

How urban food gardening fits into city planning

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METHODS, TOOLS AND BEST PRACTICES

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## THE CITY CHALLENGES AND EXTERNAL AGENTS. METHODS, TOOLS AND BEST PRACTICES

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The cover image shows the Irpinia hills at sunset, highlighting the enhancement of two renewable energy sources: sun and wind.  
The photo was taken by Giuseppe Mazzeo in August 2022, in S. Andrea di Conza, Avellino, Italy.

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## How urban food gardening fits into city planning

Evidences from Italy

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### Abstract

The international planning agenda is opening its attention to the integration of food systems in urban planning and, consequently, to Urban Agriculture (UA). However, what UA and, particularly, Urban Food Gardening (UFG) mean in terms of city planning and urban space management have been less explored by the academic point of view. Here we propose a frame to analyse UFG practices in relation with land use and zoning, land property, management and urban regulations. By an empirical analysis of a thirty case studies in Italian metropolitan cities, we show that the Italian panorama of UA practices is wide and varied, and that the recent policies aimed at promoting UFG adopt different tools, according to path-dependencies and different actors involved in defining urban agendas. However, the Italian planning system has not yet integrated UA within its planning tools in a structured way. Current trends regard to the adoption of UA-related policies, strategies, plans and regulations has been highlighted, in order to identify possible points of attention for the development of UA in the European context.

### Keywords

Urban agriculture; Urban Food Gardening; City planning; Urban planning; Governance.

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## 1. Integrating Food Production into City Planning: key issues

Urban Agriculture (UA) is experiencing a strong revival out of its ability to coping with diverse development challenges. It can represent a policy in achieving planning goals related to sustainable city form and function, urban environmental management, and community development. It is being promoted to meet the objectives of numerous policy fields, such as urban development, green space development, poverty alleviation, economic growth, improved health outcomes, environmental management, social interaction and community strengthening (Contesse et al., 2018; Horst et al., 2017; Mougeot, 2000; Prové, 2018). Moreover, UA represents an entry point for integrating also food system planning into the planning agenda of cities (Cabannes & Marocchino, 2018).

However, the current state demonstrates that often Urban Agriculture goes unregulated in many contexts, creating policy vacuums that could lead to conflicts between practitioners, regulators and politicians, limiting the potential of implementing these practices in urban environments (Meenar et al., 2017). Cities require an enabling policy framework to guide the implementation and enhancement of Urban Agriculture. Institutionally, this framework should acknowledge that UA can fall under the jurisdiction of several different levels and types of authorities, according to the policy realm in which it is integrated and with what kind of intent (Mubvami et al., 2006). Integration of Urban Agriculture in land-use planning has been rarely considered in top-down urban planning systems (as we will show with reference to the Italian context). Often Urban Agriculture practices are implemented and spread spontaneously from the bottom-up. Where Urban Planning is characterised by long-range comprehensive planning, which adopt a blue-print approach, this has negatively affected the integration of Urban Agriculture (*ibid.*). As a result, in most cities UA is ignored, not addressed by urban policies and, even when regulation on UA exists, this is often not under an overall policy. In addition, another key issue is that usually UA is simply not recognized as a land-use activity and not acknowledged as a valid urban land use (Quon, 1999). Generally, UA suffers from a combination of political restraints, that can include restrictive urban policy, law and regulation. The lack of formal recognition of UA in planning policies could lead to land use issues, specifically availability, access and usability of land. Land speculation, infrastructures and facilities availability, or political and social constraints, could also influence UA (*ibid.*). In addition UA can take place in all urban contexts, from the built-up downtown areas to the open space of peri-urban areas. For these reasons, UA requires different knowledge and planning approaches, since the two contexts differ in their setting, development perspectives and therefore regulation needs. They request different strategies, for example: while in more urban areas land allocation is the main issue, in peri-urban contexts the focus is more on land protection through fore-front appropriate zoning measure and policies, since land conflicts due to urban sprawl and the conversion of agricultural land to urban uses is a particular concern (Drescher, 2001).

The purpose of this research is to explore the current state of Urban Agriculture practices in the Italian context, in order to investigate possible links or interactions between Urban Agriculture and City Planning. This research was carried out through the comparative analysis of case studies primarily focus on Urban Gardens initiatives, which represent the most popular In Italian Cities and in their policies, in order to answer the research question on what Urban Food Gardening means and represents from the perspective of urban planning and management of urban spaces.

A first section illustrates the methodology applied in this research, based on the analysis of multiple case studies of Urban Food Gardening (UFG) in the cities of Bologna, Milan, Rome and Turin. The results will then follow, highlighting the status of UFG policies and path-dependencies in each context and the integration of UA into local City Planning tools, focusing on the emerging trends and solutions adopted, distinguishing between UFG on public or private land. The conclusions section will highlight limits and opportunities of this research and new perspectives in order to integrate Urban Food Gardening into city planning in Italy and in the European context.

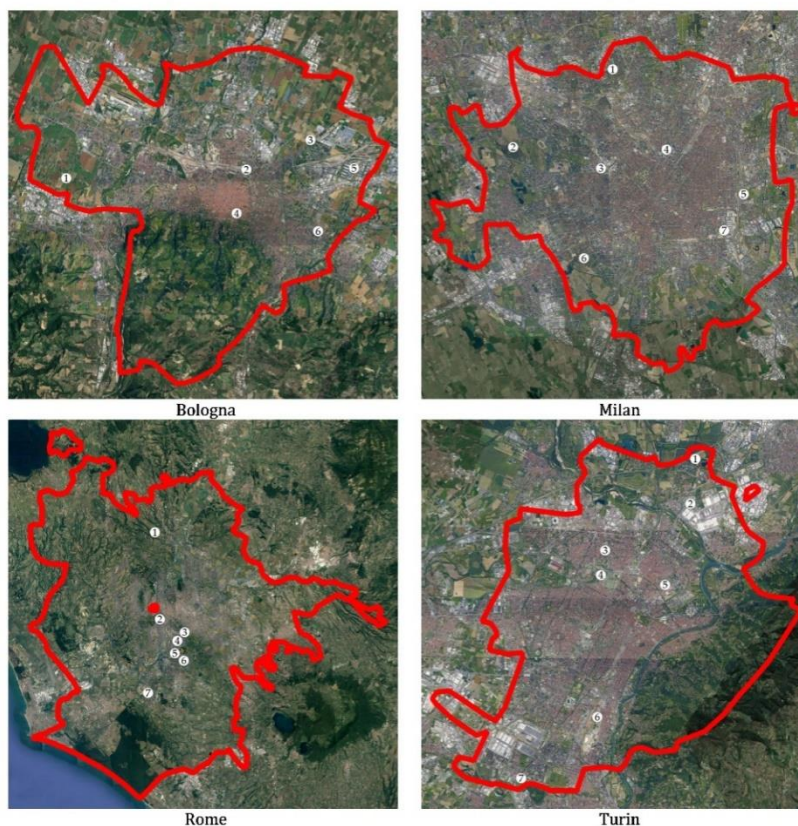
## 2. Method. An empirical analysis of practices in Italian cities

### 2.1 Selection of case studies at city level

In order to deepen the Italian panorama relating to Urban Agriculture and explore its interaction with the urban planning systems and the management of urban spaces, this research is based on the selection and comparative reading of case studies of Urban Food Gardening (UFG) practices. According to Lohrberg et al. (2016), UFG mainly refers to non professional agricultural activities (production of food for other goals), while UF refers to farm enterprises. Four of the main Italian cities that in recent years have shown particular propensity to the issue of Urban Agriculture were selected: Bologna, Milan, Rome and Turin (Fig.1). These four Metropolitan Cities<sup>1</sup> have experiences related to Food Gardening in urban and peri-urban areas rooted in time and in local communities, very active and involved in the formulation and implementation of specific policies on this issue. The case studies identified as relevant for this study are 27 practices.



