BOOK OF PROCEEDINGS

2nd INTERNATIONAL CONFERENCE ON HOUSING, PLANNING, AND RESILIENT DEVELOPMENT OF THE TERRITORY

TOWARDS EURO-MEDITERRANEAN PERSPECTIVES

OCTOBER 16th-17th, 2025

ISBN: 9789928347237

DOI: 10.37199/c41000900

CIP Katalogimi në botim BK Tiranë
2nd international conference on housing, planning, and
resilient development of the territory : towards
euro-mediterranean perspectives : october 16th-17th, 2025 :
book of proceedings. - Tiranë : Universiteti Polis, 2026.
... f.
ISBN 9789928347237
1.Urbanistika 2.Planifikimi i qytetit dhe ligji i
rizhvillimit 3.Konferenca
711 (062)

BOOK OF PROCEEDINGS

2nd INTERNATIONAL CONFERENCE ON HOUSING, PLANNING, AND RESILIENT DEVELOPMENT OF THE TERRITORY

TOWARDS EURO-MEDITERRANEAN PERSPECTIVES

OCTOBER 16th-17th, 2025

ISBN: 9789928347237
DOI: 10.37199/c41000900

2nd International Conference on Housing, Planning, and Resilient Development of the Territory

Towards Euro-Mediterranean Perspectives

Conference Theme and Rationale

This conference returned for the second time within the Albanian and Mediterranean academic context, aiming to build a tradition of collaboration centered on scientific research and academia. Following the success of the first edition held on October 13th-14th, 2023, where proceedings were published in the Book of Proceedings, Albanica journal, and various international academic platforms, POLIS University and the Academy of Sciences of Albania relaunched this important event. The 2025 edition focused on housing, urban planning, and resilient territorial development, offering a platform for researchers, policymakers, and experts from the region and beyond.

Albania and the Western Balkans have faced major transformations in urbanization, spatial planning, and environmental management. Demographic changes, economic pressures, and environmental challenges created a need for new strategies in architecture, planning, and governance. This conference brought together diverse voices to explore these themes and promote resilient and sustainable development.

Key topics included architecture and the city, with emphasis on urban form, housing typologies, and the role of cultural heritage in modern urban design; urban mobility, addressing traffic challenges, public transport, and the use of technologies like GIS and AI in planning; and new housing models, focusing on affordability, energy efficiency, and innovative materials.

Discussions also covered demography and economy, exploring territorial governance, smart cities, social enterprises, and digital technologies such as AI, VR, and the Metaverse in urban management. Finally, the urban and natural environment was addressed through topics like pollution, adaptive planning, and nature-based solutions for climate resilience.

Through this conference, POLIS University and the Academy of Sciences of Albania aimed to foster a broad interdisciplinary debate on these pressing issues, combining academic and practical perspectives to offer concrete recommendations for future urban and territorial development policies and projects.

Organizers' Announcement

The International Scientific Conference on Housing, Urban Planning, and Resilient Territorial Development: Toward Euro-Mediterranean Approaches was held on October 16th-17th, 2025, in Tirana, Albania. Organized by POLIS University in collaboration with the Academy of Sciences of Albania and supported by national and international partners, including the University of Ferrara and Co-PLAN, Institute for Habitat Development, the event brought together researchers, academics, policymakers, and professionals to address key challenges in urban development, with a focus on resilience and sustainability in the Euro-Mediterranean region. The first day of the conference took place at the Academy of Sciences, while the second day was hosted at POLIS University.

The conference explored five main themes:

I. Architecture and the City, which investigated the typological and morphological dimensions of urban form, the evolution of collective and individual housing types, the relationship between architectural design and urban identity, and the role of historical and cultural heritage in shaping contemporary cities;
II. Urban Mobility and Resilient Cities, which addressed traffic congestion, infrastructure challenges, and public transportation, while also promoting the redesign of public spaces – such as streets, squares, and pedestrian zones – to improve accessibility and mobility; it also explored the integration of digital technologies like GIS, AI, and simulation tools to enhance planning, automation, and infrastructure management;
III. New Housing Models, which examined innovative approaches to affordable and social housing in response to demographic shifts and technological change, along with energy efficiency strategies, passive energy systems, and the application of new sustainable materials and construction technologies;
IV. Demography and Economy, which focused on macro-regional and national dynamics impacting territorial development, including urban governance, disaster risk reduction, and the rise of smart and inclusive cities; it also explored how emerging technologies – such as AI, VR, and the Metaverse – along with social enterprises and circular economy practices, could foster more equitable and adaptive urban systems; and
V. Urban and Natural Environment, which analyzed environmental degradation in urban settings, including air, water, and soil pollution, and promoted nature-based solutions, ecosystem-based planning, and adaptive strategies to enhance environmental sustainability and climate resilience.

