



Scales and Narratives of Urban Agriculture in South Korea

Kwang Jin Kim¹, Inhea Kim², and Keun Young Huh^{3,4*}

¹Chief, Urban Agriculture Research Division, National Institute of Horticultural and Herbal Science, Rural Development Administration, Wanju-gun 55365, Republic of Korea

²Lecturer, Department of Horticulture, Gyeongsang National University, Jinju 52828, Republic of Korea

³Professor, Department of Landscape Architecture, Gyeongsang National University, Jinju 52828, Republic of Korea

⁴Senior Researcher, Institute of Agriculture and Life Science, Gyeongsang National University, Jinju, 52828, Republic of Korea

ABSTRACT

Background and objective: The scales of urban agriculture need to be assessed and rescaled to implement or achieve its multidimensional functions and values in South Korea. Significant scales and narratives were assessed and rescaled with narratives described in the laws and literatures.

Methods: Narratives created from 1980 to 2022 were collected. The definition of urban agriculture, the difference between farmers and urban farmers, and the spatial scales of rural and urban areas were assessed using the scales and narratives in the related laws, plans, research papers, etc. In addition, the multidimensional functions and values that urban agriculture aims for were analyzed.

Results: Under domestic laws, urban agriculture is defined as cultivating crops, trees, or flowers, or raising insects within a city for hobby, leisure, study, or experience purposes. Farmers and urban farmers are distinguished based on the purpose of the activity or on whether the agricultural activities are carried out as economic activities. The spatial scale of urban areas where urban agriculture is practiced is not limited to specific administrative districts. The literature defines urban agriculture as all agricultural activities in and around cities and spaces with urban contexts and includes the secondary and tertiary industries. Participants in urban agriculture are the public who participate or want to participate in urban agriculture. The spatial scale of urban agriculture includes urban areas, areas connected to urban areas, and areas in which urban and rural contexts are hybridized. The function and value of urban agriculture have been further expanded compared to the past.

Conclusion: The narratives for the re-scale framing of urban agriculture are as follows: urban agriculture is agricultural production activities carried out by the public in urban agricultural spaces, spaces linked to urban agriculture, or spaces with the context of urban agriculture to implement or achieve multi-dimensional functions and values of urban agriculture. In future, it will also include the secondary and tertiary agricultural industries related to urban agriculture.

Keywords: hybridization, multidimensional functions and values, public, scale-framing, urban farmers

Introduction

Urban agriculture is an agriculture conducted in vacant lots provided by administrative agencies or landowners, or occupied without permission in the urbanization process where urban areas expand and surrounding rural areas are urbanized or add urban elements. Urban agriculture began

with the purpose of producing food economically, as farmers migrated to cities in the process of industrialization. Today, urban agriculture is still a food production activity for urban residents in some less-developed countries, while in developed countries, it has developed to fulfill a range of multidimensional functions and values. South Korea enacted a law on urban agriculture in 2011, which has been

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First author: Kwang Jin Kim, kwangjin@korea.kr, <https://orcid.org/0000-0002-2549-9720>

***Corresponding author:** Keun Young Huh, sumoto@gnu.ac.kr, <https://orcid.org/0000-0002-3105-8745>



in effect since 2012.

Allotment gardens and community gardens are representative in urban agriculture. Allotment gardens, which originated in England in the 18-19th centuries, provided the working class with plots of land for vegetable and flower production (Elliott, 1983). Community gardens in the United States began in the form of relief gardens and school gardens in the 1890s to respond to economic and war-related crises and provide education through gardening (Kurtz, 2001; Lawson, 2004; Draper and Freedman, 2010). Hanna and Oh (2000) reported that opportunities to grow food in city-owned vacant lots were provided to poor residents in the United States in the late 1800s. Lawson (2005) reported that the "Victory Garden" campaign was held during World War II, in which the Secretary of Agriculture set a key national goal for the number of gardens each year, and that the Victory Gardens provided 40% of the US vegetable supply. Clarke et al. (2019) insisted that community gardens should be a priority component of green infrastructure to improve the adaptation to climate change and that they should be explicitly included in policies addressing climate change. Taylor and Lovell (2012) stated that urban agriculture had been promoted as a strategy to facilitate economic development, enhance food security and accessibility, and combat obesity and diabetes. Voicu and Been (2008) studied the impact of 636 community gardens established between 1977 and 2000 on New Yorkers, and found that gardens have significant positive effects on neighborhood property values, especially in the poorest neighborhoods.

