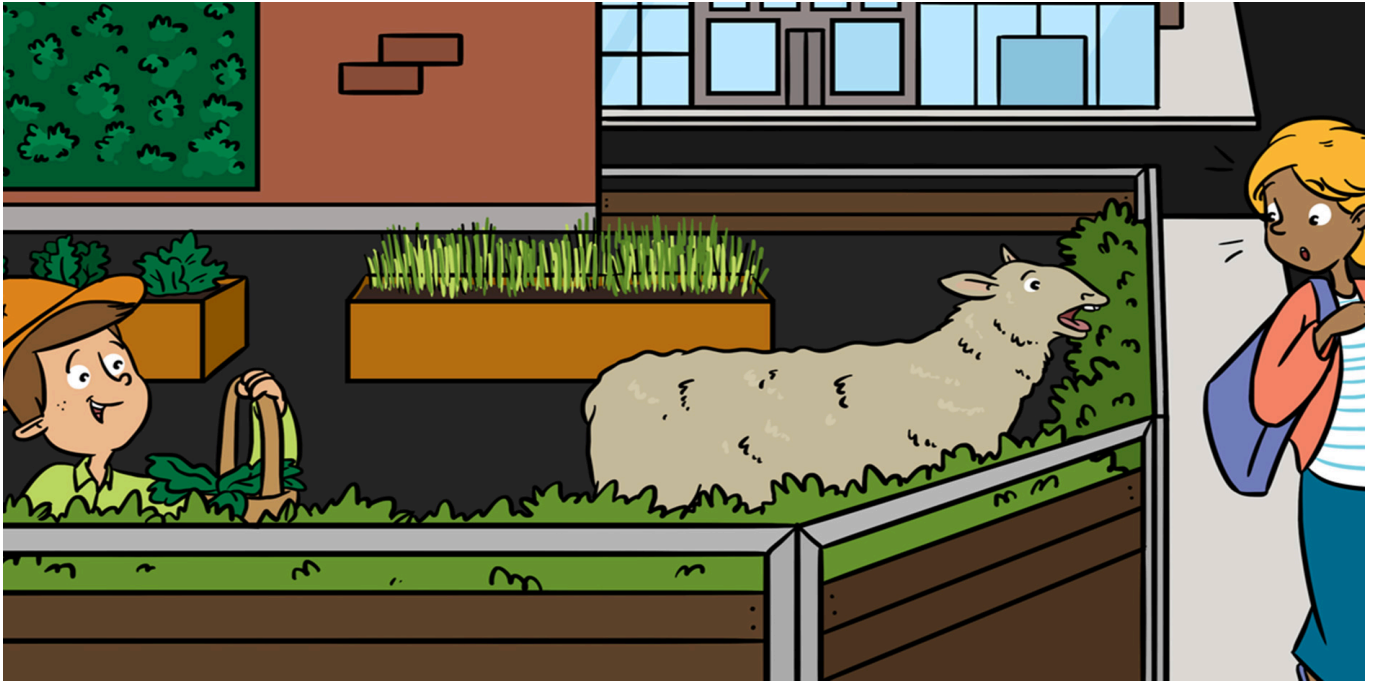
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URBAN FARMS AND THEIR BENEFITS: PRODUCING FOOD IN THE CITY

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YOUNG REVIEWERS:



HOLY
TRINITY

AGES: 12–13



SHOSHANA

AGE: 13

AGRICULTURE

The science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products.

Can you imagine living in a city, while still being able to eat food that grows in your neighborhood? Agriculture has always played an important role in cities, but urban agriculture has become increasingly popular in recent years. It is a good way to provide fresh, local food for city residents and to bring nature back into cities, helping citizens to reconnect with the environment. In this article, you will learn about what urban agriculture is, some of the ways it is done, and the benefits it provides.

INTRODUCTION

What comes to mind when you think about **agriculture**? We are willing to bet that your initial thought is of the countryside, with its vast fields and meadows populated by cows and sheep. But have you ever considered **urban agriculture**? If you live in a city, there is a good chance you have walked by a location where food is being grown. Perhaps you have seen sheep grazing or even encountered

URBAN AGRICULTURE

The practice of farming within an urban environment, especially the cultivation of food crops for human consumption and the rearing of animals.

COMMUNITY GARDEN

It is a piece of land gardened or cultivated by a group of people individually or collectively.

