



# Urban Allotment Gardens and Community Gardens: a strategy to build urban resilience during the Covid 19 pandemic in Global North.

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**Abstract.** Urban allotment gardens and community gardens were always crucial in building urban resilience in periods of crisis. They were critical during the early stages of the Industrial Revolution, the two World Wars, the Great Depression, and more recently in the Covid-19 pandemic. This paper presents a brief synopsis and discussion of the role of these gardens during the Covid-19 pandemic in twelve countries of the Global North.

The method used is a narrative literature review in which scientific and informative materials on the subject were investigated, with a special emphasis on case-studies. Results show that these green spaces provided for food security, food assistance and wellbeing in many of the analyzed countries, regardless the restrictions imposed by the Covid safety measures. In some countries, their supply increased in face of the increasing demand, and some municipalities included them in their food emergency programs. An important outcome of this research is the use of these urban agriculture typologies to increase urban resilience in many cities, given the many ecosystem services they provide.

**Keywords:** Allotment gardens; community gardens; urban agriculture; resilience; Covid-19 pandemic.

## 1. Introduction

Nowadays, urban agriculture (UA) occurs in a diversity of typologies, with urban allotment gardens (UAG) and community gardens (CG) standing out. Bell [1] defines UAG as individual or family plots, used for non-commercial cultivation and for recreational purposes. They can be managed by private or public bodies, or associations. UA gardeners commonly pay affiliation fees and adhere to communal rules. CG involve the collective cultivation, management, and use of land, often in dense urban areas. They are typically initiated by young, politically active, and environmentally conscious individuals and may have a temporary nature. [1]. These two typologies are important to provide food security, social cohesion, and wellbeing to urbanites, particularly during times of crisis, building urban resilience.

UA areas were always present in the urban landscape on varying scales. The Industrial Revolution and the rural exodus fostered by the booming labor offer in cities, led to unprecedented demographic concentrations [2]. The insalubrious living conditions led to many epidemics [3], fostering several social and urban reforms based on hygienist principles, that recognized the importance of green spaces. In this scenario, UA survived as subsistence UAG, and the dissemination of the “delight agriculture” idea, inducing a new lifestyle for the working class, eventually for purposes of social control [4].

A variety of utopic urban models were designed with agricultural areas serving as “green crowns” to provide resources for the population. Significant utopian cities were New Lanark, by Robert Owen (1795 to 1799); Phalanstère, by Charles Fourier (1822); Ícara, by Cabet (1847); Hygeia, by Richardson (1876); Familistère de Guise, built by J.B. Godin (1874); and Franceville, by Jules Verne (1879) [4, 5]. In the second half of the 19th century, the integration of agriculture in the urban landscape was consolidated in the Garden City, by Ebenezer Howard. This model proposed a decrease in urban density, suggesting that cities like London should demolish derelict areas to build social neighborhoods with parks, recreational areas, and UAG [5].

Despite these utopic models, UA only had momentousness in the public agenda during the two World Wars and the Great Depression, supporting communities in different parts of the world. During these periods, the movement reached an importance never seen before, when several governments realized the potential of UA, not only to guarantee food security, but also as a strategy to promote wellbeing, and improve people’s morale in difficult times [2].

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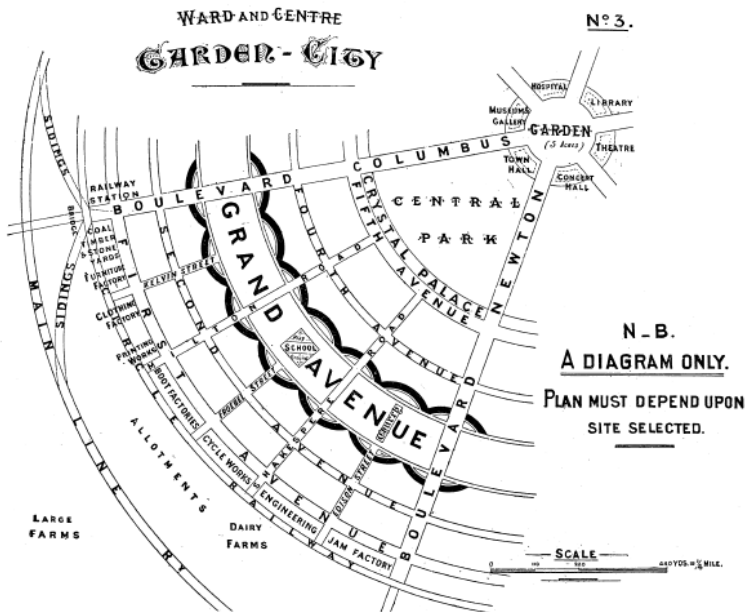