Urban agriculture in South Korea emerged as urbanization progressed rapidly along with the economic development that began in the 1960s. Early urban agriculture began in various types around living spaces to improve the deterioration of the urban living environment and the food security issues of the urban low-income classes, but it also took a type of negatively affecting the urban environment, such as through unauthorized occupation (Choi et al., 2018; Lee, 2012). After the financial crisis in 2008, agricultural education for returnees to farming and rural migrants had increased, and the vegetable supply was unstable due to skyrocketing cabbage prices in the fall of 2010. As these highlighted the importance of urban agri-

culture, the government enacted the *Act on Development and Support of Urban Agriculture* (hereinafter referred to as "*Urban Agriculture Act*") in 2011. Lee (2012) reported that urban agriculture today has various functions: saving and recycling resources; reducing transport costs by minimizing the movement of agricultural products; supplying fresh and safe agricultural products; expanding green areas and conserving the ecosystem; and making good use of leisure and improving health through farming activities. Along with the rise of various social issues, including the low birth rate and an aging population, multiculturalism, and a weakened sense of community, Choi et al. (2018) found that urban agriculture has emerged as a new means to solve urban problems as the positive effects of urban agriculture, such as creating small jobs in an aging society, forming resident communities, and regenerating urban areas through improving the local environment, have been highlighted. Shim and Lee (2012) concluded that urban agriculture has various values that will lead to future national growth, including energy saving, greenhouse gas reduction, urban temperature reduction, job creation, safe and diverse food production, personal emotion cultivation, and community recovery.

It is undisputed that urban agriculture should be vitalized. To this end, above all, it is necessary to expand the scales related to urban agriculture. For example, a major cause of the decrease in urban farmland can be considered the economic logic of the stakeholders and the laws that are politically enacted and amended accordingly. Narratives that guide and are included in the laws affect urban agriculture: the definition of urban agriculture, the difference between farmers and urban farmers, and the spatial scale of rural and urban areas. However, there is a lack of research on the scales of urban agriculture and related narratives in South Korea. Therefore, the scales of urban agriculture need to be assessed and rescaled for the implementation or achievement of multidimensional functions and values of urban agriculture. In this study, we aimed to rescale urban agriculture's major scales and narratives by assessing the scales and narratives described in the laws, plans, and research papers related to urban agriculture.

Research Methods

Theoretical background

Definition of scale

The dictionary definition of scale basically suggests two things (Padt and Arts, 2014): first, scale is the actual size or extent of a phenomenon; second, it is a scale measured as a graduated range of values, that is, a scale bar used to measure a phenomenon. To gain an integrated understanding of various phenomena, it is necessary to understand the concept of scale clearly. When a scale is conceptualized or fixed, and the difference between phenomena can be clearly expressed through comparing relative sizes, a phenomenon can be adequately explained, and other related phenomena can also be understood relatively or integrally based on it. Meanwhile, connecting and expanding scales enables the integrated utilization of scales. A scale is an arbitrary tool with its unit that enables observers to derive knowledge about the world, and by abstracting qualitatively different things in a standardized way, it renders them comparable in quantitative terms (Sayre and Di Vittorio, 2009). While observers may perceive the size or extent of a phenomenon differently in the concept of the same scale, concepts of several scales can be created to explain different phenomena. To use a scale effectively, it is necessary to provide a common basis for its concept, but observers' perceptions of size or extent within the concept of the same scale may be relative. The same also brings out in the connection and expansion of scales.

To understand the complexity of social and natural processes, various scales and levels exist and are recognized as important (Cash et al., 2006). In other words, different scales exist to account for different phenomena (Padt and Arts, 2014). Therefore, due to this fundamental uncertainty or indeterminacy in objectively identifying and fixing sizes and extents using scales, the process of consultation to re-scale and fix the scales between actors or stakeholders on social phenomena is required. In this process, narratives of scales have a very strong effect (González, 2006).

