

URBAN AGRICULTURE OF BUCHAREST

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Abstract

The zone of influence of Bucharest is over five counties, with predominantly rural combinations mixed with urban functionalities. The city capitalizes dynamically from an economic point of view, there are unique opportunities for dissemination and application of technological, social and cultural ideas. Why agriculture in the city, because it encourages innovation, niche opportunities, but in the long run these activities can return to (have a high chance of returning to) the countryside. Urban trade domestic agricultural and food depends on municipal support. Regulations on land use, facilities, access to various resources and the "garbage" generated by the community through regulations and the security of urban spaces in the broadest sense are essential for harmonious development. If the current population remains indifferent to the realization of the current procedures, transformations and environmental conditions that will have an impact on the future daily life, of culture, art and the city identity. The national program for support and applicability in urban agriculture in Romania is the "Minimum Program" for tomatoes and garlic, the most visible. The national action plan on climate change provides for the sustainability of agriculture and the greening of as large a percentage as possible, by creating of groups, the practice of works for friendly agriculture, but also the creation of local parts under shared responsibility. Urban agriculture is a hidden field in Bucharest, for these activities, but also from gardening, the analysis associated with consumption, reduction of fossil fuel and water resources is necessary, with an increased attention on the practices and policies regarding urban food strategies in the context of intelligent development of common living spaces with social, cultural and ecological impact. Satellite images and multi-criteria analysis of spatial land use conflicts in the Bucharest area, allows the observation of major changes, for example the central area through the communist project "Civic Centre" is a major change in the dynamics of the locality. These methods are crucial in achieving current and future urban regulations. Green infrastructure in cities should also include urban agronomic activities with unique challenges other than conventional agriculture.

Key words: Bucharest, urban agriculture, Romania.

INTRODUCTION

In Figure 1 below, it's the town planning of Bucharest, officially regulated by the authorities.



Figure 1. P.U.G. Map of Bucharest

The city is economically dynamic, applying ideas technological, social and cultural as seen in the maps above at the introductory level (Figure 2).

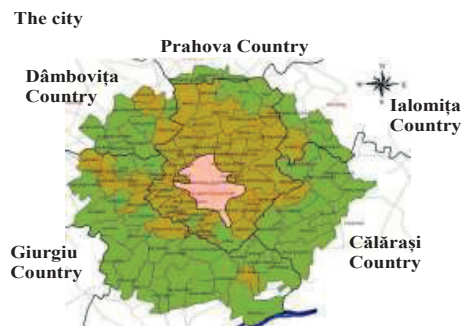


Figure 2. The influence of Bucharest
(Source <https://ilfov.inss.ro/>)

The area of influence of Bucharest is over five counties, with predominantly rural

combinations mixed with urban functionalities. The city capitalizes dynamically from an economic point of view, there are unique opportunities for dissemination and application of technological, social and cultural ideas (Figure 3).



Figure 3. Group of maps on different topics
(Source www.google.ro/maps & <https://ilfov.insse.ro/>)

Why agriculture in the city, at the educational level concerns are for the daily life, the contributions of USAMV of Bucharest in agriculture and products (food) through analyses, publications, researches that have implications in the urban environment as well. This relationship of the city's inhabitants with the urban anthropic nature green, regenerates the human spirit through the participation of the plant microlocat in the heart of the Romanian capital, the urban green space must stay and grow to support the physical, mental, spiritual and cultural health of citizens (Tronac et al., 2013).

MATERIALS AND METHODS

The method used was by analyzing the reports and open data from various public entities, together with the identification of the most relevant scientific articles, which are related to urban agriculture in Bucharest.

RESULTS AND DISCUSSIONS

Through the studies made in the periurban agricultural area of Bucharest mentioned below, there is a fairly high interest in plant adaptations and diversification.

The potato (*Solanum tuberosum* L.) is an important plant in the world, but also in Romania. The researchers from the didactic farm in 2013, checked three varieties of potatoes for the conditions in the area, cultivated non-irrigated and irrigated. The *Bellarosa* variety ranks first in terms of yield. "The specific cultivation conditions for Moara

Domneasca ensure a high yield of tubers and a commercial quality of the potato, which offers the possibility to cultivate the potato in the periurban area of Bucharest." (Marin et al., 2014).

Certain varieties of *Ribes* sp., *Prunus* sp., and other recommended by results of cultivation in urban and periurban gardens in Bucharest, agroecosystem (Bălan et al., 2014).

Based on the results observed by this team, they recommended certain varieties of *Ribes* and *Prunus* with the possibility of cultivation in urban and periurban gardens in Bucharest, providing details about the qualities of varieties and biotypes analyzed in different ecological, biochemical environments in an agroecosystem (Marin et al., 2014).