Fig 1. Diagrams of the "Garden City", by Ebenezer Howard [5].

The Covid-19 pandemic revealed the extreme vulnerability of large cities to face unexpected global threats, given the dependence on global supply chains. The restrictions imposed to contain the virus, resulted in problems of food supply, namely of fresh food, in highly populated cities [6]. Also, the lack of access to healthy food increased community vulnerability to infection by the coronavirus [7, 8]. Thus, the pandemic recovered UAG and CG as an important resilience tool, with reports from several countries showing that people have used these gardens for food security and wellbeing.

The goal of this paper is to offer a brief overview and discussion of the role of UAG and CG during the Covid-19 pandemic in twelve Global North countries, by analyzing variations on its demand and supply and the reported benefits provided.

## 2. Materials and methods

We conducted a literature review to assess the studies addressing the importance of UAG and CG during the Covid-19 pandemic. Our search focused on the Scopus and Web of Science databases, covering articles published from March 2020 (when the WHO announced the pandemic) to November 2023. First, we conducted a search based on titles, abstracts, and keywords, using the terms "urban agriculture", "allotment gardens", "community gardens", "COVID-19", and "pandemic". This search resulted in 100 documents (after excluding duplicates), which were filtered by excluding criteria (off-topic subjects, studies outside the Global North, and studies not available in English or Portuguese). The retrieved documents were screened to select case studies addressing the impacts of the pandemic on UAG and CG in the Global North, based on title and abstract. This screening resulted in 27 documents full text reviewed, of which 23 were included in the final analysis. Our search was complemented by reports, websites, blogs, and other informative materials about the topic.



Fig. 2. Overview of the literature search. Source: Authors.

The selected case studies were analyzed to identify the major contributions of UAG and CG to urban resilience, in terms of food security, well-being, and food donation to associations supporting vulnerable population. The analysis also aimed to assess UAG and CG demand variations, and sources of supply: bottom-up initiatives (civil society) or top-down initiatives (central or local government entities). The information was organized in Table 1, with cases categorized by country.

### 3. Discussion

#### 3.1. UAG and CG in the Global North, during the Covid-19 pandemic

During the Covid-19, there was a general increase in UAG and CG demand in most of the analyzed countries (Table 1). These countries witnessed initiatives to increase the supply of UAG and CG, providing for food security and wellbeing of the populations, despite the restrictions imposed on public spaces during lockdowns [9-21].

In the USA, CG operated with minimal disruption, establishing their pandemic rules aligned with national guidelines [25] and many gardens remained open during the pandemic early months [21]. Production surplus sales increased as people wanted to avoid crowded supermarkets. However, many CG stopped selling their produce to donate it to vulnerable populations, with some growing food along their fences for people in need to pick. These actions increased the wellbeing of those involved [15, 25]. The New York City Mayor's Office of Food Policy provided for new gardens and donated seedlings to 300 new CG to support its activity during the pandemic [15].

