

Food Production in the Cities of Tomorrow The Results of International Questionnaire Surveys

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Abstract

The considerations in this article have three goals. The first is to obtain information on the practical experience of young urban residents who use urban horticulture and agriculture products. The second is to determine the readiness to practice such production independently in the future. The third is to identify the environmental benefits (ecosystem services) related to urban horticulture and agriculture indicated by the respondents. In this case, it was about examining the “environmental intuition” of people who are not professionally related to natural and agricultural sciences. The comparative study concerned students from Brazil, China, India, Mexico, Poland, and a group of seven countries from the European Union. In total, respondents came from 29 countries. The collected data were used to compare the approach to urban horticulture and agriculture and their produce represented by respondents from different countries and cultural circles and to formulate conclusions on how to use the related potential to support sustainable urban development.

Keywords: ecosystem services, food production, cities, society, sustainable development

JEL: Q01, Q57, R11, R14

Introduction

The ancient Romans had their *rus in urbe*, the countryside in the city. Consecutive epochs contributed to the development of urban horticulture, combining production and recreational functions in gardens designed in close connection with the aesthetics of their times. The Industrial Revolution, which began in England



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in the 18th century and quickly spread worldwide, launched urbanization on an unknown scale. It involved not only a large increase in the urban population but also concentrated various social problems related to poverty, malnutrition, poor living, and sanitary conditions, and the spread of diseases such as tuberculosis and cholera. Among the ideas for making urban life more bearable, it is certainly worth noting the vision of Ebenezer Howard's Garden City network. It was notable for its precise economic calculation of the venture and inspires to this day. This project, which dates from 1898, had a practical character as it combined the advantages of large agglomerations, which provided employment opportunities, with villages, which had strips of arable land that guaranteed access to fresh food. The proximity of greenery was also supposed to have a positive impact on the quality of life (Howard 2015). Another example of an attempt to remedy the misery of urban existence was providing workers with plots of land where they could grow their own fruit and vegetables. This is how the allotment or community gardening movement, which is still very much alive, was born in many countries. Particularly in Europe, there are examples of allotment gardens that have remained in the family for several generations (Savill 2009; Ponizy et al. 2021).

Cultivation in urban areas flourishes in one form or another, from small gardens squeezed between urban buildings, through roofs, terraces, and vertical gardens, to large urban projects. Significantly, urban horticulture has become a global social movement, integrating people of different professions and social statuses. It is easiest to notice changes in cities where, until recently, this was not obvious due to relentless pressure from growing industrial districts and commercial complexes, as well as the fast pace of life and work (Stuart-Smith 2021). The scale of feeding needs in cities is constantly growing, and ensuring food security is today treated as a pressing problem (Pourias, Aubry, and Duchemin 2016, pp. 257–273). It is estimated that up to 30% of the food can be produced in urban areas (Ngiam Tong Tau 2019, pp. 9–12). The design of urban complexes, the organization of food production, and the approach to these challenges by the residents themselves require change.

The research results presented in the article concern observations between 2017 and 2021. A discussion with Polish students on the future of allotment gardens in Polish cities was the inspiration for this research. The votes “for” and “against” were distributed more or less evenly. Among the arguments “for,” the prevailing opinions were that working on a plot is a healthy form of outdoor activity and that the yields please producers and make it possible to reduce expenditures on food purchases. Opponents of allotment gardens in cities drew attention to the dubious aesthetics of these places, the “retirement” nature of these activities, and that the gardens block attractive locations for new investments. The research project, which was aimed at students of economics and business in various countries, had three goals. The first was to obtain information on the practical experience of young urban residents who use urban horticulture and agriculture prod-

ucts. The second was to determine the readiness to practice such production independently in the future. The third was to identify the environmental benefits (ecosystem services) related to urban horticulture and agriculture indicated by respondents. In this case, it was about examining the “environmental intuition” of people who are not professionally related to natural and agricultural sciences. The collected data were used to compare the approaches stated by respondents from different countries and cultural circles to urban horticulture and agriculture and their produce and to formulate conclusions on how to use the related potential to support sustainable urban development.

Meeting food needs and sustainable urban development – literature review

According to World Urbanization Prospects (2018), in 2007, for the first time, more people lived in cities than in rural areas. In 2021, 4.46 billion people, or 56.61% of the world’s population, were inhabitants of urban areas, and this percentage is expected to increase to 68% by 2050. However, urbanization is characterized by an uneven pace and a degree of complexity, often affecting adjacent areas that, until recently, were the base for food production and a natural receiver of pollution. For this research, several issues are particularly important: demographic change, urban living conditions, and the challenges of climate change.