The conference was conducted in English and Albanian (with self-translated texts where applicable) and was free of charge, with all registration fees fully covered by POLIS University in support of open academic exchange. Key deadlines included abstract submission by June 15th, acceptance notification by June 30th, first draft of papers by September 15th, and final submissions by October 31st.

Scientific Committee

Akad. Gëzim Hoxha / Akademia e Shkencave

Emeritus. Prof. Dr. Sherif Lushaj / POLIS University

Emeritus. Prof. Dr. Pantoleon Skayannis / POLIS University & University of Thessaly, Greece

Prof. Dr. Besnik Aliaj / POLIS University

Prof. Dr. Tamara Luarasi / POLIS University

Prof. Dr. Roberto Di Giulio / DA-FERRARA University

Prof. Dr. Theo Zaffagnini / DA-FERRARA University

Assoc. Prof. Dr. Mario Ferrari / POLIS University

Organizing Committee

Akad. Gëzim Hoxha / Akademia e Shkencave

Assoc. Prof. Dr. Sotir Dhamo / POLIS University

Assoc. Prof. Dr. Skender Luarasi / POLIS University

Assoc. Prof. Dr. Llazar Kumaraku / POLIS University

Dr. Doriana Musaj / POLIS University

Armela Reka / POLIS University

Sindi Doce / POLIS University

Layout & Design:

Sindi Doce

Armela Reka

POLIS University Contact:

Rr. Bylis 12, Autostrada Tiranë-Durrës, Km 5, Kashar

Kodi Postar 1051, Kutia Postare 2995

Tiranë, Albania

Tel: +355.(0)4.2407420 / +355.(0)4.2407421

Fax: +355. (0)4.2407422

Mob: +355 (0) 69 40 88 111

Email: contact@universitetipolis.edu.al

Website: www.universitetipolis.edu.al

Table of Content

V. Urban and Natural Environment: Environmental Problems, Climate Issues and Other Environmental Challenges

Sustainability and resilience in the natural environment / Adaptive planning / Complexity in territorial development.

Air, water, and soil pollution / Ecosystem services for protected and urban areas / Strategic environmental assessments / Nature-based solutions / Urban biodiversity assessment.

Economic, Social, Environmental, and Landscape Values of Urban Agriculture and its Contribution to the Sustainability of Cities

DOI: 10.37199/c410009208

Emeritus. Prof. Dr. Sherif LUSHAJ
Faculty of Planning, Environment and Urban Management, POLIS University,
sherif_lushaj@universitetipolis.edu.al

Abstract

Urban agriculture plays a significant role in the sustainability of cities by contributing to food production, employment, and income generation through the cultivation of urban and peri-urban land, as well as family gardens. The opportunities in this sector are substantial, with rural family gardens also contributing significantly to large-scale agricultural and livestock production. Before 1990, rural family yards classified as "family gardens" covered an estimated surface area of 30,000 hectares, accounting for 27-35% of national fruit production, 47% of grape production, 23% of the total number of fruit trees, and 74% of pergolas (high grapevines). Until 2014, Albania was divided into 373 municipalities and communes. However, the adoption of Law No. 115/2014, "On the Administrative-Territorial Division of Local Government Units in the Republic of Albania," reorganized the country into 61 municipalities. This new administrative division has increased the availability of agricultural land in urban and peri-urban zones and fostered new urban-rural relations that encourage the development of urban agriculture. It is estimated that the surface area cultivated in family gardens within rural and peri-urban areas has doubled since 1990, particularly in peri-urban zones. This article analyzes the available land resources for the development of urban agriculture in Albania's urban and peri-urban areas, highlighting its potential, opportunities, and importance from economic, social, environmental, and landscape perspectives. It also emphasizes the need for program development, the integration of urban agriculture in urban planning, and assessment of food safety risks arising from industrial pollution to ensure sustainable urban growth.

Keywords

Urban agriculture, peri-urban areas*, agricultural products, food safety, environmental risks*

1. Introduction

According to FAO (2022), urban agriculture involves the cultivation of crops and livestock production, processing, and distribution within urban and peri-urban areas to supply food to urban residents. Urban agriculture has developed alongside the growth of cities, driven by factors such as population growth, demographic shifts, and increasing demand for services. During times of food scarcity, such as World War I, urban areas became focal points for food production. President Thomas Woodrow Wilson of the United States (1913-1921) encouraged citizens to utilize any available space for agricultural purposes to offset the loss of imported food from Europe. This initiative led to the implementation of the national “Victory Gardens” program during World War II, which aimed to establish functional agriculture within cities. As a result, approximately 44% of the total annual fruit and vegetable production in the United States was achieved through these efforts. Similarly, urban gardens emerged in Germany during the early 19th century in response to poverty and food insecurity, followed by initiatives in Canada, the United Kingdom, and other nations. Globally, millions of individuals are engaged in urban agriculture, with an estimated 800 million people involved worldwide, and 200 million producing for the market (Armar-Klemesu, 2000).