**Table 1.** Demand and supply for UAG and CG, supply origin (top-down versus bottom-up initiatives), and main benefits (food security, food donation and wellbeing), as reported by the gardeners. Source: Authors

Country	References	Reported increased demand and supply (and supply origins)				Reported benefits and opportunities		
		Demand	Supply	Top-down	Bottom-up	Food security	Food donation	Wellbeing
USA	[11, 15, 18, 19, 21, 22, 23, 24, 25, 26]	yes	yes	yes	yes	yes	yes	yes
Canada	[9, 13, 27, 28, 29, 30]	yes	yes	yes	yes	yes	yes	yes
Germany	[10, 12, 15]	yes	NA	no	NA	NA	yes	yes
UK	[14, 15, 31, 33, 34]	yes	yes	yes	NA	yes	yes	yes
France	[15]	yes	yes	yes	NA	yes	yes	NA
Poland	[12, 15, 16, 17]	yes	yes	yes	yes	yes	NA	yes
Spain	[10, 32]	yes	yes	yes	yes	yes	yes	NA
Italy	[33]	NA	NA	NA	NA	NA	NA	yes
Czechia	[20]	yes	yes	NA	yes	NA	NA	yes
Greece	[10]	no	yes	yes	NA	NA	no	NA
Bulgaria	[10]	yes	yes	yes	NA	NA	yes	NA
Portugal	[10]	yes	yes	no	yes	NA	no	yes

The Canada government closed all recreational spaces in the pandemic early stages. In April 2020, calls for reopening community gardens (CG) intensified, emphasizing their essential services. Gardeners mentioned pandemic gardening benefits but noted negative impacts, including a sense of community loss due to restrictions on communal gardening and events, resulting in decreased visits [13]. Despite these challenges, the municipality of Toronto opened new CG and UAG [28]; Calgary offered financial assistance to new CG [13]; and Saskatchewan and Winnipeg created new CG on municipal land, with the harvest donated to food banks and community food centers [29].

Even with strict physical distancing, visiting the garden offered relief, wellbeing, and social cohesion. Managers highlighted CG as essential greenspaces, particularly aiding people isolated or lacking private greenspace, by providing valuable nature access during lockdowns [30].

In Germany, a country with a large UA tradition, UAG and CG were the only public green spaces allowed to remain open during lockdowns. Germans spent more time gardening, and visitors were allowed. Nevertheless, many CG reported financial losses due to cancelled events, reduced rents, and closed common spaces. Several gardens reported a demand increase after the pandemic, as people recognized the high benefits of gardening and growing their own food [15].

In the UK, authorities aided UA with policy changes, bureaucratic simplification, and material and financial support. During lockdown, many CG stopped selling their surplus production to donate it. Demand increases for UAG plots was reported during the pandemic in London, Manchester, Leeds, Glasgow, and Sheffield [15, 33, 34].

In France, initial Covid-19 measures deemed UAG and CG access essential, with travel requiring an exceptional certificate, limited to one person per family, within 1km. UAG and CG, the sole green spaces open during lockdowns, saw heightened public interest. French municipalities invested in UA for food security, with Romainville introducing the first municipal-managed urban farm in 2021. Paris municipality supported UAG and CG projects [15].

In Nantes, a city where UA has been supporting vulnerable families since the 20th century, the municipality initiated the *Paysages Nourriciers* project, transforming public green spaces into community gardens to aid 1000 at-risk families. Through collaboration between municipal gardeners and local leaders, 23 green areas in 11 city districts were cultivated, yielding 40 tons of fresh vegetables [36].



**Fig. 3 -** The square in front of the Natural History Museum of Nantes converted into an urban community garden [36].

In Poland, during the early stages of the pandemic, going outdoors was restricted to essential activities. In April 2020, UAG and CG were allowed to reopen and became the only public green spaces where people were allowed to be outside. This resulted in increased demand and higher rents, making UAG plots a luxury good [17]. Even with restrictions, some gardeners reported reduced stress and a feeling of 'stability and normalcy' [15]. Despite the importance of these gardens, Polish authorities didn't offer any support to UAG or CG during the pandemic [17].

In Italy, CG remained open during the pandemic, due to physical distancing challenges. Authorities considered these gardens crucial for accessing food beyond traditional retail channels, allowing gardeners to visit plots outside their home neighborhoods. The positive effect in social cohesion and mental health, especially among elderly people, was significant [35].