The first of these issues concerns the expansion of the urban population due to the population moving from the countryside to the cities, as well as population growth, which is very characteristic, especially for developing countries. As a result, the concentration of population in cities is increasing, measured by the urbanization coefficient, which determines the percentage of urban inhabitants in the total population. This coefficient varies between continents and countries but is increasing worldwide. Currently, the most urbanized regions are North America (82.75%), Latin America and the Caribbean (81.5%), Europe (75%), and Oceania (68%). The level of urbanization in Asia is about 52%. It is expected that as much as 90% of the global urban population growth between 2021 and 2050 will occur in Asia and Africa, mainly in India, China, and Nigeria. It is estimated that 82% of Europeans will live in cities by 2050, which means a 36 million increase in the urban population. In Poland, although the urban population constitutes 61.1% of the population, the number of inhabitants of cities has been decreasing – since 2000 by 360,000. However, the area of cities is growing – it has increased by 308 sq km since 2000 (*World Urbanization Prospects 2018 2019*).

Urban living conditions are determined by economic, social, and environmental factors that affect residents’ physical and mental health. Most problems concern rapidly growing cities in less developed countries, where high air pollution, noise, and lim-

ited access to excellent quality food, clean water, and sanitary facilities are a constant source of pressure. Significant threats also result from global warming, which, depending on the location of cities, affects how they function in diverse ways. In particular, there are risks to health, life, and infrastructure that result from extreme weather phenomena, such as heat waves that exacerbate urban heat islands, flash floods, and rising sea levels that threaten coastal cities (Dell, Jones, and Olken 2014, pp. 740–798; Georgescu et al. 2015).

In turn, droughts deteriorate the microclimate, vegetation and air quality. It is now widely accepted that cities, despite their attractiveness due to easy access to services and the labor market, are places where the accumulation of various social and economic problems is extremely high (Bauman 2001; Therborn 2013). The challenge has been to increase the resilience of local socio-economic and natural systems to various types of stress. Numerous studies show that solutions can be found in the development of urban horticulture and agriculture, which can not only reduce cities' dependence on external food supplies but also help to reduce the cities' carbon footprint, adapt to climate change, and strengthen social cooperation. Using Google Earth Engine, as well as data collections on population and meteorology, Clinton et al. (2018, pp. 40–60) found that if the existing potential is fully exploited, cities around the world can produce up to 180 million tons of food per year, including up to 10% of global production of legumes, roots and tubers, and vegetables. This can be seen both in the number of people involved in this type of activity and in the innovative approach to organizing the work itself, locations, and the technologies used (Guitart, Pickering, and Byrne 2012, pp. 364–373; Crawford 2018). Food production in cities can take place in various types of gardens and on farms. City gardens can be divided into individual and collective gardens. The former includes home gardens and allotment gardens, including micro gardens installed on roofs, balconies and terraces. The latter includes various community, school, therapeutic and sensory gardens. Their size varies – from cultivation in balcony pots, through small plots, to large gardens founded on old wastelands, post-industrial areas, and on the walls and roofs of various buildings (Jeavons 2002; Fabricant 2010). There is ample space for agriculture in cities and their outskirts that can serve various functions beyond food production. These functions include recreation, education, therapy, experimentation, and the preservation of cultural heritage. In the future, hydroponic, aquaponic, and aquaculture production are likely to become more widespread (MacNair 2002; Despommier 2009, pp. 80–87; Smith 2022).

Ensuring increased food security for more than half of the Earth's population is a serious challenge (de Bon, Parrot, and Moustier 2009, pp. 21–31). Food production in cities has always grown in difficult periods of history. The best-known example is victory gardens during the First and Second World Wars, founded *en masse* in many countries

affected by the conflict and cut off from natural sources of food supply. It was then that the great potential of this method of food production was revealed for the first time. Economic crises, when the scope of poverty increases as a result of the increase in unemployment, are also conducive to this type of activity, as was the case during the global financial crisis, which began in 2008. The same thing happened during the COVID-19 pandemic when there was a lack of food due to the disruption of traditional supply chains.

Due to the tendency to urbanize poverty in developing regions, urban agriculture can play a significant role in addressing urban food insecurity (Mougeot 2000; van Veenhuizen and Danso 2007; Zezza and Tasciotti 2010, pp. 265–273), increasing cities' resilience to market fluctuations and climate change (de Zeeuw, van Veenhuizen, and Dubbeling 2011, pp. 153–163), provide noticeable improvement in people's health and well-being (Ulrich 2006, pp. 38–39), and connect urban residents with the natural systems from which they have been separated (Turner, Nakamura, and Dinetti 2004, pp. 585–590; Turner 2011, pp. 509–522). There is evidence that urban agriculture influences the increase in the consumption of fresh fruit and vegetables (Alaimo et al. 2008, pp. 94–101).