URBAN FARM

An urban area (parking, ground, rooftop, balconies, etc.) used for growing crops and rearing animals.

rooftops with edible flowers and beehives. Urban agriculture has always happened to some extent, but it is increasing in popularity in recent years.

WHAT IS URBAN AGRICULTURE?

So, what exactly is urban agriculture? This type of farming has several forms. In addition to home gardening, urban agriculture can be divided into two main types: **community gardens** and professional **urban farms** [1].

Community gardens are small urban areas where individuals come together to grow their own vegetables, enjoy nature walks, or socialize with friends (Figure 1). Typically, these gardens have specific areas for food production, alongside more “wild” spaces featuring trees and flowers. Surprisingly, community gardens can be found in every city and are likely closer to you than you might think. On the other hand, professional urban farms are agricultural businesses operating within a city. Imagine a farmer who does not have farmland in a rural area—urban areas could be good options for growing food.

WHERE CAN WE FIND URBAN AGRICULTURE?

Cities are places where it is difficult to find free space, so how do we find the room to grow food? Most cities have unused spaces, such as empty parking lots, rooftops, and vacant plots of land (Figure 1). All these areas can be used to grow a range of crops, including tomatoes, potatoes, lettuces, carrots, herbs, and even edible flowers. For instance, some urban farms repurpose old empty parking structures to grow mushrooms (Figure 2A). Animals can also be a part of the urban landscape, with certain cities allowing sheep to graze on park lawns (Figure 2B).

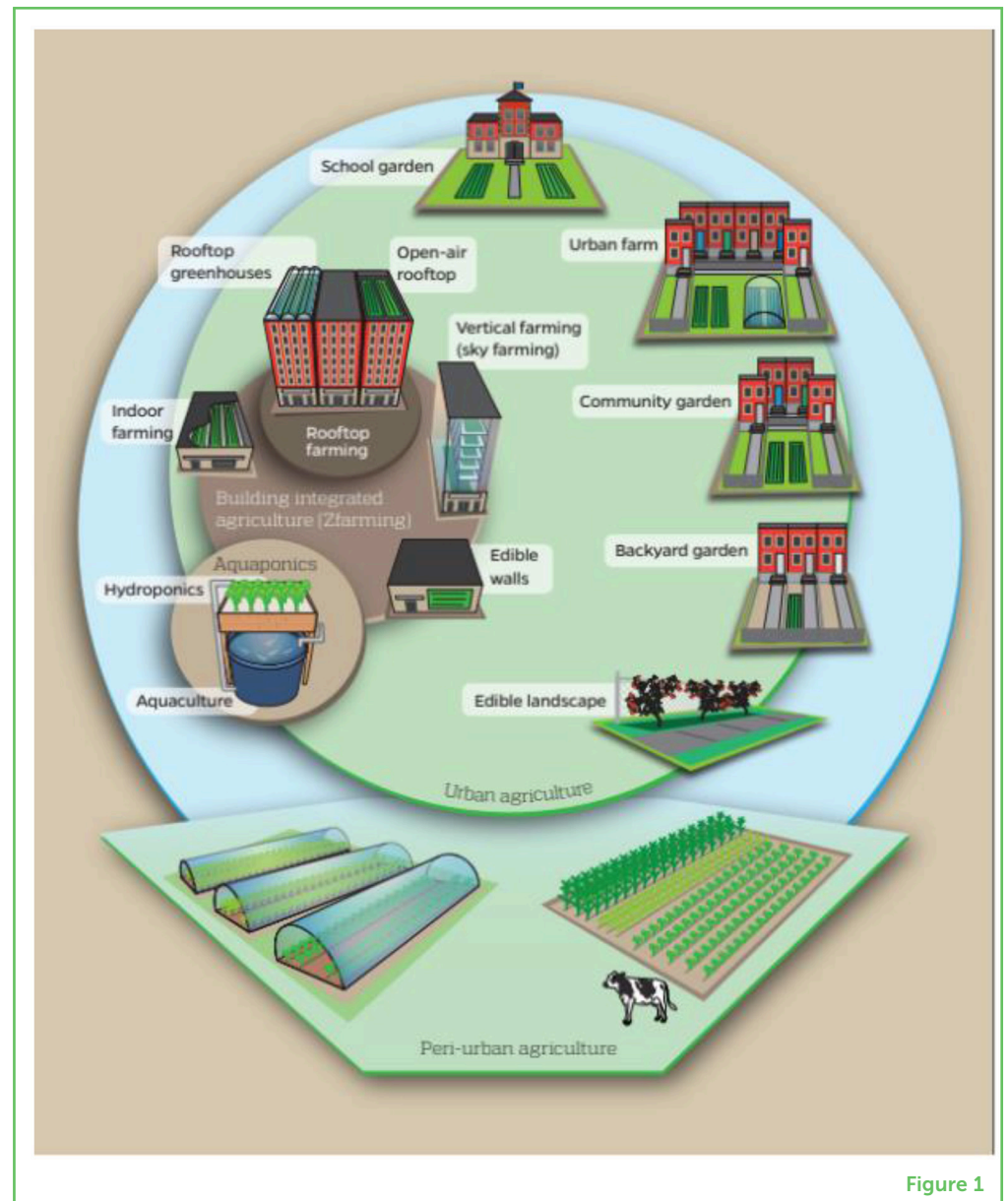
HOW IS FOOD PRODUCED?