In Czechia, interest in CG increased, driven by a desire for leisure and concerns about food prices. Membership increased, with members expressing readiness to expand growing areas in response to crises [22].

An EU report [10] surveyed gardeners in Germany, Bulgaria, Spain, and Portugal. Most respondents in all regions increased gardening hours due to the pandemic. Demand for UAG rose after lockdowns, and there was a clear trend of increased citizen participation in CG. Only Bulgaria reported substantial government support during lockdowns, while Greece, Spain, Portugal, and Germany reported no support. In Bulgaria and Germany, many donated produces, while Greece, Portugal, and Spain had lower rates of donated food. However, Simón-Rojo [32] reported the participation of numerous UAG in a solidarity harvest, supported by the Municipality of Madrid, to provide fresh vegetables to vulnerable households, food banks and associations.

In Portugal, informal UAG exist at least since the rural exodus of mid-20th century, but institutional UAG are a quite recent phenomenon. However, in recent years, namely since the 2008 Global Financial Crisis, there has been a growing demand for UAG, with a consequent increase of people in the waiting lists of UAG across the country [37].

The Covid-19 also had a direct impact on food security in Portugal, as the country imports 70% of its food. News from April 2020 claimed that calls for food donations had increased by 50% in only one month, with food shortage affecting 150 000 families [38]. The "Horta à Porta" program, the first UAG program in the country, had a waiting list of 2,500 people in June 2020 in 8 municipalities of Greater Porto. The program reported a 40% increase over the average annual applications [39]. Regardless the increased demand there are no reports of top-down initiatives in Portugal. As opposed, there are reports of many bottom-up projects, such as Horta da Bananeira, a small CG arising in the scarp nearby the Douro River through the removal of stones and garbage by the local community (figure 3) [40]; or the 2020 Bairro Saudáveis [41] project, born to support vulnerable communities by sponsoring bottom-up initiatives. Many applications to this project led to the creation of several UAG and CG in many Portuguese cities, with the stated goals of promoting food security, social cohesion, and wellbeing.



Fig. 4 - Horta da Bananeira, a CG created by the population in Porto, Portugal. Credits: Ana Rego [40].

#### 4. Conclusions

The Covid-19 pandemic effects on food security led many municipalities in different countries to build and offer new UAG and CG (USA, Canada, UK, France, Poland, Spain, Greece, and Bulgaria). Despite the increased demand for such spaces, these top-down initiatives were not found in all the countries (Germany, Italy, Czechia, and Portugal). In many countries, UAG and CG were the only green spaces allowed to stay open during lockdowns (USA, Canada, Germany, France, and Poland), as they were found crucial to provide food supply for gardeners and deprived households. Many countries registered CG and UAG

contributing with food donation to associations supporting vulnerable people (USA, Canada, Germany, UK, France, Spain, and Bulgaria). The municipality of Nantes (France) went as far as promoting the transformation of public green areas into CG, as happened in the two world wars, to provide for food assistance to deprived families.

CG and UAG were crucial in most of the countries to offer mental health and wellbeing during the pandemic scenario (USA, Canada, Germany, UK, Poland, Italy, Czechia, Portugal). The imposed pandemic security measures subtracted some of the functions of these spaces, namely those related with community gatherings. Nevertheless, UAG and CG were acknowledged by the population as a place of wellbeing and stress relieve. In Poland, where UAG and CG were the only public spaces where the population could be outside, UAG plots were considered luxury goods.

The Covid-19 pandemic brought to the agenda the food security issue, as most countries are dependent on global food chains. As the Victory Gardens during the two world wars, UAG and CG are recognized as essential in building urban resilience. However, this resilience should not rely only in isolated spaces but on a network of multifunctional areas with food production, as a productive green infrastructure. It is necessary to rethink urban planning to integrate urban agriculture typologies in the urban green infrastructures. This is especially important in socially disadvantaged neighborhoods with limited access to healthy and fresh food [8], where CG and UAG can be a strategy against gentrification while offering green spaces for leisure, social cohesion, and mental health.

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