Food production in the city can be a type of hobby, a way to save on shopping, but it can also fulfill other important social, economic and ecological functions (Walker and Salt 2006). Studies have shown the positive impact on local food production communities (both for their own use and for sale) in neglected neighborhoods. Collective horticulture in specially designated public places has proved to be a factor that helps people establish contacts, strengthen social bonds, improve residents' safety, and acquire new knowledge and skills (Kondo et al. 2018). All this is currently being practiced, and if monetary and organizational support is well targeted, cities are able to meet up to 30% of their food demand (Thorpe 2017).

Urban food production in light of the survey results

Research method

A pilot survey was conducted between 2017 and 2020 in Brazil, India, Mexico, and Poland with groups of international students. The study was conducted using the Pen-and-Paper Personal Interview (PAPI) method, and the results were then digitized using Excel. The choice of method was determined by the conditions in which the surveys were conducted. As some countries were represented by only individuals or small groups in the research sample, the comparative analysis was done by selecting the responses of participants from the countries with the largest sample sizes, i.e., Brazil (97), China (111), India (120), Mexico (85), and Poland (50). The questions concerned their own experiences and observations related to the production and availa-

bility of urban horticulture and agriculture products in individual countries, as well as their views on the possibility of doing these activities personally in the future. It was assumed that respondents from the countryside who studied in large academic centers were able to make observations regarding urban horticulture and agriculture and their products.

Research results

A total of 638 economics and management students from 29 countries (Algeria, Azerbaijan, Bangladesh, Belgium, Bulgaria, Brazil, China, Ecuador, France, Gambia, Greece, Georgia, India, Iran, Iraq, Italy, Qatar, Kazakhstan, Kyrgyzstan, Morocco, Mexico, Nepal, Poland, Russia, Somalia, Spain, Turkey, Ukraine, and Zimbabwe) were surveyed. The respondents were 19–30 years of age; 48.2% were women, and 51.8% were men. Respondents studying in cities with over 1 million inhabitants constituted 94% of the sample. Half of them studied in cities with a population of 5–10 million.

The respondents were asked whether they had encountered products from urban horticulture or agriculture in the cities where they lived and/or studied (production in the family household, obtaining or buying products from neighbors); 65% answered positively, 15% had no contact, and 20% had no knowledge of this. The respondents listed the following categories of products available: vegetables, fruit, milk and dairy, eggs, meat, herbs, preserves (juices, wine, jams), and grains and seeds (Figure 1). The animal products came from poultry, pigeons, rabbits, guinea pigs, goats, sheep, pigs, and cows bred in cities.

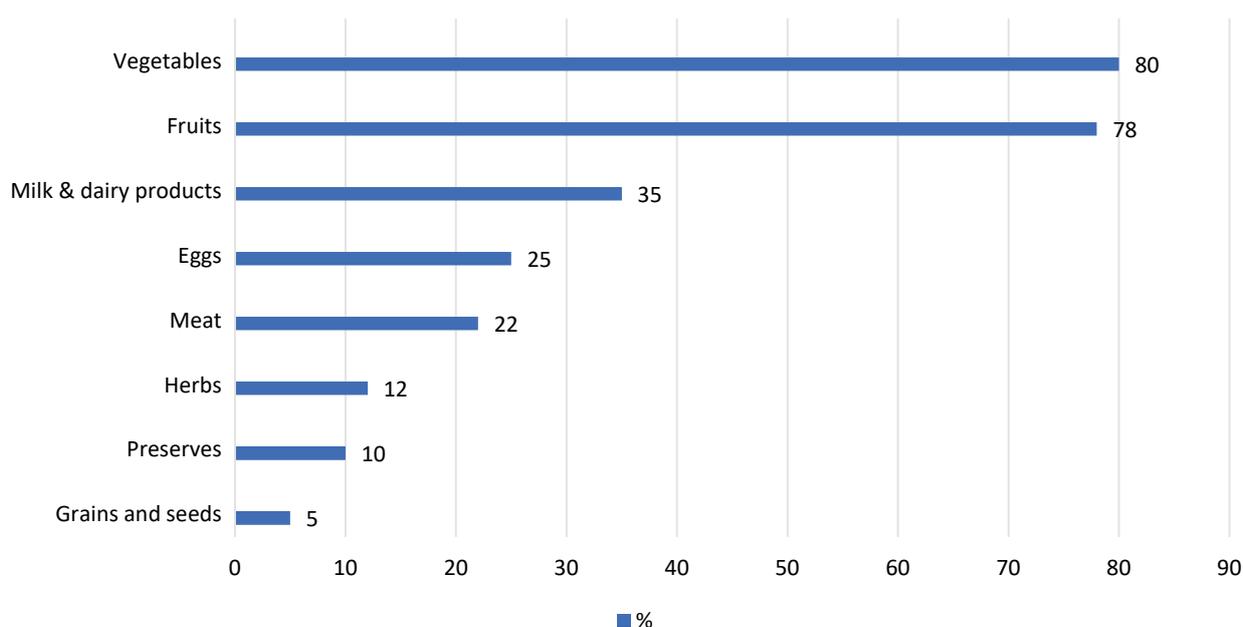


Figure 1. Types of products purchased

Source: own study.