We have seen that urban farming can take place in various locations, each with its own unique characteristics. As a result, urban farmers must use a range of techniques to adapt their farms to the specific type of setting. We cannot describe all of these techniques, but we will highlight a few.

The most well-known technique involves growing food directly in the ground. In these kinds of urban farms, chemical fertilizers are typically avoided in favor of nature-friendly fertilizers that enhance food quality and help the environment. However, there are instances where the soil may be contaminated, making it unsuitable for safe food production. This has caused urban agriculture to expand

Figure 1

Urban agriculture can happen in lots of different places (Figure adapted from Santo et al. [2]).

**Figure 1**

HYDROPONICS

A process of growing plants without soil, using water to provide plants with all the necessary nutrients.

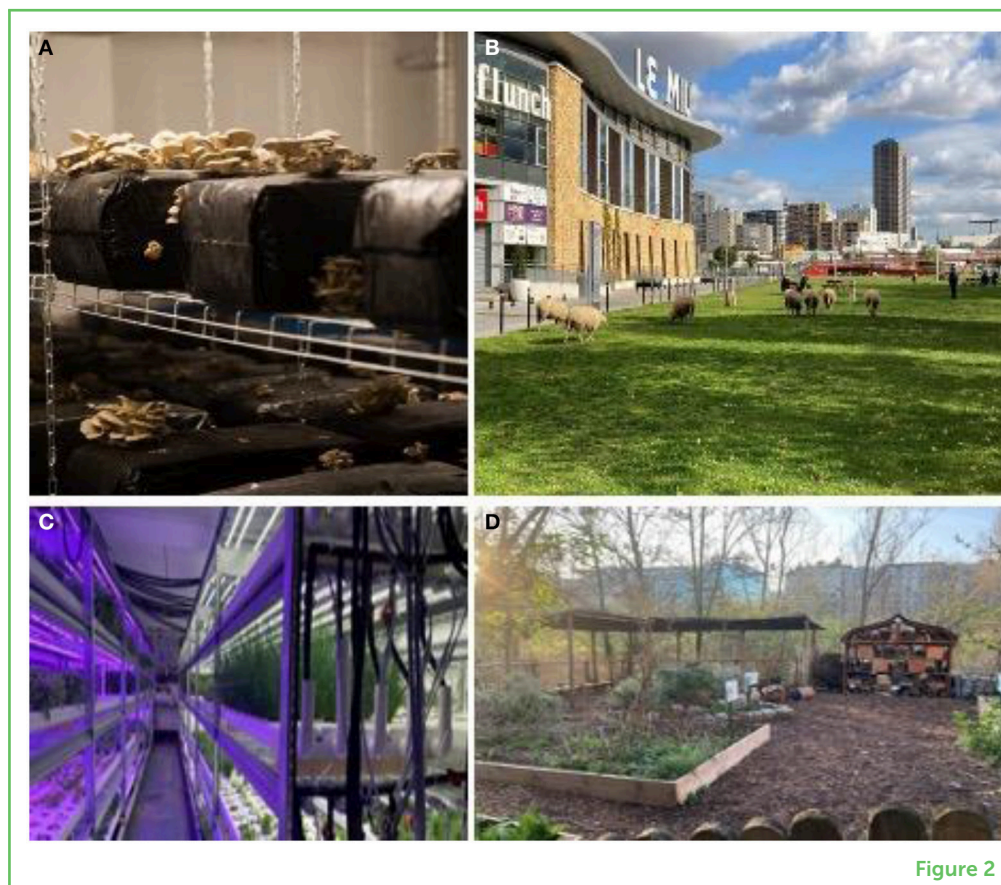
beyond ground-level farming. Some farms have chosen to use rooftops, while others have explored methods of growing vegetables without traditional soil at all [1]. How is this possible? Farmers use **hydroponics**, a common agricultural technique. In hydroponics, plants are placed in nutrient-rich water, allowing their roots to absorb the necessary substances for growth. Other urban farms have developed underground food production, focusing on herbs and leafy vegetables that can easily be grown in controlled indoor environments (Figure 2C).