The concentration of the population in cities both in Albania and other countries highlights the need to use land resources in urban and peri-urban areas for food production, environmental enhancement, landscape improvement, and urban sustainability. From this perspective, urban agriculture remains a viable strategy for sustainable urban development, providing agricultural and livestock products from urban and peri-urban land resources. Globally, urban agriculture is constantly expanding. For example, in the United States, urban areas have nearly tripled over the last 50 years, facilitating the growth of urban farming initiatives.

In Albania, under the centralized agricultural economy, household urban gardens provided on average 13-15% of the country’s agricultural production until 1980, and around 10.1% by 1990 (State Planning Commission of Albania, 1990). After land privatization (1991) and increased urbanization, urban land, peri-urban, and urban gardens in rural areas are expected to be grow about twice time. The opportunities remain great, as family gardens in rural areas provide large-scale agricultural and livestock products.

In Albania, although agricultural activities are carried out in urban gardens and residential centers in rural zone, the term "urban agriculture" is not mentioned or is not officially recognized. It is not part of development programs, strategies and general local plans of Municipalities or even at the national level. There are no data for production indicators, cultivated areas, distribution, or development dynamics, and studies assessing the current situation and future prospects are missing, even though unused urban land resources and inherited practical experience exist. Studies in the field of urban agriculture in Albania are lacking and this activity not included in the planning process.

Urban agriculture has historically been a fundamental element in the rise of early cities (Lohrberg, 2016). It is a multidimensional activity that includes open-field cultivation, greenhouse farming, vertical urban agriculture, community gardens, and the leasing of municipal land to students, workers, and civil society organizations to support food production for vulnerable populations.

In this study, several research questions are addressed, such as: Is urban agriculture considered an important source of food products, landscape and environmental value, and a contributor to city sustainability? Should it be included in the urban planning process? The main objective of this work is to study urban agriculture in several large cities of the country, focusing on urban lands and gardens, as well as urban gardens in residential centers. The scope of the study includes land resources, agricultural production, problems, and findings.

2. Literature review

The dimensions and diversity of urban and peri-urban agriculture are shaped by a wide range of factors, including political and economic systems, crisis situations, demographic shifts, land use changes, and governance models. Historically, in pre-industrial cities, residents engaged in small-scale farming, urban gardening, and animal husbandry. It is widely acknowledged that urban agriculture was fundamental to the emergence of most early cities (Vejre et al., 2015).

It is important to emphasize that urban agriculture extends beyond merely providing food during times of scarcity. Rather, it is integrated into the urban economy and ecology, contributing to the overall sustainability of cities, shaping urban landscapes, enhancing recreational opportunities, and providing significant environmental and social benefits. Moreover, it improves living conditions, facilitates the marketing of locally produced goods, establishes recreational green spaces, and encourages the engagement of multiple stakeholders.

From an economic perspective, urban and peri-urban agriculture plays a crucial role in broadening the economic base and promoting the sustainability of cities. As highlighted in the literature, urban agriculture provides opportunities to enhance food supply, improve public health, strengthen local economies, foster social cohesion, and promote environmental sustainability worldwide (Orsini et al., 2013). Several authors suggest that urban agriculture (UA) can serve as a key strategy to increase a city's food self-sufficiency and resilience against disruptions in national or global food supply chains, particularly in the face of extreme weather events and political crises associated with climate change (Altieri et al., 1999; Grewal & Grewal, 2012; Barthel & Isendahl, 2013; Hamilton et al., 2014; Barthel et al., 2015).

To encourage the creation of landscaped green areas, it is essential to promote the cultivation of leased land and the direct marketing of products, either on-site or through local farm shops and markets. A wide range of studies provide insights into the development, importance, potential, country-specific experiences, cultivation techniques, and limiting factors of urban agriculture. Guna Pala et al. (2025) note that "vertical farming allows for year-round food production that is not dependent on weather conditions and reduces the need for traditional agricultural chemicals." Similarly, in its 2017 resolution, the European Parliament called on Member States to provide incentives for the development of urban farming and to respond to the growing interest in urban and peri-urban agriculture (Margaras et al., 2025).

According to Borges et al. (2024), urban agriculture offers pathways to achieving broader environmental, social, and economic outcomes that cities urgently require. In Shanghai, China, for

instance, about 50% of the city's vegetable demand is met through production within its administrative boundaries (Lang & Miao, 2013; Kanard, 2024).

The relationship between cities and agriculture has a long historical background. The agricultural landscapes surrounding cities have traditionally served as spaces for both food production and recreation. Vegetables, fruits, cereals, and animal products were commonly sold in markets located in the main squares of cities (Lohrberg, 2016).

Earlier research emphasized that extreme heat and temperature fluctuations directly affect public health and urban livability (Kucaj & Gjoni, 2020). These findings are consistent with long-term analyses of agricultural vulnerability to climate variability, particularly drought and rainfall reduction (Kucaj et al., 2024).