- Bologna: 1-Villa Bernaroli; 2-Greenhousing; 3-Orti Salgari; 4-Orti di Via Orfeo; 5-Ortocircuito Spazio Battirame; 6-Orti Condivisi Peppino Impastato
- Milan: 1-Il Giardino degli Aromi; 2-Orti Spiné Boscoincittà; 3-Orti Fioriti CityLife; 4-Coltiviamo Insieme; 5-CasciNet; 6-Orti di Via Chiodi; 7-Orti Parco Alessandrini
- Rome: 1-Orti di Veio; 2-American Academy in Rome; 3-Hortus Urbis; 4-Orti Garbatella; 5-Orti Tre Fontane; 6-Ortolino; 7-Parco Ort9 Casal Brunori
- Turin: 1-Orti Laghetti di Falchera; 2-Orto Fai Da Noi Leroy Merlin; 3-OrtoAlto Ozanam; 4-Orti Al Centro Parco Dora; 5-Orto Urbano Lidl; 6-Or-To Eataly Lingotto; 7-Orti Generali



**Fig.1 Location of UA Practices examined**

<sup>1</sup> The Metropolitan City is a local administrative body, with special legislative power and competences compared to Provinces.

## 2.2 Data collection and policy review

Being based on the case studies methodology, the research combined multiple sources in order to identify the urban policy framework in each selected city, the state of the art and trends related to UFG. This phase includes the collection and consultation of formal and informal documents, mainly urban planning tools (Tab.1) and policy documents (Tab.2), reports and annexes of territorial and urban planning tools, survey and mapping initiatives, research reports, documents produced in the context of research networks and projects, newspaper items, social media, websites and newsletters.

City	Level	Document title	Type	Producer, year	Source (available from)
Bologna	Municipal	Municipal Structural Plan ( <i>PSC</i> )	Strategic Masterplan	City of Bologna, 2009	<a href="http://dru.iperbole.bologna.it/categorie-pianificazione/piano-strutturalecomunale-psc">http://dru.iperbole.bologna.it/categorie-pianificazione/piano-strutturalecomunale-psc</a> (last access 15 <sup>th</sup> May 2021)
		Regulation on public and private greenery (Urban Building Regulation)	Regulation	City of Bologna, 2020	<a href="http://sit.comune.bologna.it/alfresco/d/d/workspace/SpacesStore/b25b3048-a733-4c02-9563-abfa6151005d/RE_AllegatoRegolamentoVerdePubblicoPrivato.pdf">http://sit.comune.bologna.it/alfresco/d/d/workspace/SpacesStore/b25b3048-a733-4c02-9563-abfa6151005d/RE_AllegatoRegolamentoVerdePubblicoPrivato.pdf</a> (last access 15 <sup>th</sup> May 2021)
Milan	Municipal	Territorial Governance Plan ( <i>PGT</i> ) – Milan 2030	Strategic Masterplan	City of Milan, 2019	<a href="http://allegati.comune.milano.it/territorio/PGT_BURL/1_DP/1_DP_Relazione_generale.pdf">http://allegati.comune.milano.it/territorio/PGT_BURL/1_DP/1_DP_Relazione_generale.pdf</a> (last access 21 <sup>st</sup> April 2021)
		Public Facilities Plan ( <i>PdS</i> )	Sectorial Plan	City of Milan, 2019	<a href="https://www.pgt.comune.milano.it/piano-dei-servizi">https://www.pgt.comune.milano.it/piano-dei-servizi</a> (last access 21 <sup>st</sup> April 2021)
Rome	Municipal	Comprehensive Masterplan ( <i>PRG</i> )	Based on non-functional zoning	City of Rome, 2008	<a href="http://www.urbanistica.comune.roma.it/images/uo_urban/prg_adottato/D1.pdf">http://www.urbanistica.comune.roma.it/images/uo_urban/prg_adottato/D1.pdf</a> (last access 28 <sup>th</sup> April 2021)
		Regulation on public and private greenery	Regulation	City of Rome, 2021	<a href="https://www.cartainregola.it/wp-content/uploads/2021/01/REGOLAM-VERDE-testo-coordinato-12-01-21.pdf">https://www.cartainregola.it/wp-content/uploads/2021/01/REGOLAM-VERDE-testo-coordinato-12-01-21.pdf</a> (last access 28 <sup>th</sup> April 2021)
Turin	Metropolitan	Comprehensive Masterplan ( <i>PRG</i> )	Based on functional zoning	City of Turin, 1995	<a href="http://geoportale.comune.torino.it/web/governo-del-territorio/piano-regolatore-generale">http://geoportale.comune.torino.it/web/governo-del-territorio/piano-regolatore-generale</a> (last access 18 <sup>th</sup> May 2021).
		Preliminary Project	<i>PRG</i> Revision	City of Turin, 2020	<a href="http://www-portale-coto.territorio.csi.it/web/relazioneillustrativa-generale-e-scheda-quantitativa-dei-dati-urbani">http://www-portale-coto.territorio.csi.it/web/relazioneillustrativa-generale-e-scheda-quantitativa-dei-dati-urbani</a> (last access 25 <sup>th</sup> May 2021)