Twenty-seven percent of respondents confirmed their personal experience of purchasing urban agricultural products, and 85% declared their willingness to do so in the future. However, when asked if they would like to produce food in a backyard garden or on a farm in the future, only 21% answered positively, 35% were negative, and 44% had no opinion.

One of the objectives of the project was to compare the approach to urban horticulture and agriculture between the countries where the research was conducted. Working in international student groups made it possible to learn about the behaviors observed in different parts of the world. As a large group of respondents came from China, it was possible to obtain data for this country. Collective data were also identified for European Union countries (Belgium, Bulgaria, France, Greece, Italy, Poland, and Spain), with students from these countries studying in Poland (EU-7).

Listing the social and economic benefits of urban horticulture and agriculture, the respondents indicated as the most important:

- Access to fresh food;
- Improving the food of the poorest citizens;
- Learning new skills;
- Creating new jobs.

Figure 2 shows the percentage distribution of indications regarding the social and economic benefits associated with the development of urban horticulture and agriculture. In all countries, the respondents appreciated access to fresh food from local production in cities. However, much higher indications were obtained in developing countries than in Poland or the EU-7. This may indicate significant differences in access to good quality, fresh produce between European cities and large, overwhelming cities in Brazil and Mexico and in the two most populous countries in Asia.

In the group of developing countries, 40% of respondents in Brazil and India, but only 5% in Mexico, believed that developing urban horticulture and agriculture could improve the food supply of the poorest inhabitants of cities. The indicators for Poland and the EU-7 were similar, at 12–15%, which may result from differences in the scale of the problem and the assessment of the possibility of starting to independently cultivate food crops. This issue requires further detailed research.

Using a Likert scale, the chances of creating new jobs due to the development of urban horticulture and agriculture were generally “very low” in India (81% of indications) and Mexico (79%). Brazil and China had slightly better ratings. Despite the dominance of “very low” (64% and 56%, respectively), a much larger number of respondents chose “low” (36% and 43%, respectively). Respondents from EU cities were much more

optimistic. They assessed the chance of creating new jobs as “high”; in Poland, it was 5% of indications and 8% in the EU–7. This may be because the EU population has gotten used to considerable subsidies for initiatives for sustainable urban development from Community funds.

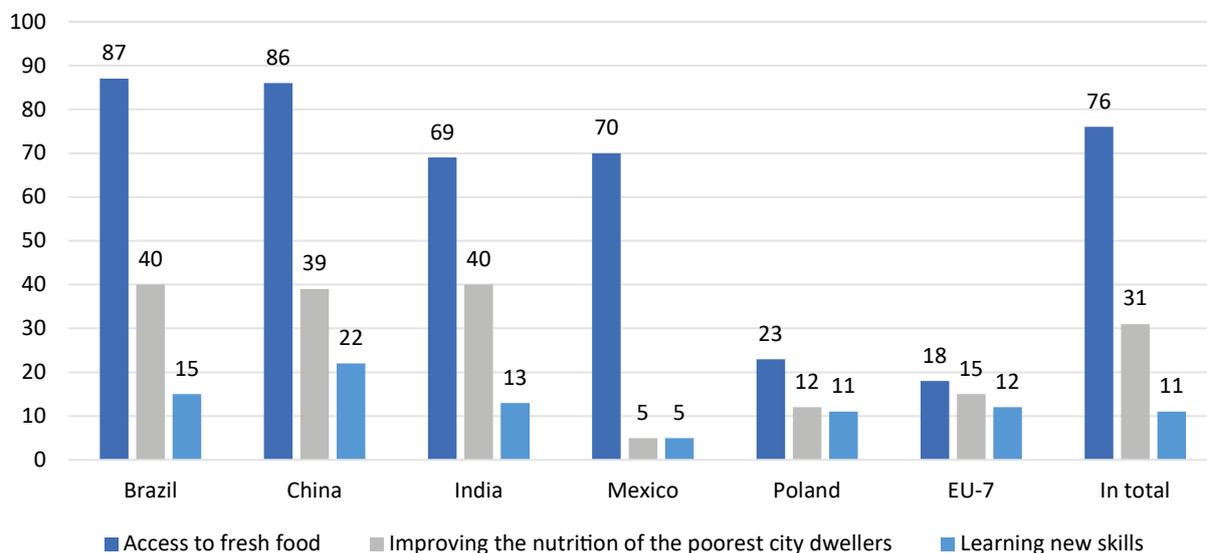


Figure 2. Assessment of the social and economic benefits of urban horticulture and agriculture [%]

Source: own study.