3. Methodology

The paper aims to assess the prevalence and scope of urban agriculture in urban and peri-urban areas across selected local administrative units. The methodology adopted in this research employed a comprehensive, mixed-method approach to evaluate the current status and potential of urban agriculture in Albania's urban and peri-urban zones, as well as in urban gardens located within rural settlements. Direct fieldwork was carried out in the municipalities of Tirana, Vlora, Elbasan, and Orikum, and was further supported by field observations conducted in additional areas. The primary focus was on identifying both family-owned and business-operated gardens situated in urban and peri-urban public lands, as well as traditional family gardens in rural areas.

Through consultations with residents and local government representatives, multiple dimensions of urban agriculture were examined including land resource availability, types of cultivated products, levels of governance, and the functionality of marketing chains. The analysis of collected data and indicators provided the basis for developing recommendations aimed at strengthening the evaluation of urban agriculture opportunities and improving governance mechanisms. These efforts are essential to ensure the economic, social, and environmental sustainability of cities and to promote the integration of urban agriculture into development plans, programs, and strategies.

4. Results

Development of urban agriculture in Albania

4.1. Land resources

Based on research conducted in the municipalities of Vlora, Tirana, Elbasan, and Orikum, as well as observations made in Korça and other locations, it is evident that urban agriculture in both urban and peri-urban areas primarily revolves around the tradition of family urban gardens. The transformation of former state agricultural farms in 1992 enabled city residents, many of whom had previously worked on these farms, to obtain land for cultivation. However, despite these

developments, urban agriculture remains largely unstructured, lacking strategic planning and coherent action frameworks across governance levels.

Before 2014, the Municipality of Vlora included only the city itself, with a population of 79,513 inhabitants and a total area of 10.5 km². Since 2015, following the implementation of Law No. 115/2014, the municipality expanded to incorporate five administrative units (both urban and rural), covering a total area of 610.3 km², of which 18,775 hectares are designated as agricultural land (Table 1).

No	Surface area Hectare	Agricultural System	Available and Undivided agricultural land	Urban System
1	Surface area	18,775	**1430**	2770

Table 1. *Surface area distribution across territorial systems in the Municipality of Vlora (in Hectars).*
Source: General Local Plan, Vlora Municipality (2018).

The analysis of territorial systems reveals the presence of land resources suitable for urban agriculture development in the urban and peri-urban zones of Vlora.

Specifically:

(i) there are 1,176 hectares of agricultural land previously used by workers of former state farms who currently reside in the city. Similar situations regarding available land resources exist across the country, particularly in municipalities such as Tirana, Fier, Durrës, and Shkodra, where large portions of agricultural land within city boundaries remain underutilized. In the Municipality of Tirana, for instance, peri-urban areas such as Selitë-Farkë, Paskuqan, Kashar, and Vaqarr encompass approximately 1,200 hectares of land that had been cultivated with orchards and olive groves prior to 1990. Following land privatization, informal urbanization, and the construction of villas, these zones have gradually transformed into residential areas with urban gardens that continue to produce olives, grapes (pergolas), vegetables, and fruit trees. In the city of Korça, about 500 hectares of agricultural land remain suitable for urban agriculture development.

(ii) Another important source of potential lies in the agricultural land that remains undivided from the former state agricultural enterprises and cooperatives situated on the outskirts of major cities within urban and peri-urban areas. For example, in the Municipality of Vlora, such land accounts for approximately 1,430 hectares. In the absence of cultivation, these lands are prone to degradation or conversion to alternative uses. Comparable areas exist in other municipalities as well. Despite their potential, the leasing of such land by municipalities to citizens, students, or civil society organizations for agricultural purposes remains underdeveloped.

(iii) Additionally, public urban lands represent another important resource for agricultural and livestock production. Recognizing the critical role of urban agriculture in ensuring food security and nutrition, particularly in developing countries, underscores the importance of its promotion.

As towns and cities continue to expand rapidly alongside ongoing rural-to-urban migration the relevance of urban agriculture is expected to increase further in future policy discussions and urban planning frameworks (Orsini et al., 2013).

(iv) Family-owned gardens in cities, residential centers, and villages represent a significant reserve for both agricultural and livestock production. The classification of Albania's territory into six groups according to the National Spatial Plan extends beyond primary and secondary urban centers, allowing for a broader analysis of urban gardens that includes areas categorized as "tertiary urban centers" or newly established municipal centers following the administrative reform. It also encompasses the fifth category of "local centers," referring to inhabited rural and suburban areas, as well as the sixth category "united rural centers" where suitable land resources for urban agriculture are also found.