Also, the University of Bucharest, the Faculty of Biology through the Botanical Garden has a section of the Grandmother's Garden aims at a symbolic model of the traditional Romanian gardens in which vegetables, flowers, medicinal and aromatic plants, shrubs and fruit trees are well highlighted and sustainable for the botanical species and varieties consumed in the history of European food, gradually abandoned with the spread of plants brought from the New World. These sections of the Botanical Gardens have an educational purpose for visitors in terms of the diversity of food plants. These areas can be included as urban agriculture with a strong educational and biological character for the visiting public. It is the most visible UAB place in the Romanian Capital.

The need to identify climate-resistant roses in the SE area of Romania using the PCR-ISSR technique, 11 species and their variations were selected for their ability to produce informative patterns with genetic diversity. The ISSR method proved to be adequate and allowed the precise DNA imprinting for the exact identification and tracking of the varieties of roses (Duță-Cornescu et al., 2017).

The Botanical Garden has, among other sections, two symbolic models for botanical species and varieties for consumption. Visitors can observe the diversity of food possibilities, these places can be included as urban agriculture with a strong informative and biological character

Presented projects, but not only, it can be included in a percentage in urban agriculture, but they have a pronounced pedagogical character (didactic) with the final purpose of offering on the Romanian and European labor market specialties' in the agronomic field.

Urban trade domestic agricultural and food depends on municipal support (FAO, 2019).

The organizations based in Bucharest, which have the field of activity of agriculture or associated with it are very many and it was very difficult to disseminate the entities that actually carry out agriculture in Bucharest. There are only a few of these organizations and associations that have dealt with urban agriculture and such kinds projects.

A detailed analysis of how vegetables that play a key role are marketed and capitalized, which are sold with the attention to health, under possible and existing conditions, without damaging at markets in shops, supermarkets and traditional agrarian-food areas in Bucharest. The conclusion of the study is that all categories of stores are important for fresh fruits and vegetables, also relevant is the fact that the retail chain is important for local products, but with a number of deficiencies in product information, in large fresh product chains they are predominantly imported, as the required requirements cannot be met by many local producers (Ionescu et al., 2014).

The agricultural activity in Bucharest as UAB, are about 4-5 companies, but to determine how much of their producers is local, according to the unique agricultural register from DAMB is very difficult due to lack of data.

It is interesting that in the locality there are plant species keepers, which can be included in urban agriculture with planting material from the urban area.

On the other hand, in the agricultural register Bucharest I did not find an agricultural association or a cooperative that includes producers from the municipality, but there are numerous associations and agronomic organizations based fiscal, with members in different association systems, but which carry out the production in other places.

However, there is an active species that contains the name of the city, for the vine = "Muscat timpuriu de București", holder code 1059, from 1970.

Horizon 2020 - Call - Food and Natural Resources (H2020-FNR-2020) a vision for urban agriculture is the development and conflicting landscapes with different land uses and economic activities. The benefits are biodiversity, ecological infrastructure, climate and improved urban-rural connections. Through new business models based on urban agriculture will improving food security. But threats like aquifers from Montes Torozos (Spain) with high vulnerability, taken into account and identification of their source (Martinez-Allegri et al., 2014).

Presented results for 2007-2014 at USAMV Bucharest campus for eco-economic sustainability and biopomiculture by growing trees and shrubs of different species and their varieties, monitoring the adaptations to the urban area, which concludes that it is an UAB with developmental and pedagogical characteristics (Bălan et al., 2015).

The national program for support and applicability in urban agriculture in Romania is the "Minimum Program" for tomatoes and garlic, the most visible. The national action plan on climate change provides for the sustainability of agriculture and the greening of as large a percentage as possible, by creating of groups, the practice of works for friendly agriculture, but also the creation of local parts under shared responsibility.

In Bucharest, one applied for this funding program, according to the DAMB reports.

If the current population remains indifferent to the realization of the current procedures, transformations and environmental conditions that will had an impact on the future daily life, of culture, art and the city identity.

Regulations on land use, facilities, access to various resources and the rubbish generated by the community, through regulations and the security of urban spaces in the broadest sense are essential for harmonious development.

The characteristics of Bucharest compared to the surrounding area.

From these data we notice very large discrepancies between Bucharest, which has a population 4 times larger and 7 times less land than Ilfov (Table 1).

Table 1. Comparative densities between Bucharest and Ilfov County (According to <https://ilfov.insse.ro>)

	Bucharest	Ilfov	Share	
Population	1,940,000	451,839	4.294	0.233
Surface (ha)	23,787	158,300	0.150	6.655
Density (pop./ha)	81,557	2,854		

Also on the map (Figure 4) you can see local densities around the metropolis.