GROWING TOGETHER: THE BENEFITS OF URBAN AGRICULTURE

So now you know that urban agriculture can take several forms and can succeed in all kinds of locations. The practice of growing food

Figure 2

(A) Indoor urban mushroom farm. (B) Sheep grazing in an urban park. (C) Indoor urban farm. (D) Urban community garden.

**Figure 2**

in cities is becoming increasingly popular, but what advantages does urban agriculture bring to cities? While the primary purpose is certainly food production, it has other benefits, too.

Community gardens serve as ideal spaces for encouraging connections among people and helping them get involved with their communities (Figure 2D). Planting a seed and nurturing it can directly contribute to people's wellbeing. Engaging with nature acts as an anxiety reliever and can improve mood and physical wellbeing [3]. Urban agriculture also motivates people to learn about nature. For instance, understanding how a plant evolves across the seasons can help people to make healthy dietary choices [2]. Urban agriculture also creates jobs [2] and can help preserve **biodiversity**, which is good for the environment.

BIODIVERSITY

The variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable.

PROTECTING NATURE WHILE GROWING FOOD

People often think of cities as places where the natural world cannot thrive. However, urban agriculture offers a way to bring nature back to cities. The presence of plants and animals in urban areas has various environmental benefits. For instance, trees and plants can provide shade and cool the air [2]. Even a small green space placed within the heart of a city can support many kinds of plants and animals. Such green patches offer food and shelter for birds, mammals, reptiles, and

insects. Urban agriculture invites wildlife into our cities, which helps to bring nature back into our urban lives (Figure 3).

Figure 3

Aquaponics is the growing of plants and aquatic animals (like fish) in a system that converts fish poop into plant nutrients.