Urban gardens in Albania's urban and rural zones display rich biodiversity and offer opportunities for expansion in public spaces, contributing to the diversification of urban landscapes. Urban agriculture supports public health, stress reduction, recreation, urban climate mitigation, reduced urban heat island effects, noise and CO_2 reduction, erosion control, and the preservation of water and native vegetation. Monitoring in Tirana has shown that urban gardens during summer are 4-6°C cooler than the surrounding built-up areas.

4.2. Urban agriculture in urban garden

The development of urban agriculture in Albania remains largely disconnected from planning and governance processes. The dynamics of urban agriculture, as well as the types of cultivated products, vary significantly depending on the area, climate, tradition, and garden size. A study examining 50 urban dwellings in the city of Vlora found that each garden typically included pergolas, 4-6 citrus trees, and 3-7 olive trees (Lushaj & Haskocelaj, 2024).

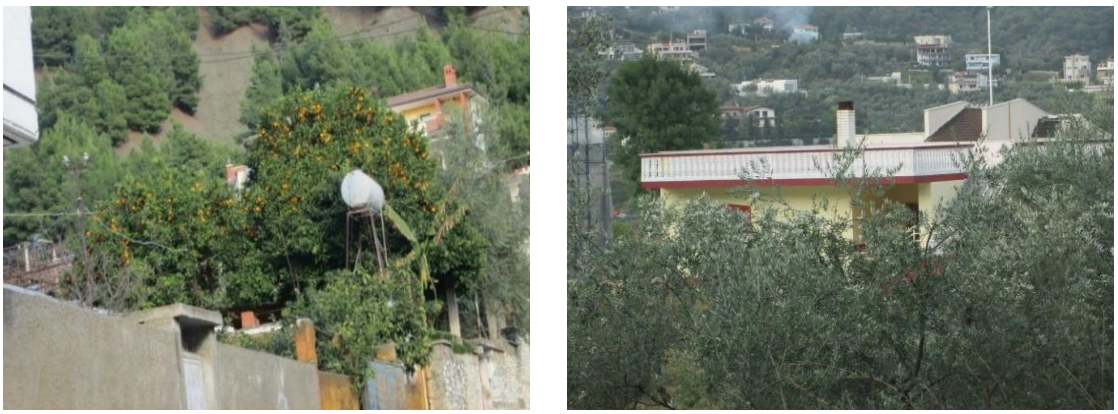

Figure 1. *Urban landscape of family gardens in Vlora City and urban agriculture (UA) in Tirana City.*
Source: Author.

In Vlora, along "Ahmet Lepenica" Street, family gardens in apartment blocks constructed mainly after 1990 generally feature 5-12 mature olive trees inherited from former agricultural enterprises, yielding an average of 90-120 kg of olives per tree. Similarly, observations conducted in 46 dwellings in Tirana (without detailed monitoring of the number and types of plants) revealed that 36 had gardens cultivated with fruit trees, pergolas, a limited number of citrus and olive trees, and small vegetable patches.

In Elbasan City, among ten urban family gardens inspected, perennial citrus trees were the dominant crop, yielding 10-20 quintals per household. Larger areas with fruit trees, pergolas, and olive groves were found in suburban zones (Lushaj & Xhemollari, 2018).

Figure 2. *Citrus family gardens in Elbasan City.*
Source: Author.

In the administrative unit of Orikum (including Orikum city and surrounding villages), urban agriculture has developed significantly within family gardens. Out of 3,680 dwellings, approximately 65% of one- and two-storey houses cultivate citrus, olives, and pergolas in their yards. A study monitoring 50 such dwellings in Orikum City found that each garden typically cultivates 6-12 citrus, 1-3 pergola, and 3-7 olive trees.

Within this administrative unit, an olive-processing factory handled around 1,000 tons of olives annually, producing approximately 140,000 liters of olive oil. In ten monitored family gardens in the village of Radhimë, households maintain 30-150 olive trees each, producing 300-2,000 kg of olives or 50-250 liters of oil, along with citrus, fruit trees, and cultivated vegetables covering an area of 80-180 m² (Lushaj & Gjimara, 2020, 2023).

Monitoring of 15 family gardens in the village of Tragjas, part of the Orikum administrative unit, revealed that households primarily cultivate olives, citrus, pergolas (grapes), orchard trees, and vegetables. Olive yields ranged from 0.32 to 3.2 tons per garden, with an average production of 40-370 litres of oil per family (Table 2) (Lushaj & Haskocelaj, 2024).