**Tab.1 Urban Planning tools**

City	Level	Document title	Type	Producer, year	Source (available from)
	Metropolitan	Metropolitan Strategic Plan: Metropolitan Agriculture	Strategy	Bologna Metropolitan Authority, 2013	<a href="https://psm.bologna.it/Engine/RAServeFile.php/f/Progetti/4.16_AGRICOLTURA-METROPOLITANA.pdf">https://psm.bologna.it/Engine/RAServeFile.php/f/Progetti/4.16_AGRICOLTURA-METROPOLITANA.pdf</a> (last access 15 <sup>th</sup> April 2021)
		<i>Città-Campagna</i> Agricultural Park	Strategy & Agreement	Bologna Metropolitan Authority, 2010	<a href="https://www.cittametropolitana.bo.it/pianificazione/Pianificazione_del_territorio/Progetti_Metropolitani/Parco_Citta_Campagna">https://www.cittametropolitana.bo.it/pianificazione/Pianificazione_del_territorio/Progetti_Metropolitani/Parco_Citta_Campagna</a> (last access 20 <sup>th</sup> April 2021)
Bologna	Municipal	Bologna city of urban gardens	Strategy	City of Bologna, 2014	<a href="http://www.comune.bologna.it/media/files/relazione_orti_urbani_a_bologna.pdf">http://www.comune.bologna.it/media/files/relazione_orti_urbani_a_bologna.pdf</a> (last access 10 <sup>th</sup> June 2021)
		<i>Ortpertutti</i>	Report	Urban Center Bologna	<a href="https://www.fondazioneinnovazioneurbana.it/images/ORTIPERTUTTI/ortipertutti_digitale.pdf">https://www.fondazioneinnovazioneurbana.it/images/ORTIPERTUTTI/ortipertutti_digitale.pdf</a> (last access 6 <sup>th</sup> April 2021)
	Municipal	Urban Gardens Regulation	Regulation	City of Bologna, 2009	<a href="http://www.comune.bologna.it/media/files/regolamento_per_la_conduzione_e_la_gestione_dei_terreni_adibiti_ad_ree_ortive_1.pdf">http://www.comune.bologna.it/media/files/regolamento_per_la_conduzione_e_la_gestione_dei_terreni_adibiti_ad_ree_ortive_1.pdf</a> (last access 15 <sup>th</sup> May 2021)
		Regulation on Urban Commons	Regulation	City of Bologna, 2014	<a href="http://partecipa.comune.bologna.it/sites/comunita/files/allegati_blog/odg_172_reg.beni_comuni_urbani_pg_n_45010_2014.pdf">http://partecipa.comune.bologna.it/sites/comunita/files/allegati_blog/odg_172_reg.beni_comuni_urbani_pg_n_45010_2014.pdf</a> (last access 15 <sup>th</sup> May 2021)
Milan	Regional	<i>Milano Metropoli Rurale</i>	Agreement	Milan Metropolitan authority, 2015	<a href="https://www.milanometropolitaurale.regione.lombardia.it/wps/portal/site/milanometropolitaurale">https://www.milanometropolitaurale.regione.lombardia.it/wps/portal/site/milanometropolitaurale</a> (last access 29 <sup>th</sup> April 2021)
	Metropolitan	Milan Agricultural Park	Agreement	Milan Metropolitan Authority, 2016	<a href="https://www.cittametropolitana.mi.it/parco_agricolo_sud_milano/territorio_e_pianificazione/il_territorio_in_cifre.html">https://www.cittametropolitana.mi.it/parco_agricolo_sud_milano/territorio_e_pianificazione/il_territorio_in_cifre.html</a> (last access 29 <sup>th</sup> April 2021)
	Municipal	Milan Food Policy	Policy	City of Milan, 2015	<a href="https://foodpolicymilano.org/">https://foodpolicymilano.org/</a> (last access 12 <sup>th</sup> May 2021)
		Regulation on Urban Commons	Regulation	City of Milan, 2019	<a href="https://www.comune.milano.it/documents/20126/200092257/Regolamento+Disciplina+Beni+Comuni.pdf/e429814f-20bd-b311-a542-02979673b66?t=1565365393504">https://www.comune.milano.it/documents/20126/200092257/Regolamento+Disciplina+Beni+Comuni.pdf/e429814f-20bd-b311-a542-02979673b66?t=1565365393504</a> (last access 30 <sup>th</sup> April 2021)
		Urban Gardens Regulation	Regulation	City of Milan, 2012	<a href="https://www.comune.milano.it/documents/77612408/182330086/Regolamento_Orti_def_timbrato.pdf/af02bf0a-b724-28b5-f021-db32517a3a93?t=1633964595534">https://www.comune.milano.it/documents/77612408/182330086/Regolamento_Orti_def_timbrato.pdf/af02bf0a-b724-28b5-f021-db32517a3a93?t=1633964595534</a> (last access 30 <sup>th</sup> April 2021)
Rome	Metropolitan	Strategies and policies on <i>Agro Romano Antico</i>	Strategy	Rome Metropolitan Authority, 2015	<a href="https://www.cittametropolitanaroma.it/homepage/aree-tematiche/ambiente/aree-protettute-della-floradella-biodiversita/i-progetti/tutela-valorizzazione-dellagro-romano-antico/">https://www.cittametropolitanaroma.it/homepage/aree-tematiche/ambiente/aree-protettute-della-floradella-biodiversita/i-progetti/tutela-valorizzazione-dellagro-romano-antico/</a> (last access 24 <sup>th</sup> April 2021)
	Municipal	Report on Environment and Agriculture	Report	City of Rome, 2011	<a href="https://pdfslide.net/documents/relazione-sullo-statodellambiente-agricoltura-cibo-per-la-citta-13-le-aziende.html">https://pdfslide.net/documents/relazione-sullo-statodellambiente-agricoltura-cibo-per-la-citta-13-le-aziende.html</a> (last access 5 <sup>th</sup> May 2021)

	Report on Urban Gardens	Report	City of Rome, 2020	<a href="http://www.hortusurbis.it/wp-content/uploads/2020/03/Bilancio-Roma-Orti-2020_.pdf">http://www.hortusurbis.it/wp-content/uploads/2020/03/Bilancio-Roma-Orti-2020_.pdf</a> (last access 2 <sup>nd</sup> April 2021)
	Food Policy Proposal	Policy	City of Rome, 2019	<a href="http://www.terraonlus.it/wpcontent/uploads/2017/03/Food-Policy-Roma.pdf">http://www.terraonlus.it/wpcontent/uploads/2017/03/Food-Policy-Roma.pdf</a> (last access 28 <sup>th</sup> April 2021)
	Urban Gardens Regulation	Regulation	City of Rome, 2015	<a href="https://www.comune.roma.it/web-resources/cms/documents/Delib_N_38_17.07.2015.pdf">https://www.comune.roma.it/web-resources/cms/documents/Delib_N_38_17.07.2015.pdf</a> (last access 28 <sup>th</sup> April 2021)
Metropolitan	Food Atlas	Atlas	public partnership, 2017	<a href="https://atlatedelcibo.it/2017/05/27/i-molteplici-volti-dellorticoltura-a-torino/#_ftnref2">https://atlatedelcibo.it/2017/05/27/i-molteplici-volti-dellorticoltura-a-torino/#_ftnref2</a> (last access 2 <sup>nd</sup> April 2021)
	Food Policy	Policy	Turin Metropolitan Authority, 2015	<a href="http://www.cittametropolitana.torino.it/cms/agri-mont/politiche-alimentari/nutrire-to-metro">http://www.cittametropolitana.torino.it/cms/agri-mont/politiche-alimentari/nutrire-to-metro</a> (last access 15 <sup>th</sup> April 2021)
Turin	Green Infrastructure Strategic Plan	Strategy	City of Turin, 2020	<a href="http://www.comune.torino.it/verde-pubblico/2020/altrenews20/piano-strategico-infrastruttura-verde.shtml">http://www.comune.torino.it/verde-pubblico/2020/altrenews20/piano-strategico-infrastruttura-verde.shtml</a> (last access 5 <sup>th</sup> April 2021)
	Urban Gardens Regulation	Regulation	City of Turin, 2013	<a href="http://www.comune.torino.it/regolamenti/363/363.htm">http://www.comune.torino.it/regolamenti/363/363.htm</a> (last access 5 <sup>th</sup> April 2021)
	Regulation on Urban Commons	Regulation	City of Turin, 2020	<a href="http://www.comune.torino.it/benicomuni/co-city/index.shtml">http://www.comune.torino.it/benicomuni/co-city/index.shtml</a> (last access 5 <sup>th</sup> April 2021)