Figure 4. Density map of population by locality, Ilfov County (Source <https://ilfov.insse.ro>)

Part of the capital's population almost certainly works in the "frontier" area of Bucharest. The dominant agricultural character of Ilfov County according to the 2018 report DJS -

ILFOV (Table 2) graphically expressed in Figure 5.

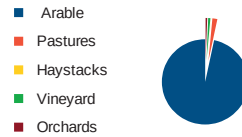


Figure 5. The proportion by categories of land existing in Ilfov County (According to INSSE - DJS - ILFOV)

The dominant urban character of Bucharest Municipality according to the 2019 report DRSMB (Table 3) graphically expressed in Figure 6, the city has approximately 12% agricultural land, ~ 52% of arable and 28% cultivated of it.

Urban agriculture is a hidden field in Bucharest, for these activities, but also from gardening, the analysis associated with consumption, reduction of fossil fuel and water resources is necessary, with an increased attention on the practices and policies regarding urban food strategies in the context of intelligent development of common living spaces with social, cultural and ecological impact.

Table 2. Existing categories and areas of land in Ilfov County and the level of use of arable land (According to INSSE - DJS - ILFOV)

Lands Ilfov County (ha)	Base 2014	Used agricultural landscapes		
Total	158,328	2016	2018	%
Agricultural	101,453			
Arable	98,080	64,454	66,769	68.08
Pastures	1,875			
Haystacks	58			
Vineyard	812			
Orchards	628			
Degraded	1,162			

Table 3. Existing categories and areas of land in Bucharest and the level of use of arable land (Date according to INSSE – DRSMB 2019)

Lands of Bucharest (ha)	Base 2013	Arable land			
Total	23,787	2017	2018	2019	%
Agricultural	3,052	12.83%			
Arable	2,566	1,461	1,609	1,608	52.69%
	Arable seeded	581	481	459	28.54%
Forests	611				
Waters	908				
Other	19,216				

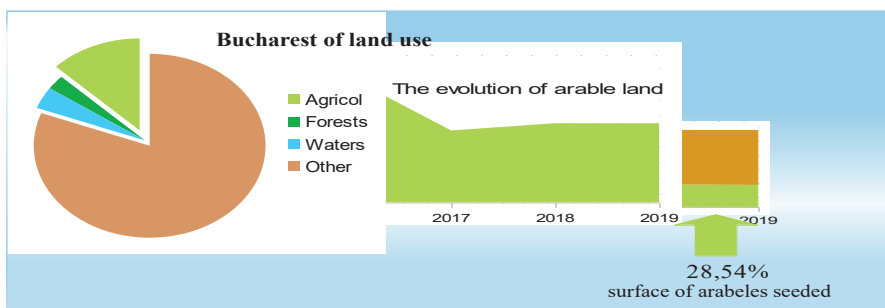


Figure 6. The proportion by categories of land existing in Bucharest (Date from INSSE - DRSMB 2019)

Urban NGOs, especially in Bucharest, are very numerous, with many activities and numerous partnerships. Of these, there are very few projects on UAB carried out and in continuous expansion, which are laudable, some more visible, others less, but some projects initiated a few years ago have been started and abandoned. In Bucharest there are 5-6 organizations that deal directly with the promotion and implementation of urban agriculture projects. There are also (2-3) individual UAB initiatives promoted on Facebook, but I am convinced that in the suburbs and houses in Bucharest, where there is a green space, there are residents who practice gardening for their own consumption, but are not associated or do not have a legal form. The multi-criteria spatial analysis (Figure 7) of the land use allows the observation of the locality changes, for the future and present urban regulations. (Loghin and Murătoareanu, 2011), (Ioja et al., 2013)

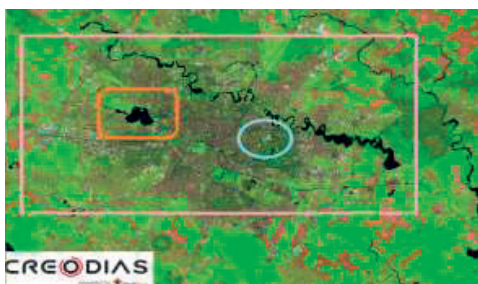


Figure 7. A multi-criteria spatial analysis model (Source: <https://creodias.eu/>)

Green in cities should also to include urban agronomic activities (Bohn K. and Viljoen A., 2015)

CONCLUSIONS

Urban Agriculture of Bucharest (UAB) can invents, learn, cure and gardens, with a vision for biodiversity, sustainability and regulation of urban spaces, which are essential, increases the impact of food and practice gardening, but the indifference, standards not achieved by locals, and the Bucharest support just few urban farmers, can't reach to be a Green-city, without a variety of land use, including agronomic activities among others.

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