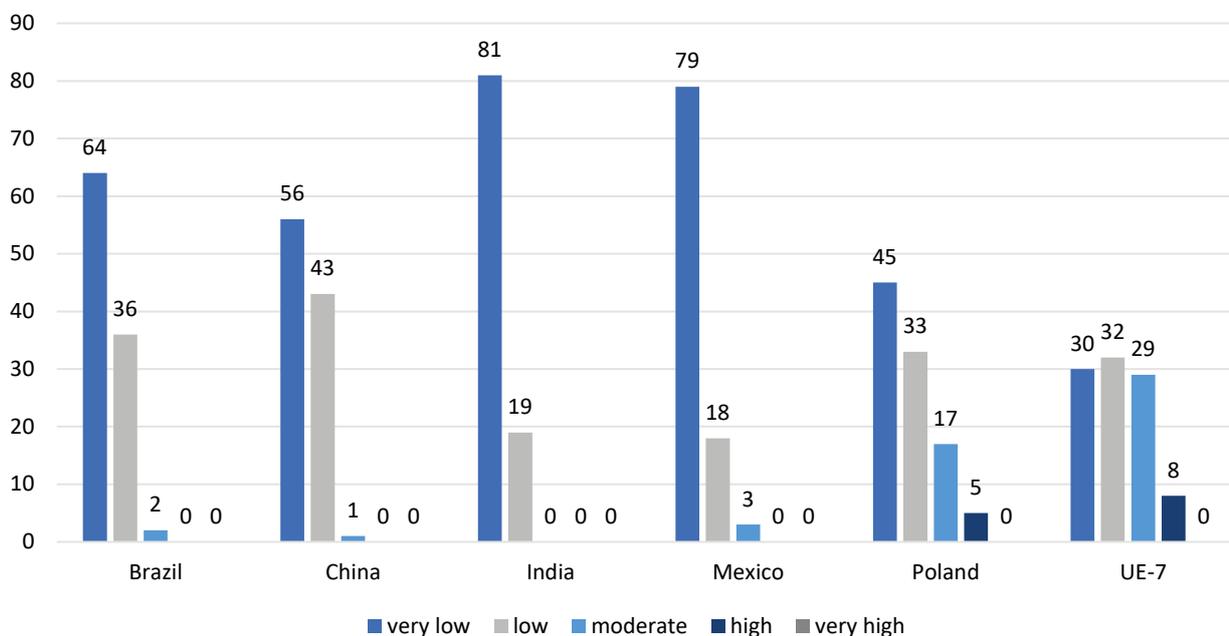


Figure 3. Opportunities for new jobs in urban horticulture and agriculture

Source: own study.

Comments about social and economic benefits included improving living conditions through income from the sale of food produced, enabling close contact with nature, education on cultivation and nutrition, and strengthening social ties. Attention was also drawn to the additional benefit of reducing air pollution emissions by shortening the distance that food is transported.

The analysis of the “environmental intuition” of the respondents (who were students of economics or management without experience in the fields of ecology, horticulture, or agriculture) was aimed at ascertaining whether they could indicate the environmental benefits associated with the production of food in urban gardens and farms. In the overall sample, the benefits were rated in the following order: improved air quality in cities (51%), the possibility to produce and use organic fertilizer (i.e., compost) (35%), and increased biodiversity in cities, including the presence of wild species (29%). In individual countries, improved air quality was also rated the highest, with indications ranging from 60% in Brazil to 46% in China. Brazilians also highly rated the production and use of compost. This type of benefit was indicated by 12% of respondents in India and 23% in Mexico. In Poland and the EU-7, it was indicated by 38 and 31% of respondents, respectively. Biodiversity enrichment was also chosen frequently by students from Brazil (Figure 4).