**Tab.2 Main policy documents relating to UA**

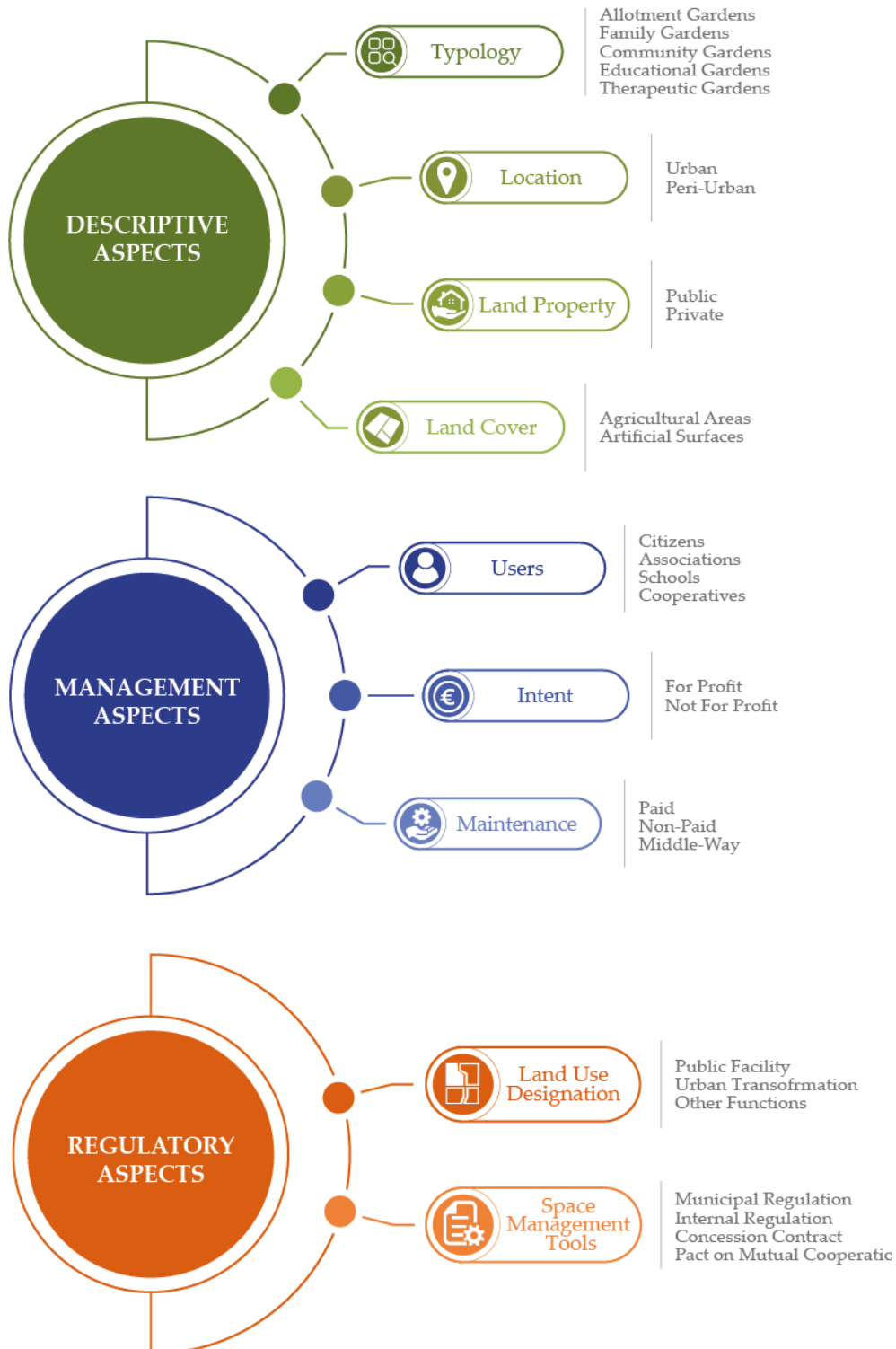
### 2.3 A framework to interpret and classify Urban Food Gardening practices

In each city five different typologies of Urban Gardens has been identified and classified on the basis of three main dimensions (Fig.2; see also Appendix 1 - Case Studies Summary Tables): first, Site Description (UA type, location, land cover and ownership) (i); second, Management (users, intent, mantainance) (ii); third, Regulation (land use designation, space management tools, regulatory instruments in force) (iii). The management section investigates aspects related to the main users to whom the case study is addressed, the maintenance methods in terms of economic sustainability, and any use of contract or concession instruments between public and private actors. The regulation section focuses on the regulatory instruments in force, in order to understand the solutions adopted, such as urban planning tools, building regulations, green regulations and plans, instruments concerning urban commons management or specifically addressed to urban vegetable gardens ruling.

The typologies of Urban Gardens were classified according to Lohrberg et al. (2016): Allotment Gardens, Family Gardens, Community Gardens, Educational Gardens, Therapeutic Gardens. The case studies fall into the category of UFG, which generally includes those UA practices not aimed at an economic profit and where food production is an opportunity to achieve social objectives. Following Opitz et al. (2016), the research also take in account spatial factors such as location and land use/cover category, land use texture, patterns and functions, based on the data provided by the CORINE Land Cover (2018) inventory<sup>2</sup>. In addition land use designation by the urban planning tools in force in each city were analysed, in order to identify if and

<sup>2</sup> CLC service is coordinated by the European Environment Agency (EEA). It provides consistent and thematically detailed information on land cover changes across Europe. Source: <https://land.copernicus.eu/pan-european/corine-land-cover> - visited on 8<sup>th</sup> June 2021. For the purpose of this research and given the availability of data, the third level of CLC class has been considered.

how the function of UA has been explicitly foreseen by the planning system. The research also analysed possible relationships of the UFG initiatives with urban regeneration policies, the system of green spaces and infrastructures, the public facilities and any other sector of urban policies. Considering the above criteria, five main categories of relationships between UFG and land use designation (UFG-UP) (Fig.3) have been identified, that allows to classify the case studies: Urban Food Gardening in Agricultural Area; in Green Urban Area; in Public Facility Area (excluding public green); in Mixed-use built-up Area; and in Specialized built-up Area (intended for commercial or industrial use).