Rescaling and scale-framing

As recognition of scales has moved from a 'fixed' conception as self-enclosed levels to a relational understanding of scales, discussions on rescaling have been triggered (Paasi, 2004). As society changes, the nature, substance, and configuration of new scales and their overlaps are formed by the relative power relations of social groups and classes (Swyngedouw, 1997). For example, actors who plan and execute in capitalism cannot behave without "a spatial fix," and as a partial solution to their crises, they rescale, in their own image of capitalism, a geography which always becomes a barrier to the further accumulation of capital in the end (Harvey, 2000). The 'spatial fix' works as a complex and continuously repeats the process of territorialization, deterritorialization, and reterritorialization in the circulation of capital (Brenner, 1999). Once the importance of 'spatial fix' was established as a key concept to understand the geographical development of capital, the focus of academic discussions turned to its 'scaling' (González, 2006). Scaling occurs through discursive practices at different levels and in various networks. In other words, scales do not pre-exist in our interactions but are actively produced and rescaled through our daily lives, institutional arrangements, values, norms, and habits.

Scale-framing can be considered as scale-fixing, which fixes a size or extent by scaling or rescaling. Fixing the size or scope of a social phenomenon to a certain scale not only causes a lot of controversy, but also requires adjusting the relationship with other diverse phenomena. Nevertheless, without scale-framing, meanings and practices with consistency or context cannot be clearly understood by actors. Scale-framing can be effectively used when complex social phenomena should be perceived or understood in a consistent and closed manner among actors. Frames are composed of typically unconscious structures that concretely shape what actors or stakeholders think (Lakoff, 2010). Wang et al. (2022) found that framing exists as narratives of all human thoughts and words, and that scale-frames actually have a significant effect on behaviors in a direct or indirect manner. This suggests that scale-framing changes the attitudes of actors and causes them to behave accordingly; that is, the narratives created

as a result or purpose of scale framing change the attitude of actors and affect their behavior accordingly.

Narrative for scale-framing

Narrative has been defined as story, storytelling, narrative technique, and discourse. However, it is generally defined as a structure that organizes a series of events over time into a completed story with a causal relationship, and gives each event a probable meaning in the overall context (Huh and Lee, 2021; Jeon, 2020; Polkinghorne, 1988). Narrative is very effective in presenting and conveying a complex situation to the public as a chain of easily understandable and simple events. Thus, papers, reports, plans, laws, and institutions have a series of narratives organized to understand readers or the public.

Narrative thinking is required to understand various social phenomena (Bruner, 1986; Huh and Lee, 2021). Meanwhile, narrative can become a tool for so-called "meaning-making" or "meaning-creation" as a way of thinking by including the cognitive process of storytelling (Park, 2006). This attribute allows us to create narratives with political implications that appeal to the public. Jeon (2020) found that fiction and reality can be mixed in a narrative. This suggests that a narrative can not only deal with the truth of real events in a probable manner, but also organize fictional events and represent them as true, fabricating them plausibly. It also indicates that in some cases, scales that fix or measure social phenomena do not fundamentally exist but are created and exist through narratives.

Narratives do not merely describe a series of events but also connect them in a consistent context with a causal explanation, which White (1985) calls a plot. A plot explains that the events are connected with coherence and closure and ultimately becomes an assertion to explain how the events behind it will unfold (González, 2006). This means that narratives can have a certain normativity (standards, the ability to set standards) about how events are organized and should be organized, and the norms presented in narratives can affect the attitudes and behaviors of actors. These attributes enable us to create new scales socially required through the connection and expansion of existing scales, allowing actors or stakeholders to use them

in an integrated and consistent manner without conflict.

Narratives provide a dominant social context when public commitment to narratives, their knowledge gained from them, and their attitudes toward them are reinforced (McGuirk, 2004; Xu et al., 2015). Along with simplicity and deliverability, narratives provide coherence, wholeness, and closure. Through these characteristics, the narratives of scale framing fix the scope of the issue, which is actually subjectivity seen or considered to be rational. The narratives deliberately organize and show a presumed normative illusion with ideal consistency and allow the public to accept it as a reality that actually exists (González, 2006). Thus, it is important to understand the intentions of those who write or develop such narratives, as the narratives that appear in laws, policies, and plans implicitly impose a normative view of reality.