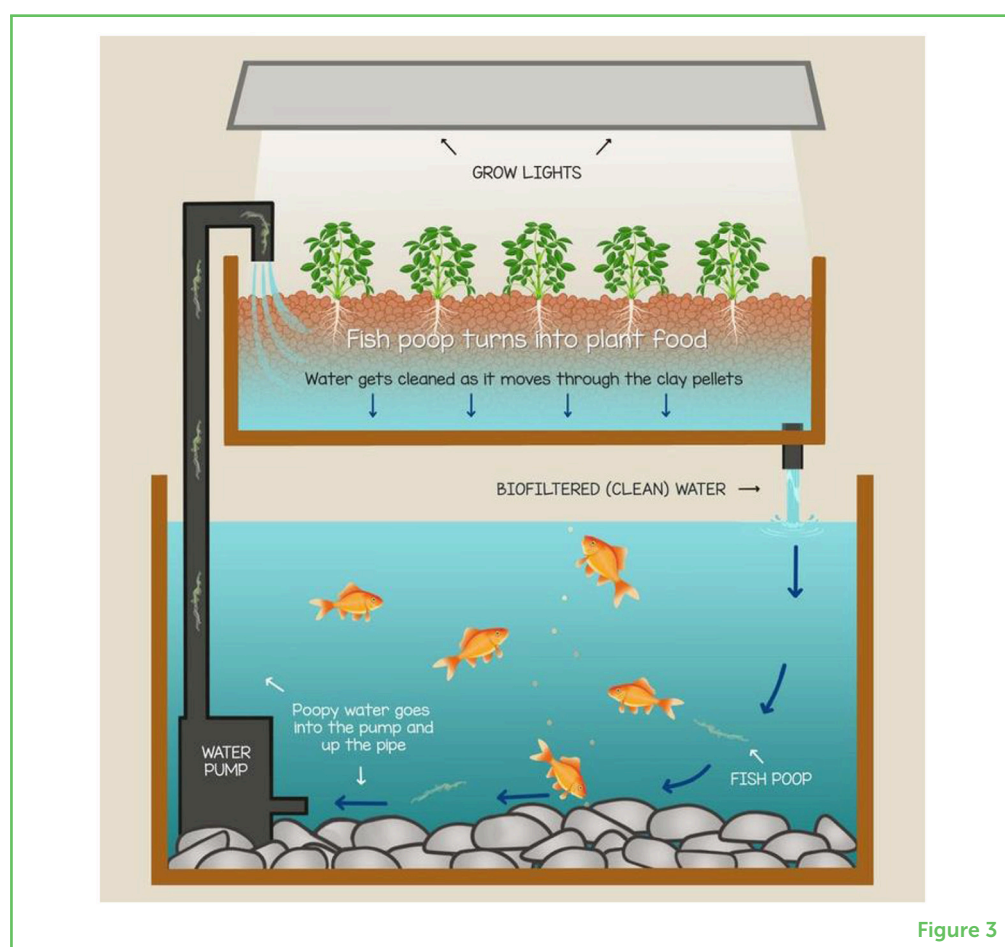


Figure 3

INNOVATION IN THE CITY

Besides providing social and environmental benefits, urban agriculture can help to create new technologies. Due to the limited space for growing plants, urban farmers must think about innovative ways to produce food. Innovation includes trying out new techniques and methods. Some urban farmers use fish poop to fertilize their plants in a system called **aquaponics**. In aquaponics, plants grow in containers with clay pellets, or another material to stabilize the plants, and water. Fish are grown in a second, connected container, and the fish poop is then recirculated back into the tank with the plants. Fish poop is a natural fertilizer and contains important nutrients like phosphorous, nitrogen, and potassium, as well as other things that the plants need to grow (Figure 3). For more information on aquaponics, see [this article](#).

Many city farms have also started to offer things in addition to food, such as gardening classes, places to host events, and tours. All these activities can improve the lives of city residents [4]. All this innovation

AQUAPONICS

The growing of plants and aquatic animals (like fish) in a system that converts fish poop into plant nutrients.

attracts new urban farmers and people who want to take part in this movement. Maybe one day you will be one of them!

GET INVOLVED!

City residents are fundamental in urban agriculture—without them, it would be meaningless. Regardless of whether you live in a city, town, or village, opportunities to engage in growing food are never too far away. You can begin right within the limits of your own home, either by cultivating a backyard garden or even using pots on a balcony if you live in an apartment. The simple act of planting a seed and watching it grow can bring joy and raise a sense of wonder about the natural world. Look around your neighborhood or nearby park, and you might find a community garden that you can explore. Additionally, your school may have urban agriculture projects within the schoolyard. Urban agriculture is everywhere; take a walk and you will very likely discover that it has a place in your city, too.

ORIGINAL SOURCE ARTICLE

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YOUNG REVIEWERS

HOLY TRINITY, AGES: 12–13

We are a science class made up of a curious group of grade seven and eight students. Our names are Kyle, Liam, Logan, Marissa, Cedrick, Olivia, Ava, Nevaeh, Audrey, Elizabeth, Olivia, Lara, Noah, Hendrick, Greyson, Jasmine, Orlando, Sara, Cassie, Marguerite, Lola, William, Sam, Kai, Preston, Xavier, Mason, and Kaitlyn.

SHOSHANA, AGE: 13

Hi I am Shoshana. I like architecture, photography and sports... very different things. What do you like to do?

AUTHORS

VÉRONIQUE SAINT-GES

Véronique earned her Ph.D. in economic sciences in 2000. From 2000–2009 her research was focused on the environmental innovations in vineyards. She is regularly asked for expert advice by people who would like to begin urban farming, or public authorities who would like to support it. Her studies concern the identification and understanding of business models of professional urban farms and their economic sustainability. Dr. Saint-Ges works with public authorities and companies to determine the ecosystem of innovations with public authorities and companies. She also teaches master's students about urban agriculture. *veronique.saint-ges@inrae.fr

HUGO DE VERGÈS

I am an urbanist coordinating a joint research unit in urban agriculture for ASTREDHOR, the French institute of applied research for plant professionals. After a master's degree in urban management and ecology, I worked in ecosystem restoration and urban ecological continuities in several organizations. With extensive knowledge in ornithology (the study of birds) and nature-based solutions, I am now focusing my research on how urban agriculture can help urban areas to cope with climate change.