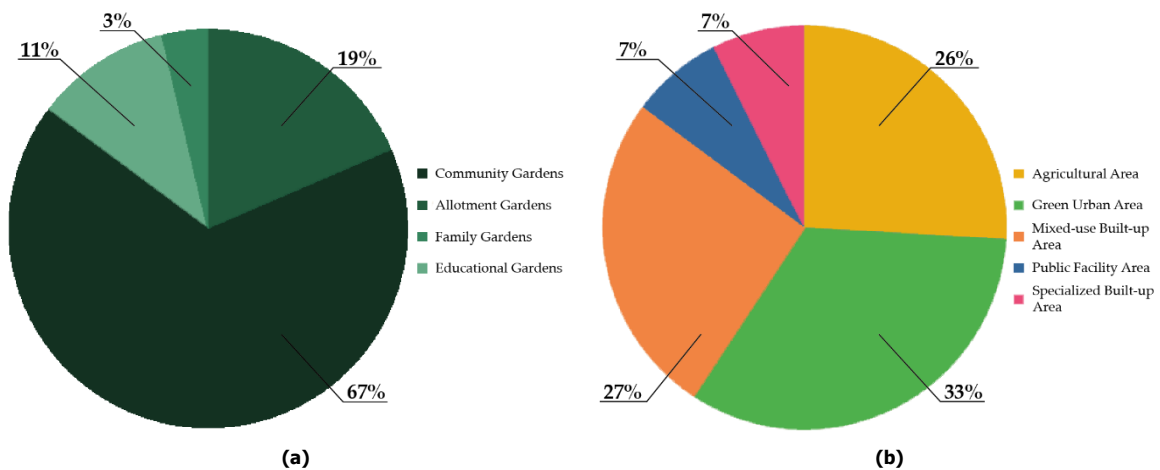
**Fig.2 The interpretative framework of UFG practices: Site, Management, Regulation**



**Fig.3 Categories of relationships between UFG and land use designation (UFG-UP)**

### 3. Results: Urban Food Gardening and Urban Planning in Italian cities

Out of a total of 27 case studies analyzed (see Appendix 1), two are the main recurring typologies of urban gardens (Fig.4a): Community Gardens (CG, about 67%) and Allotment Gardens (AG, about 19%). Both are often associated with Therapeutic and Educational initiatives. Most of the cases (about 33%) falls into Green Urban Areas, while fewer cases are Public Facility and Specialized Built-up Areas (almost 7%) (Fig.4b). The majority (about 19 out of 27 cases) are on public land, showing that private initiative is still rather scarce. Urban horticulture projects promoted by private companies are appearing, especially in the cities of Milan and Turin, but for the most part not for profit. Business models, when the offer of Family Gardens becomes a private service offered to individual citizens, remain sporadic and recent.



**Fig.4 (a) UFG Typologies: results. (\*Therapeutic Garden is a cross category); (b) UFG-UP Typified Categories: results**

#### 3.1 Urban Food Gardening policies and path-dependencies

The city of Bologna is a peculiar case when it comes to UA. The public administration made UA a political issue, thus the city has been a frontrunner in Italy regarding UA and its integration in urban policies. UA has been adopted as a tool to physically and culturally regenerate urban spaces, integrating UFG to enrich and qualify the green heritage of the city. The public administration has undertaken a survey on existing practices to further plan UA development, experimenting new forms of management of public spaces.

Bologna is active in the international contexts and through the ResCUE-AB, the Centre for Studies and Research in Urban Agriculture and Biodiversity of the University of Bologna, the lively panorama of Bolognese initiatives is also very much supported by the academic realm.

In the case of Milan, the debate about the integration of UA in City Policies can be traced back to the pioneering experiences of UFG promoted in the 80s by *Italia Nostra*, a NGO which promoted the creation of Allotment Gardens inside the *Boscoincittà* Park, and still plays a role in promoting UA also at a national level. In the driving public initiative, active on policies and strategies aimed at integrating in City Planning especially after EXPO 2015, the Milanese context is also interested by the initiatives of other institutions, such as universities, hospitals, penitentiaries or local health services. Moreover, private developers have also entered the realm of UA practices, inserting urban gardens as component of the greenery on the occasion of urban renewal initiatives. Initiatives which sometimes are contested because of the risks of privatization of public spaces, without activating synergies in local communities. The Milanese context is also dotted with a lot of bottom-up initiatives, asking for the concession of abandoned public areas for agricultural purposes. In order to give them formal recognition, the municipality provided for *Giardini Condivisi*, a successful tool for collaboration between civil society and administration. The *Bando Cascine* is a tender aimed to enhance the rural heritage of publicly owned farmhouses. It has to be mentioned that the Milanese context gave birth to the paradigm of the peri-urban agricultural park (Fanfani, 2019) thanks to the well-known *Parco Agricolo Sud Milano* [South-Milan Agricultural Park], a protected area established by the Province to preserve agricultural landscape and activities combating urban speculation.

In the city of Rome Urban Food Gardening activities are a lively reality of formal and informal associations dedicated to the care of green areas, which undertake a bottom-up re-appropriation of urban spaces, to combat urban pressure and building speculation. The municipality of Rome has late understood the potentials represented by Urban Food Gardening, which for years has developed with an informal character. Consequently, the political debate focused on regularizing existing informal experiences and on the creation of new horticultural areas on publicly owned land, leading to the progressive integration of UA in City Planning, translated into the integration of urban gardens as greenery provision for recovering land in degraded conditions. Nowadays, Rome is lead partner in the RU:RBAN project for the transfer of good practices related to UA, which focuses on the role of the third sector and citizens' associations in implementing Urban Food Gardening. The Roman context is also active in the debate on the Agricultural Park paradigm, thanks to the *Agro Romano*, a protected area where heritage preservation and nature conservation are strongly linked with agriculture.

Urban Agriculture in Turin has changed over time, especially since the Nineties, when the city began a process of post-industrial regeneration. Turin has witnessed a progressive mushrooming of UA initiatives, rooted in rural origin of many workers of the industry, progressively promoted both by citizens' groups and public institutions. A peculiar aspect of the Turin case is the activism of the urban green sector.

The recently adopted Green Infrastructure Strategic Plan (2021) defines explicit policies in the field of Urban Food Gardening, intended for providing a range of ecosystem services. The European project ProGIreg<sup>3</sup>, aimed at introducing productive green infrastructure for post-industrial urban regeneration, proposed UA as a Nature Based Solutions. At the supra-level scale, the Metropolitan City has also played a fundamental role in fostering green infrastructure projects, such as the *Corona Verde*<sup>4</sup> [The Green Crown], which value peri-urban agriculture for its multifunctionality. The city of Turin has stated its future prospects on UA, expressing its intent to enhance existing horticultural areas, mainly for addressing ecological-environmental and socio-cultural benefits, as testified by the project FOOD ATLAS<sup>5</sup> aimed at creating a space for participation about

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<sup>3</sup> See: <https://www.torinocitylab.it/it/progireg> - visited on 8<sup>th</sup> April 2021.

<sup>4</sup> See: <https://www.coronaverde.it/wp/> - visited on 10<sup>th</sup> April 2021.

<sup>5</sup> See: <https://atlantedelcibo.it/> - visited on 2<sup>nd</sup> January 2022.

food systems. In this regard, Turin is also involved in the European Forum on Urban Agriculture EU H2020 research project<sup>6</sup>.

### 3.2 The integration of UA into City Planning

In the city of Bologna, UA is declined in a rather sectorial manner, in relation to the green sector and to environmental policies. The Urban Building Regulations allows for recognizing urban vegetable gardens as public green spaces. The plan provides specific indications for their implementation and design, identifying the performance requirements to be respected for their construction, but it does not identify spaces for the construction of urban gardens. The local planning system is not based on functional zoning but it's strategic in its nature. The Municipal Structural Plan approach could implicitly have offered numerous opportunities for UA, being oriented to regeneration in suburbs, which could constitute attractive context for implementing UFG. In particular, the recognition of UGF as urban standards to be provided in urban transformation intervention would be potentially possible, but it's not explicitly mentioned, leaving UFG to the sole initiative of the environmental sector.