In fact, unlike the natural sciences, social phenomena that do not have fixed scales of truth or theory are given such fixed scales through debate and consultation. With the rapid change and decentralization of society, as actors or stakeholders come into conflict over different views and positions, narrative research is being conducted to rescale these scales. Kim (2021) criticized the limitations of research conducted in the positivist paradigm, arguing for the necessity of narrative research to understand human experience in a new way. Positivist research presupposes the existence of objective truth, establishes a hypothesis, limits and simplifies the context in a specific situation for verification, and verifies the correlation established as a hypothesis (Jo, 1999; Kim, 2021). However, when it comes to social phenomena, narrative research can be utilized effectively, as such phenomena do not develop in controlled situations but have continuity over time through the interaction of various social contexts (Clandinin and Connelly, 2000; Kang, 2007).

Data collection and analysis

The scales and narratives of urban agriculture described from 1980 to 2022 were collected. In this study, the *Gwangju Metropolitan Government Ordinance on the Operation and Management of the Suburban Agriculture Promotion Fund* enacted in 1980 is considered an early

law in the context of urban agriculture in South Korea. The *Act on Development and Support of Urban Agriculture* (hereinafter referred to as Urban Agriculture Act) was enacted in 2011 and enforced in 2012, and under the act, the 1st (2013-2017) and 2nd (2018-2022) Comprehensive Plan for Advancement and Support of Urban Agriculture (hereinafter referred to as the 1st and 2nd Urban Agriculture Plans) were established and implemented in May 2013 and December 2017, respectively. We qualitatively analyzed and assessed the scale narratives based on the scheme and flow shown in Fig. 1 (González, 2006; Matos and Batista, 2013). First of all, the narratives that limit the extent of the scales were collected from acts and their enforcement decrees, ordinances, 1st and 2nd Urban Agriculture Plans, and academic proceedings and papers that seem to have a strong effect on urban agriculture. The major factors that determine the scales of urban agriculture were considered the goals, participants, space, and activities (Anderson et al., 2019; Ernwein, 2014). Thus, the narratives collected were analyzed and assessed in relation to the definition of urban agriculture, the difference between farmers and urban farmers, and the spatial scale of rural and urban areas. And then, to vitalize urban agriculture, recently multidimensional functions and values aimed at urban agriculture overseas and domestically were analyzed, and the scales of urban agriculture were rescaled to implement or achieve the functions and values.

Results and Discussion

Definition of urban agriculture in term of activities

According to the *Ordinance of Gangdong-gu, Seoul on the Promotion and Support of Eco-Friendly Urban Agriculture* enacted in 2010, 'urban agriculture' can be defined as agricultural activities to cultivate or produce agricultural products using various urban spaces and land, which have various leisure and experiential characteristics. Based on the *Urban Agriculture Act* and its *Enforcement Decree*, enacted in 2011 and 2012, respectively, 'urban agriculture' refers to the act of cultivating or producing crops for hobby, leisure, study, or experience purposes by utilizing land, buildings, or various living spaces in urban areas. According to the *Urban Agriculture Act* and its *Enforcement Decree*, partially amended in 2017 and 2020, respectively, urban agriculture means any of the following activities for the purpose of hobby, leisure, learning, or experience, which uses land, buildings, or various living spaces in an urban area: growing or cultivating crops; cultivating trees or flowers; raising insects (including apiculture) (Fig. 2). The first narrative, although composed at the ordinance of Gangdong-gu in Seoul, was featured by including terms such as production and agricultural activities. The second narrative was plotted at the national level for the first time and was featured by including various spaces within urban areas and additional terms such as hobby and learning. Compared to the second narrative, the third narrative was

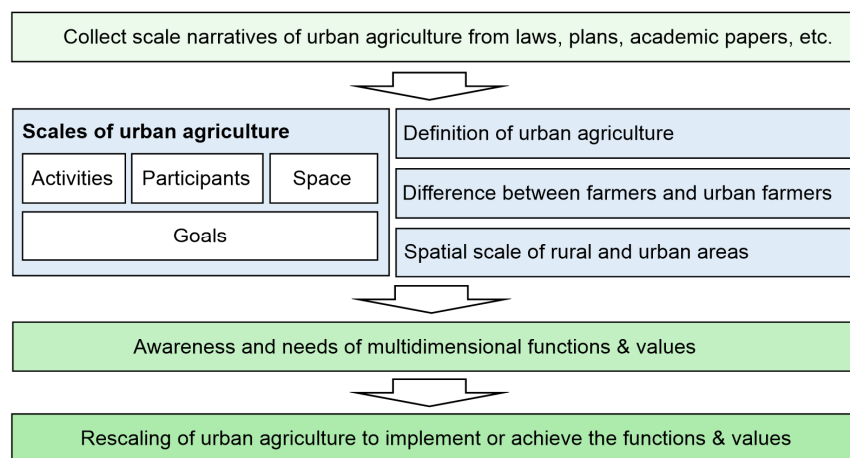


Fig. 1. The scheme and flow of the research.