House hold	Olive Trees			Citrus Trees		Orchard Trees		Pergola (grapes)	
	No. of roots	Produc-tion (kg)	Oil Liter	No. of roots	Produc-tion (kg)	No. of roots	Produc-tion (kg)	No. of roots	Produc-tion (kg)
1	120	1800	240	6	90	24	275	9	170
2	55	1300	210	6	180	8	240	4	65

3	20	320	40	-	-	-	-	-	-
6	25	460	70	2	-	-	-	8	120
7	30	430	80	-	-	5	45	-	-
8	150	1500	210						-
9	40	560	90					7	140
10	150	2300	370	10	300	13	220	5	110
11	300	750	110	-	-	-	-	-	-
12	250	3200	260	-	-	-	-	-	-
13	130	2000	250	-	-	-	-	-	-
14	75	1105	185	-	-	-	-	4	60
15	30	900	110	-	-	-	-	3	40

Table 2. *Number of roots and production of fruit trees, olives, citrus, Pergola (grapes), Tragjas.*
Source: Author's study.

4.3. Urban agriculture in commercial land-uses

Urban agriculture is prevalent in areas surrounding commercial establishments across urban, peri-urban, and rural regions. A study conducted by the author in the administrative unit of Orikum, as well as in the municipalities of Tirana and Lushnja, revealed that various crops and plants are cultivated in public spaces adjacent to bars, businesses, schools, kindergartens, hotels, gas stations, car service areas, institutional courtyards, sidewalks, and between public and private buildings.

Figure 3, 4, 5. *Urban agriculture in the territory of the "Argel" Hotel, Orikum.*
Source: Author's survey.

This vegetation serves multiple functions, including generating economic benefits, providing environmental services, enhancing the urban landscape, offering shading, and creating recreational spaces (Table 3).

Activity	Olive Trees			Citrus Trees		Fruit Trees		Grape	
	No. of roots	Production (kg)	Oil Liter	No. of roots	Production (kg)	No. of roots	Production (kg)	No. of roots	Production (kg)
Car repair shop - Orikum	35	450	85	20	300	4	60	-	-
Olive factory – Orikum	18	320	65	10	180	6	90	2	40
"Argel" Hotel – Orikum	28	400	75	80	1560	6	45	-	-
"Arifi" Hotel – Radhimë	30	2200	290	5	100	4	40	-	-
"Alba-Beach" Hotel – Radhimë	40	2800	370	15	300	6	90	-	-
"Pashai" Hotel – Radhimë	25	1500	300	14	390	5	80	-	-
"Stela" Hotel – Radhimë	15	900	170	5	100	6	120	-	-
Hotel "Paradais" – Radhimë	5	50	-	30	250	-	-	-	-
Hotel "P.Lala" – Lushnja	3	80	-	50	700	20	310		40
Bar "*Liqeni Thatë*", Tirana	23	new	-	6	95	6	70		10
"*Këndi lojrave*" L. Thatë	18	260	-			12	190		
Bar-restaurant by the lake	7	210	-	6	150	9	185		5
Bar "Ermiri" by the lake	32	140	-	14	new	8	60		-

Table 3. *Urban agriculture in commercial areas of Orikum City and around Tirana Lake.*
Source: Author's survey.

4.4. Summary of findings

Urban and peri-urban agriculture in Albania primarily originates from community initiatives and traditional practices of home gardening, as well as small-scale cultivation within business premises and public spaces. However, despite the presence of suitable land resources, urban agriculture remains largely unstructured and underdeveloped. There are no comprehensive initiatives to fully realize its multifunctional potential in terms of economic, social, environmental, and health benefits, or its role in enhancing urban sustainability.

The study identified significant unused land resources within large cities and their surrounding peri-urban areas - highlighting both cases of active urban agriculture development and the general lack of understanding regarding its importance and potential.

Globally, urban agriculture contributes between 5-20% of total agricultural production, and Albania possesses the terrestrial resources necessary to develop this sector further.

Urban agriculture can serve multiple functions:

- Socio-economic, by generating income and providing employment opportunities, especially for disadvantaged communities (UNDP, 1996);
- Cultural and educational, by engaging young people and fostering community participation (PUVEP, 2011);
- Ecological, by maintaining biodiversity, improving the urban microclimate, and revitalizing abandoned or degraded spaces (Orsini & Kahane, 2013).

Despite its contributions to urban sustainability, urban agriculture in Albania is still not recognized as a strategic component within the urban planning process. There is a lack of national and local strategies, development programs, legislative frameworks, and dedicated initiatives to activate urban public spaces for food production or to support vulnerable communities.

Urban agriculture remains absent from development plans, landscape strategies, statistical indicators, and government agendas. Its current status is largely undocumented, and its future potential remains overlooked. Consequently, it is often marginalized or perceived merely as a traditional practice rather than as a dynamic urban resource capable of strengthening sustainability and improving urban well-being.

4.5. Environmental and food safety risks

Urban agriculture is an important economic activity for hundreds of millions of people worldwide. However, alongside its numerous benefits, it also poses environmental and food safety risks that must be carefully anticipated. These risks stem from factors such as the excessive use of pesticides and chemical fertilizers, soil contamination by heavy metals, industrial discharges, irrigation with polluted water, improper waste management, chemical pollution, and soil salinization.