In the City of Milan, the sector in charge of the Urban Planning Policies for the Suburbs has been proved to be the body committed in identifying areas for implementing urban vegetable gardens, pursuing objectives of both environmental and social quality. In addition, each decentralized administrative district has a specific office for the management of instances concerning UFG activities, which is part of the unit relating to public services offered to citizens. UA is dealt with in an inter-sectorial manner: in terms of urban regeneration policies and in relation to the supply of public facilities. As for the integration into planning tools, the Public Facilities Plan recognizes urban gardens among the types of urban green spaces, addressing to this function part of the newly planned green areas of the city.

With regard to the city of Rome, at the beginning of the 2000s the municipality established the Urban Garden Service, within the Department of the Environment, which is responsible for the implementation procedures of new projects according to the city's Urban Food Gardening regulation. Rome is the only case in which the regulation on urban gardens explicitly refers to the provisions of the Comprehensive Masterplan, asserting that the gardens can only be created in accordance with the zoning identified by the plan. Its Technical Implementation Rules also mention the "recreational-social urban vegetable gardens" as one of the possible functions that can be established, integrated as a typology of green space and local public facility.

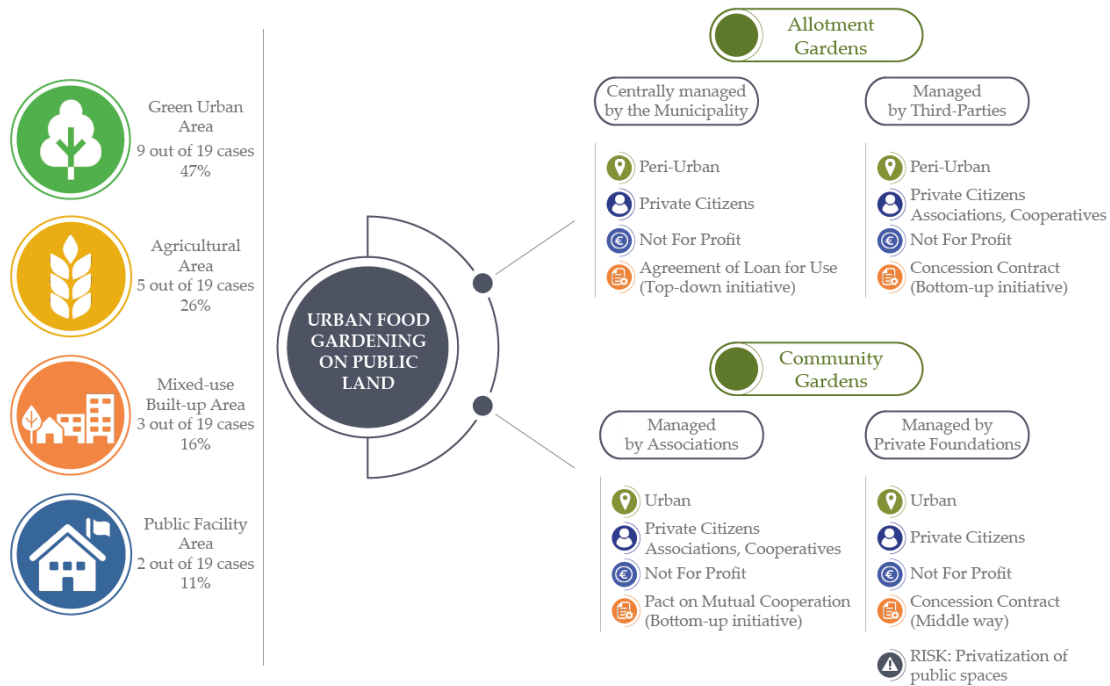
In the city of Turin, UA is mainly addressed in a sectorial way by the Green Infrastructure Strategic Plan. The city promotes the expansion of urban horticulture in the name of its multiple benefits, but with particular attention to ecological functions. With regard to urban planning tools, the Comprehensive Masterplan is based on a strictly functional zoning, which originally did not included UA nor agriculture among its intended land use. Due to the growing interest in the field, agriculture was reintroduced as a possible land use designation in 2013. Moreover, the recent Proposal for the general variance of the Plan (2021) has introduced a new land use designation, defined as "Ecological Agricultural Areas" (ZAE). This land-use designation is addressed to cultivated areas that today are fragmented by urban pressure, and can be referred not strictly to UFG but more in general to UA. Another proposed innovation is the possibility of activating Temporary Use projects, useful also for implementing possible new UA. Although the current urban planning tools is still a rigid functional zoning, the new interest on UA is contributing to a progressive adaptation of the planning instruments. In this regard, the municipality has recently decided to modify its Building Regulation in order to facilitate the creation of rooftop gardens.

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<sup>6</sup> See: <https://efua.eu/about-efua/efua-partners> - visited on 8th June 2021.

### 3.3 Urban Food Gardening on Public Land

In Italy UFG on public land mainly refer to Allotment Gardens, declined with different solution in terms of management according to each city (Fig.5). The cities of Bologna and Milan are characterized by experiences particularly rooted in time, while the promotion of UA by the public administration in Rome and Turin has been delayed. In addition, bottom-up projects coordinated by associations, or third parties were developed on public land.



**Fig.5 UFG on Public Land**

Bologna stands out for cases of Allotment Gardens and Community Gardens in areas intended for social housing, such as the *Orti Salgari*, peri-urban environments and public green spaces. Usually these are multi-functional gardens, hosting therapeutic and rehabilitative activities, which join the offer of vegetable plots for self-production of private citizens. In other cases, such as *Villa Bernaroli*, the Allotment Gardens are also supported by complementary Urban Farming activities such as Community-Supported Agriculture business models. The municipal Allotment Gardens in the city of Bologna are distributed in each decentralized district. The Bolognese municipal regulation (2009) assigned the municipal Allotment Gardens to associations or other local authorities rather than directly to private citizens. Moreover, it establishes that the concession takes place without costs. The plots are assigned to private citizens for free, thus their maintenance is usually managed by group of citizens in a non-paid way. They are self-managed by the associations that play an intermediary role between the public administration and private citizens, through public tenders for land assignment on free loan for use in horticulture.

As regards the experiences of horticulture on public land that cannot be classified as Allotment Gardens, the Bolognese case is characterized by experiences of UA usually integrated in wide-ranging project and social intentions. These are addressed to associations and cooperatives, but also to the residents themselves not for profit purposes, whose maintenance is often assigned to groups of volunteers who take care of the space, or supported by profitable Urban Farming activities. Bologna has been the first city in Italy to equip itself with a tool for the shared management of urban commons in 2014, applied especially with regard to the dissemination of UFG activities. From the point of view of land use designations, the urban gardens on public land in Bologna are classified as public facilities, part of the planned system of public green areas.