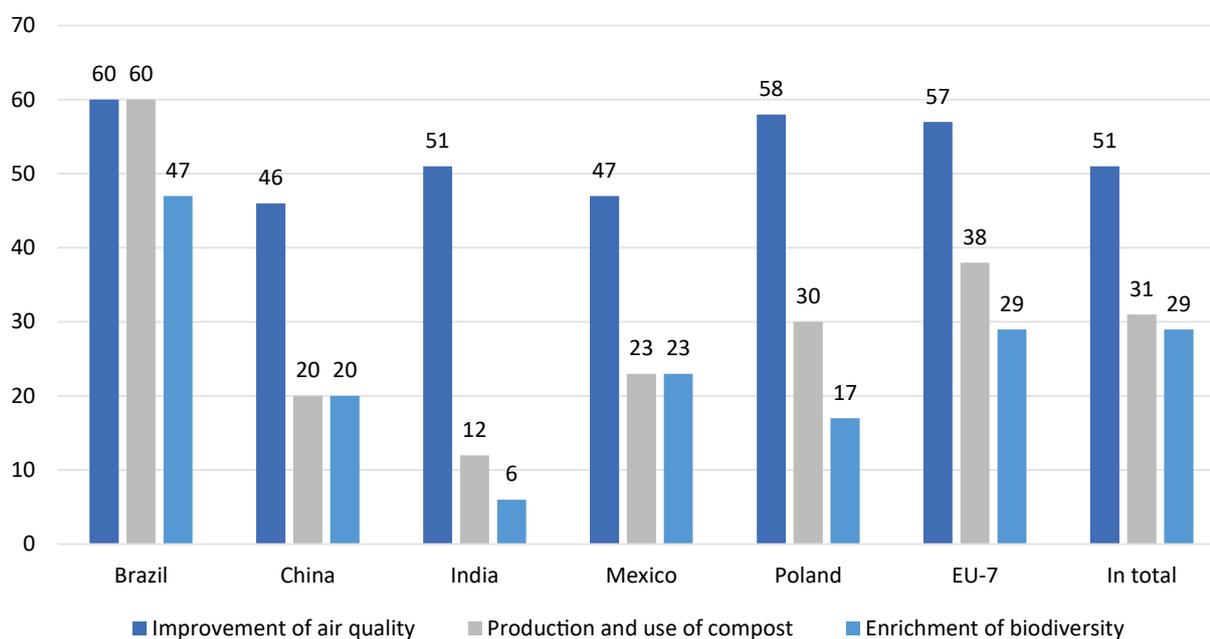


Figure 4. Environmental benefits of urban horticulture and agriculture

Source: own study.

The respondents were also asked if they perceived any risks associated with food production in cities, but as many as 80% thought that such risks did not exist. The others mentioned the following hazards: food contamination related to soil contamination

in cities (65 indications, 10% of the total research sample), hazards resulting from improper storage of waste from production, especially animal waste (37 indications, 5%), low quality of food (25 indications, 3%), issues related to the use of treated wastewater for irrigation (19, 2.9%), the possibility of the spread of zoonoses (14 indications, 2%). The respondents were allowed to provide more than one answer. Zoonoses were only noted by respondents from Asia.

Discussion

As shown in the study, the openness of young people who are not professionally involved in horticulture and agriculture to the development of food production in cities is a good sign for the future. This was confirmed by respondents from all countries covered by this pilot study. Importantly, it is not only about buying but also making products on your own. The differences between developing and EU countries in terms of access to fresh food and the assessment of opportunities for job creation in urban horticulture and agriculture are quite clear. The higher ratings for EU cities can be explained by the much easier access to good quality, fresh food in European cities and the substantial EU support for the agricultural sector and sustainable urban development (*The Economics of Ecosystems and Biodiversity* 2008). In addition, many social projects in the EU are linked to food production and acquiring new competencies in healthy eating.

Nowadays, the idea of complementary food production outside rural agriculture and distant imports still inspires new activities in both highly developed and developing countries. “Food policy matters at all levels – globally, nationally, and locally – because it affects everyone: our communities and livelihoods, our environment, ecosystems and the climate, our nutrition and health. Food policy shapes who eats what, why and at what cost.” the Mayor of Milan aptly stated (Sala 2019, pp. 4–8). Considering the results of the research and the data from the literature (Fanzo et al. 2013) on attempts to meet food needs in various cities around the world, apart from the traditional approach to horticulture for own use, two promising trends can be distinguished (Figure 5).

The first trend is related to urban policy aimed at increasing, in a broad sense, the resilience of cities. In this case, it is not only about food security but also about adapting cities to climate change, mitigating the negative effects of extreme weather phenomena, and obtaining positive social effects. This is necessary to define the tasks and scope of activities and use appropriately selected legal, planning, economic and educational instruments. Experts from various fields dealing with urban issues emphasize the need to change the approach to the design of cities and their districts to make them more functional and friendly to residents and resistant to various external shocks, including climate change.