Cofie et al. (2006) highlight the serious threat that pollution in rapidly expanding cities poses to public health. Integrating waste management with urban agriculture can help maintain a clean urban environment while simultaneously enhancing the production of fresh food (Buechler et al., 2006; Orsini et al., 2009).

In Albania, monitoring efforts have revealed significant soil pollution from heavy metals in areas surrounding mineral extraction and processing industries, as well as industrial zones. Soil monitoring around the former metallurgical plant in Elbasan has shown concentrations of nickel, chromium, cobalt, and lead that exceed EU standards by two to three times (Lushaj et al., 2005). Given these findings, there is a strong need for land rehabilitation programs and continuous monitoring of both soil and agricultural products.

5. Conclusion and recommendations

Urban agriculture must be conceptualized and promoted as a multifaceted opportunity that contributes to urban sustainability, food security, employment generation, the supply of fresh products, urban greenery, recreation, biodiversity conservation, human health, environmental education, and climate change mitigation. It also plays a role in improving air quality, reducing temperature and CO_2 concentrations, and enhancing overall environmental quality.

Urban agriculture should be integrated into urban planning processes, including general local plans, urban landscape plans, and statistical frameworks making it a clear governmental responsibility. It should not remain merely a traditional practice of small-scale gardening but should be organized and institutionalized across all levels of governance.

Albania possesses highly suitable conditions and sufficient land resources for the development of multifunctional urban agriculture across urban and peri-urban lands, public spaces, non-privatized plots, and business areas. Municipalities can play a key role by leasing public land to communities in need, associations, students, and low-income families' practices that currently remain underdeveloped.
Urban agriculture can include the cultivation of vegetables, fruits, citrus, olives, grapes, mushrooms, greenhouse crops, medicinal and aromatic plants, as well as flower and fruit seedling production. It can also encompass livestock breeding, urban forestry, and agroforestry, all of which generate considerable economic and environmental benefits.

Expanding urban agriculture requires the incorporation of diverse methods such as hydroponic systems, vertical farming, green roofs, community and school gardens, organic farming, and improved livestock management, supported by a robust data system to monitor growth and performance indicators.

To effectively promote urban agriculture, central and local authorities should develop and implement strategic action plans that ensure its integration within economic, social, and environmental systems. It should also be reflected in national and local spatial plans, landscape plans, and statistical systems, becoming part of Albania's broader development agenda.

The drafting and approval of appropriate legislation and regulatory frameworks are essential to guide urban agriculture practices and align them with sustainable development goals. Establishing a statistical database will facilitate the assessment of urban agriculture dynamics and the identification of potential land resources. Municipalities should manage public spaces efficiently, enabling the leasing of land for agricultural use, while institutions with technical expertise should build capacity and raise awareness among local governments, NGOs, and businesses.

The Ministry of Agriculture and Rural Development, together with relevant agencies, should draft regulations and strengthen management capacities to support urban agriculture. Both central and local governments need to back this sector through comprehensive programs focusing on livestock production, food production, forestry, and data management.

Finally, the development of urban agriculture should directly address social, economic, and environmental challenges through effective planning, policy-making, and institutional collaboration. The current lack of strategic planning and coordination across governance levels continues to limit the sector's full potential.

References

Altieri, M. A., & Nicholls, C. I. (1999). *Soil fertility management and insect pests: Harmonizing soil and plant health in agroecosystems.* Soil and Tillage Research, 50(3-4), 399-413. https://doi.org/10.1016/S0167-1987(99)00107-8

Armar-Klemesu, M. (2000). *Urban agriculture and food security, nutrition and health.* In N. Bakker, M. Dubbeling, S. Gündel, U. Sabel-Koschella, & H. de Zeeuw (Eds.), *Growing cities, growing food: Urban agriculture on the policy agenda* (pp. 99-117). Feldafing: DSE.

Barthel, S., & Isendahl, C. (2013). *Urban gardens, agriculture, and water management: Sources of resilience for long-term food security in cities.* Ecological Economics, 86, 224-234. https://doi.org/10.1016/j.ecolecon.2012.06.018

Barthel, S., Crumley, C., & Svedin, U. (2015). *Bio-cultural refugia – Safeguarding diversity of practices for food security and biodiversity.* Global Environmental Change, 34, 251-261. https://doi.org/10.1016/j.gloenvcha.2015.07.003

Borges, L., & Hannah, H. (2024). *Urban agriculture for a resilient future.* Journal of Urban Sustainability Studies, 12(1), 45-59. https://doi.org/10.1016/j.juss.2024.05.007

Buechler, S., Devi Mekala, G., & Keraita, B. (2006). *Wastewater use for urban and peri-urban agriculture.* In R. van Veenhuizen (Ed.), *Cities farming for the future: Urban agriculture for sustainable cities* (pp. 241-272). RUAF Foundation, IDRC & IIRR.