In Milan the Allotment Gardens are mainly located in the large suburban parks of *Parco Boscoincittà* and *Parco Nord*. Instead, the municipal vegetable gardens are mainly located in the urban context and aimed almost exclusively at cultivation by private citizens for self-consumption. Nevertheless, they remain a niche category. The number of gardens promoted by bottom-up initiatives on marginal public places is relevant, as well as the experiences developed in public farmhouses owned by the municipality and through the *Bando Cascine*. In the city of Milan, the Allotment Gardens are assigned with public tenders for land assignment and they are coordinated by the decentralized administrative districts or by park authorities (the *Centro Forestazione Urbana* for the gardens in *Parco Boscoincittà*; the Park Authority of *Parco Nord*). The assignment takes place through an agreement of loan for use contact between individual citizens and the managing body, after a public tender. The gardens are given in concession with a variable annual fee to private citizens. In Milan urban gardens on public land are characterized by long-standing bottom-up initiatives, spontaneously born as re-appropriation of green spaces, which have obtained official recognition only after their implementation. In these contexts, a grant of land for rent was reached between the association promoting the project and the public body that owned the area. However, when the management body is a private actor, the evidence demonstrates that in some cases the managerial approach of the area is not oriented to the needs of the local community, being more intended to attract external users in singular events and reaching other targets. In addition, the public gardens in the case of Milan are part of the public facilities provision. The urban gardens on public land part of the Agricultural Park, they are subject to specific territorial development policies and excluded from urban development. Regarding the space management, Allotment Gardens are subject to municipal regulation, with exception of Milan city, where they are subject to different regulation according to the different management bodies. In the case of *The Parco Nord*, the regulation established that the gardens can be directly assigned to private citizens and in part opened to agreement solutions with institutions for educational or rehabilitative courses. Instead, the regulation of *Parco Boscoincittà* includes both individual and collective horticultural areas, also for educational activities.

In the city of Rome, the identification of Allotment Gardens appears controversial and difficult. Most of the experiences developed as spontaneous initiatives on vacant spaces, often characterized by improper uses to counter building speculation. Examples of how activist groups have re-appropriated these spaces are the *Orti Tre Fontane* and the *Orti Garbatella*, playing a role of territorial control in peripheral neighbourhoods. Following the institutionalization of these kind of experiences, the current regulation on Allotment Gardens provides that their implementation must take place on the initiative of associations. The management of gardens on public land of Rome takes place through the definition of an agreement for free loan for use between the association promoting the project and the decentralized district. The model adopted in Rome is based on the initiative of associations or citizens who respond to public tender upon project presentation. These gardens on public land are provided and maintained as public facilities, requiring the urban gardeners to pay an annual fee to cover management costs. The allotment gardens of Rome are developed in accordance with the zoning provisions, so they can be implemented in areas identified for public green, also as components of the ecological network at municipal level. The regulation of horticultural areas on public land is the result of a quite recent political debate. Until 2015 the Urban Food Gardening activities in the Capital were not regulated at all. The current regulation specifies that the construction of allotment gardens must be preceded by the presentation of a project designed by associations or groups of citizens. Each allotment garden is subjected to an internal regulation, defined by associations that take care of the management of the garden area.

The Turin case is characterized by a rather recent experience of official municipal allotment gardens, which developed following the formal recognition of pre-existing spontaneous urban horticulture sites, often located in peripheral contexts.

In the case of Turin, gardens on public land stand out for their social and inclusive purposes, managed directly by the decentralized administrative districts, by associations or even private entities (such in the case of *Eataly* which has implemented an urban garden on a public square). The gardens managed by associations are located in urban environment, even within municipally owned buildings intended to host public facilities for citizens, as in the case of the *Ortoalto Ozanam*. In Turin the municipal allotment gardens are intended as public facilities for the residents' community.

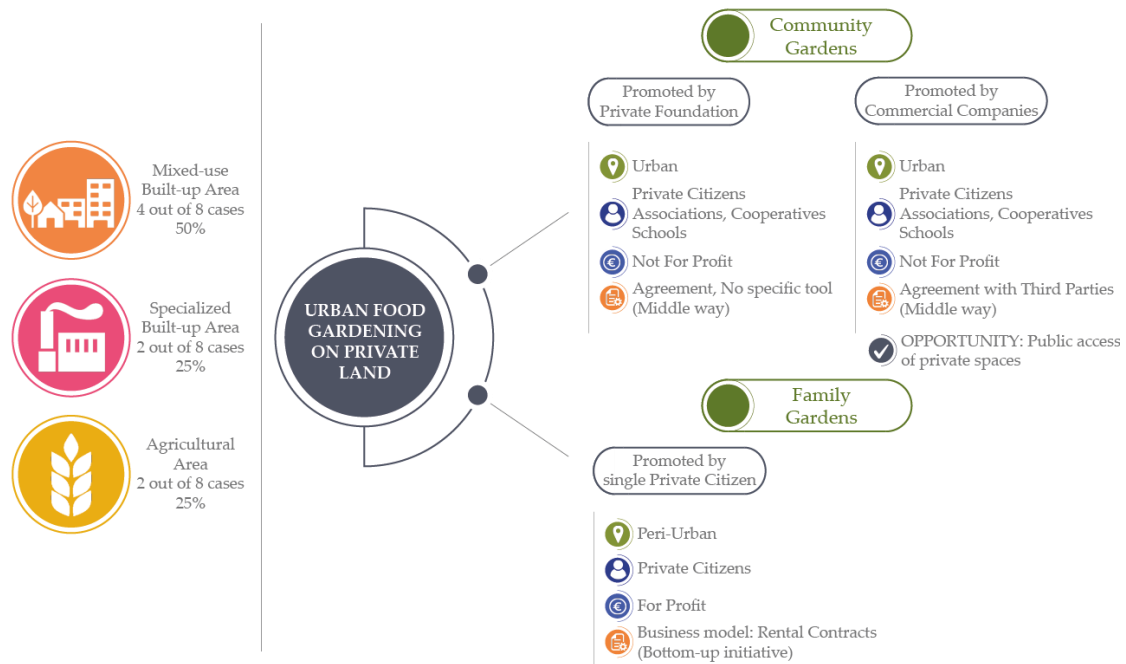
They are assigned directly to private citizens, through public tender by the decentralized administrative districts. However, after the successful example of *Orti Generali*, the city of Turin is considering to assign the management of the municipal horticultural areas to third parties or association, as a more efficient management model. An annual fee is requested which differs in case they are social gardens, at controlled prices. The gardens on public land in Turin are also managed as not-for-profit experiences, through public concession notices by the municipality.

They are often supported through direct funding from private companies promoting the project, or based on models of co-maintenance and co-governance through the voluntary work of groups of citizens. In Turin too, the recourse to the shared management of horticultural areas is becoming a widespread practice. The gardens on public land implemented in the city of Turin are located in areas classified as urban standards, even if within Urban Transformation Zones. Regarding the regulation, in the case of Turin it is applicable only to gardens centrally managed by the municipality. For the remainder the regulatory framework remains milder, as their management often relies on voluntary activities, without resorting to adoption of particular tools. The city of Turin is also the only one to have recently adopted the Guidelines for the first Urban Gardens Operational Plan, which however is only an instrument addressed to the protection of public health linked to the risks of urban gardens.