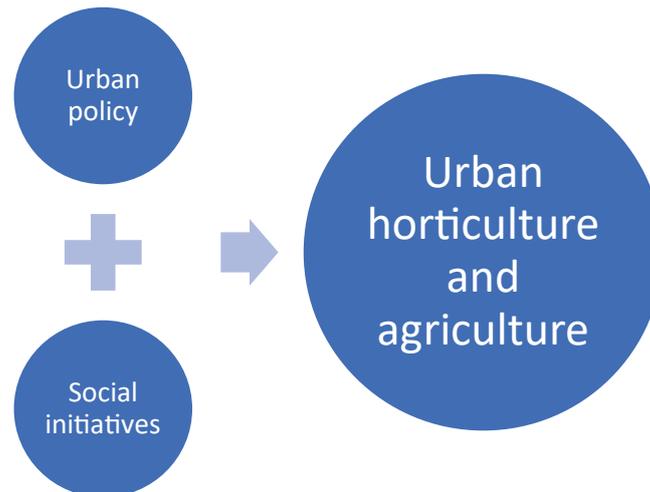


Figure 5. Development trends in modern urban horticulture and agriculture

Source: own study.

Urban planners and landscape architects support the introduction of agricultural land into cities. This requires hiding transport infrastructure underground and leaving areas on the surface for various crops and water retention, as well as using roofs (Food System Planning Case No. 2, 2021). An example is the green roof on Thammasat University's Rangsit campus, about 40 miles north of downtown Bangkok. It offers many modern solutions simultaneously, e.g., fresh products, flood protection, use of solar energy, green space for residents, workplaces, and the opportunity to learn how to solve the most pressing problems in cities. Landscape architect Kotchakorn Voraakhom (*Kotchakorn Voraakhom – 15 Iconic Projects* n.d.) invented and designed the project, inspired by the tradition of terraced rice cultivation in Thailand (Eng 2020). This example is a model approach to food production based on urban agriculture.

Singapore and New York also have their own financial support programs for installing green roofs. In 2020, the Singapore Food Agency awarded the tender for farms on public car park rooftops. Attention is drawn to the sustainable cultivation of crops without the use of pesticides or chemicals, as well as the creation of jobs involving seniors. The project, which received US \$21 million in support, is part of a strategy to have 30% of food consumed in Singapore produced locally by 2030. New York is actively supporting the city's adaptation to climate change by increasing water retention through green rooftops that are converted into sites with fast-growing vegetables and herbs (The Green Roof Tax Abatement Program and Green Infrastructure Grant Program, New York). In the United States, special programs are aimed at the poorest inhabitants of cities, mainly Latinos and African Americans, among whom aggregate poverty and unemployment have remained extremely high for years. In cooperation with local gardening centers, botanical gardens, and scientific institutions, many cities also offer composting opportunities, free seedlings, and courses on growing and selling food.

The second trend involves the increasingly important bottom-up social movement to increase food production in the public space of cities. One of the best-known examples is Todmorden, the deprived West Yorkshire town of 15,000 in England, where Pam Warhurst and Mary Clear initiated the *Incredible Edible Todmorden* (IET) project in 2008. Permission gardens and guerrilla gardens with strawberries, cabbage and carrots, rhubarb and radishes, chard and chives appeared in the city and its outskirts. Herbs, trees, and fruit bushes were also planted. In total, 70 plots were intended for cultivation in the city. These gardens have become “propaganda gardens” – their very presence in public space was intended to provoke discussion about food, its quality, and accessibility. They were used to “smuggle” food issues into public awareness. The inscription on the IET boards reads: “Go on, take some. It’s all free.” The concept of open-source food, collecting, and eating something that someone else planted and nurtured, was both revolutionary and contagious. Undoubtedly, it represents a cultural change, and not only in Todmorden. This social movement is not dependent on any external financing; it takes place with the knowledge of the authorities, although without formal consent. The number of similar initiatives in the United Kingdom has increased to over 120, and there are already over a thousand non-profit organizations in the world under the name *Incredible Edible* translated into local languages (Paull 2013, pp. 336–345; Stuart-Smith 2021, pp. 214–248).

Urban food production is currently both a bottom-up and a top-down venture.

Among the former, several types of activities can be distinguished, such as

- food production carried out within one’s own household, also as a hobby;
- neighborhood initiatives and activities of social groups conducted jointly, also in the public space;
- initiating food production by local leaders, especially in deprived neighborhoods affected by unemployment, malnutrition, or problems resulting from a lack of access to healthy food;
- activities of non-governmental organizations that support education, the preservation of cultural and natural heritage, social integration, and combating exclusion or malnutrition.

Top-down activities related to urban policy comprise spatial planning, including land for cultivation, preserving the heritage of allotment movement, and supporting the establishment of various types of gardens, including school gardens, botanical gardens, and sensory gardens. More and more cities are also starting to make land available for agricultural production. The summary of benefits from urban horticulture and agriculture is presented in Table 1.