featured by including terms such as cultivating trees or flowers and raising insects (including apiculture). These narratives describe the definition of urban agriculture as activities that include cultivating crops, trees, or flowers or raising insects for hobby, leisure, learning, or experience within urban areas, which suggests a tendency for the purpose to be reduced and the activity to expand relatively.

Narratives described in the laws act as scale-framing that fixes the scales of urban agriculture, which define the space of urban agriculture as within urban areas (e.g., land, buildings, or various living spaces), the goals as hobby, leisure, learning, or experience, and the activities as cultivating crops, trees, or flowers or raising insects (including apiculture). Meanwhile, the scales configured by these narratives have effects as a norm (standard) on the 1st and 2nd Comprehensive Plan for Advancement and Support of Urban Agriculture (hereinafter referred to as 'Comprehensive Plan'). The 1st Comprehensive Plan (2013-2017) defined urban agriculture as the activities of cultivating or growing agricultural produce for hobbies, leisure, learning, or experience by utilizing land, buildings, or various living spaces in an urban area (MAFRA, 2013). The 2nd Comprehensive Plan (2018-2022) defined urban agriculture as the activities of cultivating crops, trees, or flowers or raising insects

(including apiculture) for hobby, leisure, learning, or experience by utilizing land, buildings, or various living spaces in an urban area (MAFRA, 2017). The changes in the two plans are the same as those in the process of partially amending the *Urban Agriculture Act*.

Looking at the academic literature, Mougeot (2000) defined urban agriculture as an industry that extensively grows, processes, and distributes various foods and other products inside or on the outskirts of a city. Viljoen (2005) stated that urban agriculture can emerge anywhere within an urban context, with most taking the form of gardens where fruits and vegetables with high yields are grown and may include small animals and/or aquaculture during an economic depression. According to Veenhuizen (2006), urban agriculture can be defined as the cultivation of plants and breeding of animals for food in urban and suburban areas, and includes other uses and activities such as the production and delivery of inputs, and the processing and commercialization of products. McClintock (2014) referred to most of the work related to practices of growing provision crops in urban areas as urban gardening, whereas Burdine and Taylor (2017) defined urban gardening conducted in places such as urban gardens as urban agriculture. Ernwein (2014) reported that in Europe, urban agriculture