Cofie, O., Bradford, A. A., & Drechsel, P. (2006). *Recycling of urban organic waste for urban agriculture.* In R. van Veenhuizen (Ed.), *Cities farming for the future: Urban agriculture for sustainable cities* (pp. 207–240). RUAF Foundation, IDRC & IIRR.

Kucaj, E., & Gjoni, A. (2020). *The effect of extreme temperatures on human health as a result of climate change.* Knowledge – International Journal, 42(3), 543-548. https://www.researchgate.net/publication/359108667

Kucaj, E., Lushaj, S., Gjoni, A., & Osmani, M. (2024). *The effects of climate change on the agricultural sector in Albania.* E3S Web of Conferences, 585, 02008. https://doi.org/10.1051/e3sconf/202458502008

FAO, Rikolto, & RUAF. (2022). *Urban and peri-urban agriculture sourcebook – From production to food systems.* Rome: FAO and Rikolto. https://doi.org/10.4060/cb9722en

Grewal, P. S., & Grewal, S. K. (2012). *Can entomopathogenic nematodes be used in combination with entomopathogenic fungi for biological control of insect pests?* Biological Control, 61(3), 493–502. https://doi.org/10.1016/j.biocontrol.2012.03.007

Gunapala, R., Gangahagedara, R., Wanasinghe, W., Samaraweera, A., Gamage, A. A., Rathnayaka, C., Hameed, Z., Baki, Z., Madhujith, T., & Merah, O. (2025). *Urban agriculture: A strategic pathway to building resilience and ensuring sustainable food security in cities.* Journal of Sustainable Urban Systems, 19(2), 112-130. https://doi.org/10.1016/j.jsus.2025.02.011

Kennard, N. J., & Bamford, R. H. (2020). *Urban agriculture: Opportunities and challenges for sustainable development.* In W. Leal Filho et al. (Eds.), *Zero Hunger – Encyclopedia of the UN Sustainable Development Goals.* Springer, Cham. https://doi.org/10.1007/978-3-319-95675-6_102

Lang, G., & Miao, B. (2013). *Food security for China's cities.* International Planning Studies, 18(1), 5-20. https://doi.org/10.1080/13563475.2013.750940

Lohrberg, F., Licka, L., Scazzosi, L., & Timpe, A. (Eds.). (2016). *Urban Agriculture Europe.* Jovis Verlag. ISBN 978-3-86859-371-6

Lushaj, Sh., Haskocelaj, A., & Gjimara, M. (2020, 2024). *Studies on urban agriculture in the municipalities of Vlora, Orikum, Radhimë, and Tirana.* Institute of Geosciences, Energy, Water and Environment (IGEWE).

Lushaj, Sh., & Xhemollari, J. (2018). *Study of agriculture in urban gardens of Elbasan City.* Institute of Geosciences, Energy, Water and Environment.

Lushaj, Sh., Laze, P., Ruka, E., Kovaci, V., Belalla, S., Mani, A., & Dedej, Z. (2005). *Soil and water monitoring.* (Monograph). Agricultural University of Tirana.

Municipality of Vlora. (2018). *General Local Plan for Development of the Territory.* Retrieved from https://planifikimi.gov.al/index.php?id=732

Margaras, V., & Michelogiannaki, P. (2025). *Urban agriculture: State of play in Europe.* European Parliamentary Research Service. https://doi.org/10.2861/876541

Orsini, F., Michelon, N., Scococza, F., & Gianquinto, G. (2009). *Farmers-to-consumers: An example of sustainable soilless horticulture in urban and peri-urban areas.* Acta Horticulturae, 809, 209-220. https://doi.org/10.17660/ActaHortic.2009.809.27

Orsini, F., Kahane, R., Nono-Womdim, R., & Gianquinto, G. (2013). *Urban agriculture in the developing world: A review.* Agronomy for Sustainable Development, 33(4), 695-720. https://doi.org/10.1007/s13593-013-0143-7

PUVEP. (2011). *Urban horticulture for youth engagement: Cultivating knowledge and well-being.* Phnom Penh Urban Vegetable Project (PUVEP).

United Nations Development Programme (UNDP). (1996). *Urban agriculture: Food, jobs, and sustainable cities.* New York: United Nations Development Programme.

Vejre, H., Eiter, S., Hernández-Jiménez, V., Lohrberg, F., Loupa-Ramos, I., Recasens, X., Pickard, D., Scazzosi, L., & Simon-Rojo, M. (2015). *Can agriculture be urban?* In F. Lohrberg, L. Licka, L. Scazzosi, & A. Timpe (Eds.), *Urban Agriculture Europe* (pp. 32-44). Jovis Verlag. ISBN 978-3-86859-371-6

State Planning Commission, Republic of Albania. (Komisioni i Planit të Shtetit, Republika e Shqipërisë). (1990). *Statistical Yearbook (Vjetari Statistikor 1990).*