### 3.4 Urban Food Gardening on Private Land

As regards Urban Food Gardening on private land, Milan and Turin present a diversity of case studies (Fig.6). The private sphere in the Bolognese context of UA is therefore almost completely absent. The existing cultivated private gardens, belonging to foundations or institutions, are mostly of historical values, no longer accessible or used and also poorly managed, as in the case of the *Orti di Via Orfeo*. However, this absence of private initiative could be justified by the strong presence of the public actor on the other side, whose policies on UA have given Bologna the largest and most long-lived heritage of horticultural projects in Italy.

In Milan the third sector usually tends to turn to private actors to implement UA projects, to reduce time and bureaucratic needs with respect to the public institutions. The same initiative could come directly from the private sector, as for the *Orti di Via Chiodi*, where the private substitutes the public offer of urban gardens with a proper business model. In other cases, the gardens on private land are included in urban renewal interventions, as for the *Orti Fioriti* in the *CityLife* district, where the investor wanted the creation of gardens at the service of the resident community. Regarding the typology, they are usually Community Gardens mixed with Family Gardens. The maintenance of horticultural areas on private land can be paid by individual users, or financed by the private company which commissioned the project. Regarding the management aspects, the case of the *Orti Fioriti* of *CityLife* appears controversial and interesting, since its management resembles that of a Botanical Garden: its maintenance is entrusted to professional gardeners, while remaining accessible for the community. From the point of view of land use designations, the gardens in Milan on private land can be part of a urban transformation project, so it is possible that they were created to meet the obligation on urban standards provision. On the other hand, the *Orti di Via Chiodi* are part of the Agricultural Park, thus excluded from urban development, which is the reason that led the owner to implement his own business model based on Urban Food Gardening.



**Fig.6 UFG on Private Land**

The Roman urban landscape is instead dotted with squatter gardens on private land, often regulated by rental contracts. In peri-urban contexts, they usually develop integrated to multi-functional Urban Farming, where agriculture business models are emerging as private offer of UFG, as in the case of the *Orti di Veio*. There is no shortage of urban gardens promoted by private institutions, particularly sensitive to the theme of food policies and urban sustainability, such as the urban gardens of the American Academy. Generally the experiences related to private foundations are made to be lived by the members of the institution, and financed by the private owner as for the American Academy. Different is the case of the *Orti di Veio*, which represents a business model where a single private citizen rent his land for horticultural activities. In both cases it is not even possible to identify a specific space management tool. In addition the gardens of the American Academy are part of the historic city centre, within a private green areas of historical-environmental value. As for the *Orti di Veio*, their case history is similar to that of the *Orti di Via Chiodi* in Milan, since they are within a Regional Park, subject to restrictions for urban development.

In the case of Turin, gardens on private land are often implemented by private companies of commercial nature (large-scale retail trade), located in specialized or mixed-use built-up areas. These are private gardens adjacent to commercial outlets, as in the case of *Leroy Merlin* or *Dora Commercial Park*. These experiences on private land, however, retain a social nature. They can be considered Community Gardens, proving to be initiatives aimed at serving the needs of the resident communities. In Turin, the maintenance of private urban gardens takes place through funding from the same commercial company that built the garden, or thanks to the commitment of volunteers. These private gardens are usually assigned to associations that deal with their management through public tenders or agreements of loan for use, to make the area available for private citizens. However, these are still fenced areas, as in the case of *Leroy Merlin's* gardens, being accessible only during the opening hours of the shop. In Turin the gardens on private land are all created in Urban Transformation Zones, to be destined for commercial or mixed use. In general the horticultural areas remain on private land and not fully accessible. In the case of Turin, all the cases examined on private land have their internal regulation, which does not interact with the municipal one, concerning also relations with any external third-party associations involved in the management.

## 4. Discussion and conclusions

This research has highlighted the existence of different tools and approaches for the integration of UA in urban planning: urban gardens are part of green infrastructures, as well as urban green development and management strategies of cities, although there is no real integration of UA in urban plans in any of the contexts analysed. Existing UA is acknowledged as main component of green zoning systems, and future plans for urban and peri-urban agricultural areas are included in city development plans as part of green belts and corridors. UA can be effective in terms of city ecology (Deelstra & Girardet, 2000) and for the implementation of nature based solutions (Artmann & Sartison, 2018; Budau & Papina, 2021), especially where UA is expressly integrated into green infrastructure strategies, as the Turin case has shown.

Should UA be integrated as a legitimated land use designation? In the Italian conformational planning system, this option could represent a winning choice to reduce urbanization pressures and limit further land consumption. However, the research shows that the use of rigid functional zoning, which is not adaptive to the needs of contemporary urban contexts, might not be the best solution. In this regard, another point of reflection could concern the possibility of integrating UA as a temporary use in urban planning tools, to make these adaptable to the ever-changing needs of urban development (Ursić et al., 2018; Van Veenhuizen, 2011; Wekerle & Classens, 2015). This is a solution that appears little practiced in the Italian context, especially in the case studies analyzed. However, the promotion of tools and space management instruments which go behind formal ownership or permanent user rights could play a role, promoting short or medium-term occupancy licences which could foster urban farmers and citizens interested in such initiatives to implement UA activities (de Zeeuw et al., 2000).

Some cities, such as Almere in the Netherlands (Jansma & Wertheim-Heck, 2021), have also demonstrated that UA sites can be combined with other urban functions promoting multi-functional land use. Horticultural spaces can be included within new housing development which envisage forms of communal space for agricultural activities (de Zeeuw et al., 2000). Even with regard to new private residential districts, recent urban redevelopment projects have also seen the proliferation of Community Gardens, usually promoted by the same private investors as an alternative to other types of neighbourhood green spaces, as in the case of Milan.

Finally, regarding to space management tools, the preferred formula in the Italian context is that of new tools for the shared management of urban commons. Resorting to the direct involvement of citizens, the public administration is relieved from commitments relating to the management and maintenance of public spaces, which weighs on often troubled municipal budgets. In fact, the financial aspect represents one of the main difficulties encountered in the implementation and maintenance of UA projects by public actors. As a consequence, the solutions for the implementation of various UFG experiences are no longer limited to public administration or voluntary institutions but increasingly involve other private actors. In this line, Italian and European cities may look at recent experiences of American cities (Sacramento, Seattle, New York, etc.) which have developed financial tools to facilitate the development of UA such as Urban Agriculture Incentive Zones, property tax reductions to landowners (Napawan & Townsend, 2016) and bonds of taxpayers (Horst et al., 2017).

During this research, a lack of information on UA practices and their diffusion emerged. Despite some scholars (Cavallo et al., 2016; Delgado, 2017; Lupia & Pulighe, 2015; Taylor & Lovell, 2012) have tried to collect and systematize data, most of the attempts undertaken at city level, especially in Italy, have remained incomplete. Therefore, a first starting point for further deepening the scenario of Urban Agriculture, not only in the Italian context, should start from an effective systematization and collection of georeferenced data, with the help of practitioners and farmers, also through community and participatory mapping (as also suggested by Brown et al., 2022; García-Nieto et al., 2015). Moreover, the difficulties related to the lack of a clear terminology to identify UFG experiences in a univocal way and allow a more

precise comparison of the multiple experiences in progress, must also be overcome. In this regard, the method applied in this research with the definition of typified categories to analyse UFG in relation to land use designation, and thus urban planning (UFG-UP), represents a possible starting point.

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