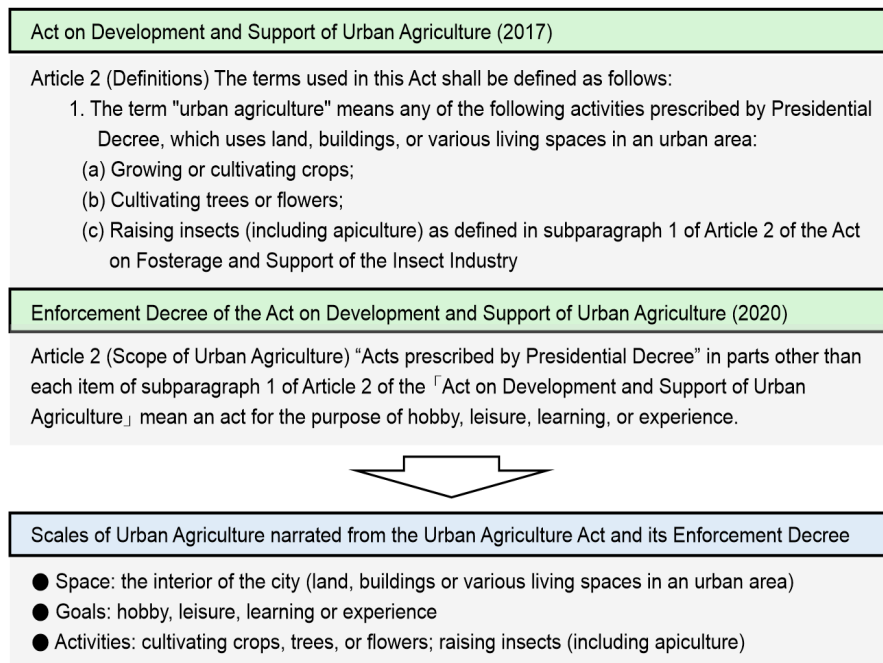


Fig. 2. The scales of urban agriculture narrated from the Urban Agriculture Act (2017) and its Enforcement Decree (2020).

is recognized as a larger concept that includes urban gardening. As such, urban agriculture, which is generally accepted overseas, is farming and gardening within and connected to urban areas, or in an area with urban context. In the literature overseas, urban farming is a type of business model that leverages its proximity to urban areas to provide local produce or services, and includes local food farms, leisure farms, educational farms, therapeutic farms, and cultural heritage farms. Urban gardening primarily involves edible gardening in urban areas with low economic dependence on material products, or a type of activities that considers non-profit social goals (e.g., cultivating a sense of community, creating a sustainable urban landscape): family gardens, allotment gardens, educational gardens, therapeutic gardens, and community gardens, etc. In other words, Urban agriculture can be defined as the production, processing, and distribution of agriculture, animal husbandry, and aquaculture in or out of cities (in areas with urban context), including urban gardening (Fig. 3).

Yu (2000) stated that urban agriculture has a concept of a complex industry by introducing the concept of 'processing and service' of secondary and tertiary industries based on agriculture, along with the concept of 'production,' the original primary industrial meaning of suburban agriculture in the spatial area of 'rural' in the city. Kwon and Choi (2005) noted that urban agriculture is a general term

for agriculture conducted on small and unused plots in urban areas. According to Jang et al. (2006), urban agriculture refers to agriculture in urban and suburban areas in a broad sense and includes agriculture operated in agricultural areas close to large cities, urban agricultural lands, and allotment gardens. The Presidential Committee on Green Growth, launched in 2009 by the Lee Myung-bak government, proposed to define urban agriculture as all agricultural activities that incorporate multi-functional public benefits of agriculture performed within urban administrative districts (Na, 2010). Lee and Cho (2016) defined urban agriculture as a series of agricultural activities performed using land, buildings, or living spaces for the purpose of improving the quality of life and solving urban problems in urban or suburban areas. Yoon and Heo (2020) suggested that urban agriculture refers to all agricultural activities conducted in urban areas, and pointed out issues regarding its scope; recently, there is an aspect that urban agriculture includes agriculture in cities, as well as in suburbs; a view is also presented that cutting-edge futuristic agriculture, such as plant factories and vertical farms, should be included in the scope of urban agriculture. Yoon and Heo (2020) referred to urban agriculture as all agricultural activities conducted in urban areas and pointed out issues regarding its scope: there is an aspect that urban agriculture includes agriculture outside cities, as well as

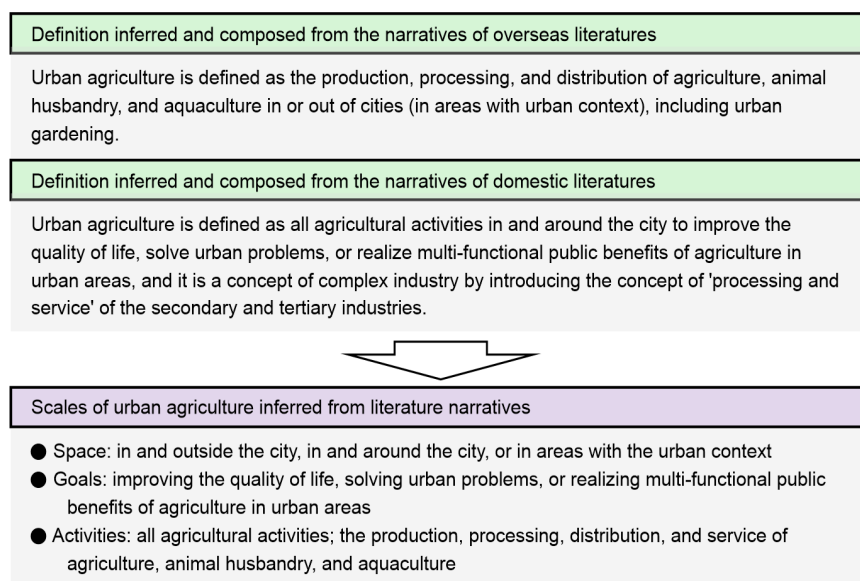


Fig. 3. The scales of space, goals, and activities of urban agriculture in a broad sense inferred and composed from literature.