Table 1. Benefits of urban horticulture and agriculture

Ecological	Economic	Social
Enlargement of urban green areas Reducing cities' carbon footprints Improved air quality Noise attenuation Increased rainwater harvesting and infiltration Flooding and flash floods protection The beneficial effect of composting on organic matter circulation Reducing the use of pesticides and fertilizers through cultivation in a controlled environment Increasing and protecting biodiversity	Shortening the road „from field to plate”, which means lower transport costs and transport emissions Access to fresh food free of charge or at a low price Reducing family maintenance costs Increasing the value of real estate Reducing the cost of maintaining the city through ecosystem services provided by gardens and farmland	Building social capital The emergence of social activism Improving food security Improving the quality of life Mitigating urban heat islands Positive impact on physical and mental health Increasing ecological and environmental justice Education in horticulture/agriculture and climate Easier access to culturally relevant food

Source: own study.

Conclusion

Considering the findings of the research, the lessons learned from the COVID-19 pandemic, and the impact of the Russian attack on Ukraine in February 2022, which resulted in the disruption of traditional supply chains, the need to strengthen the resilience of cities to shocks on the food products market becomes increasingly obvious. Cities implement their food system activities in different ways. Some develop comprehensive documents and long-term plans, while others work on sectoral policies and projects. Recommended is to have a comprehensive and sustainable food strategy. This can be fostered by urban horticulture and agriculture, which are enjoying great public interest and support worldwide. Crucially, this includes the younger generation, who value access to fresh food and the positive impact of urban crops on quality of life. Importantly, it is evident both in highly developed and developing countries and in various cultural circles.

In urban horticulture and agriculture, two trends can be distinguished:

- traditional – based on conventional cultivation techniques, related to the use of various available free spaces, engaging people of various professions and with different material statuses, and social activists, for both hobby and production purposes for their own needs and for sale;
- modern – using new technologies, unconventional cultivation and breeding locations, usually requiring the involvement of investment funds for the construction of spe-

cial infrastructure, e.g., structures supporting vertical gardens, roof gardens, roof greenhouses, or installations for hydroponic, aquaculture and aquaponic cultivation, in which waste produced by fish is used as a source of nutrients for plants, which allows a healthy environment for fish to be maintained.

Although production varies in scale and objectives, it is becoming an increasingly appreciated source of ecosystem benefits and an element of sustainable urban development.

Food production should become an important element of urban policy to meet the challenges of increasingly growing cities. The benefits of making wastelands, post-industrial areas, roofs and walls of buildings, and even places in public parks and around residential houses available for urban residents for cultivation are multiple and allow social, economic and ecological goals to be achieved. Strengthening cities' resilience to climate change does not have to solely involve local authorities in developing grey infrastructure. It can include the prudent use of what is offered by gardens and fields, so enthusiastically nurtured by the inhabitants. One of the advantages of urban horticulture and agriculture, in all their forms, is that they engage residents in activities that generate external benefits. Through their work and money spent on setting up and maintaining gardens, urban dwellers contribute to positive externalities that are important for protecting land and adapting to climate change. Horticulture and urban farming projects, which reflect and stem from the cultural values of the local community and the vision of the future, are more likely to exert a sustainable impact and lead to more environmentally sustainable ways of delivering food. In many cases, they do not even need outside support. This is also confirmed by the research conducted among students from various countries around the world. Despite some differences, respondents from all countries supported the development of urban gardening and farming.

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Produkcja żywności w miastach jutra

Wyniki międzynarodowych badań ankietowych

Rozważania zawarte w artykule mają trzy cele. Pierwszym z nich jest uzyskanie informacji na temat praktycznych doświadczeń młodych mieszkańców miast w zakresie użytkowania produktów miejskiego ogrodnictwa i rolnictwa. Drugim jest określenie gotowości do samodzielnego zajmowania się taką produkcją w przyszłości. Trzecim jest określenie, na jakie korzyści środowiskowe (usługi ekosystemowe) związane z miejskim ogrodnictwem i rolnictwem wskażą respondenci. W tym przypadku chodziło o zbadanie „intuicji środowiskowej” osób niezwiązanych zawodowo z naukami przyrodniczymi i rolniczymi. Badanie porównawcze dotyczyło studentów z Brazylii, Chin, Indii, Meksyku, Polski oraz grupy 7 krajów Unii Europejskiej. Ogółem respondenci pochodzili z 29 krajów. Zebrane dane posłużyły do porównania podejścia reprezentowanego przez respondentów z różnych krajów i kręgów kulturowych do miejskiego ogrodnictwa i rolnictwa oraz ich produktów, a także do sformułowania wniosków na temat wykorzystania związanego z nimi potencjału do wspierania zrównoważonego rozwoju obszarów miejskich.

Słowa kluczowe: usługi ekosystemowe, produkcja żywności, miasta, społeczeństwo, zrównoważony rozwój