in cities; a view is also presented that cutting-edge futuristic agriculture, such as plant factories and vertical farms, should be included in the scope of urban agriculture. On the other hand, Kim et al. (2002) and Kwon and Choi (2005) considered tourist farms or weekend farms in the vicinity of cities as urban agriculture, which were started as part of rural tourism and resort business in accordance with the *Agricultural and Fishing Villages Improvement Act* in 1994. As such, putting together the narratives from academic papers in South Korea, urban agriculture is defined as agricultural activities in urban and suburban areas to improve the quality of life, solve urban problems, and implement multi-functional public benefits of agriculture, but it is not an industry for the purpose of economic activities. However, in a broad sense, it also seems desirable in South Korea to include the concept of complex industry by introducing the concept of 'processing and service' of the secondary and tertiary industries in the future.

Difference between famers and urban famers

According to Article 3 (Definitions) of the *Framework Act on Agriculture and Rural Community* (hereinafter referred to as *Framework Act on Agriculture, Etc.*) enacted in 1999, 'agriculture' refers to crop cultivation, livestock farming, forestry and other industries related thereto, and 'farmers' refer to a person meeting the criteria prescribed by Presidential Decree, who operates or engages in agriculture. According to Article 3 (criteria for farmers) of its enforcement decree in 1999, "farmers" refer to those who manage or cultivate farmland of 1,000 m² or more, those who have annual sales of agricultural products of 1 million won or more through agricultural management, or those who are engaged in agriculture for 90 days or more per year. In 2007, the *Framework Act on Agriculture, Etc.* was amended to the *Framework Act on Agriculture, Rural Community and Food Industry* (hereinafter referred to as '*Framework Act on Agriculture, Etc. amended*'). According to Article 3 (Definition) of the *Framework Act on Agriculture, Etc. amended* in 2022, 'farmers' refers to those who operate or engage in agriculture. Article 3 (Criteria for farmers) of its enforcement decree, amended in 2022, defines farmers as those who manage or cultivate farmland of 1,000 m²

or more; those who have annual sales of agricultural products of 1.2 million won or more through agricultural management; those who are engaged in agriculture for 90 days or more per year; those who have been continuously employed for at least one year in the forwarding, distribution, processing, sale, and export of agricultural products in agricultural partnerships; or those who have been continuously employed for at least one year in the distribution, processing, and sales activities of agricultural products in agricultural companies. In enacting the act and its partial amendments, the analysis of the narrative changes in the definition of farmers found a tendency to expand the extent of farmers' qualifications continuously. Although there were changes in sales amount reflecting price changes, the definition was featured by including employees of the secondary and tertiary agricultural industries conducted by agricultural partnerships and agricultural companies as well as producers and managers. In other words, although it is limited, it has significance in that employees of the secondary and tertiary agricultural industries are included in the farmers.

Urban farmers are defined in the *Urban Agriculture Act*. The act was enacted in 2011 and amended in 2017, but the definition of urban farmer remains the same. According to Article 2 (definition) of the act, the term 'urban farmer' means a person engaged in urban agriculture or a person engaged in an urban agriculture-related business. Based on the Urban Agriculture Act and its enforcement decree, urban agriculture means the activities of cultivating crops, trees, and flowers or raising insects (including apiculture) for hobby, leisure, learning, or experience, which uses land, buildings, or various living spaces in an urban area. Analyzing the narratives in the definition of urban farmers, they limit urban agriculture to activities with a purpose, such as hobby, leisure, learning, or experience. Whereas, agriculture is production and management, and activities corresponding to this are defined as the cultivation, forwarding, distribution, processing, sale, export, etc. of agricultural products. In addition, farmers are required to meet qualification criteria, including land ownership and annual sales, but urban farmers are not required to meet such criteria. In other words, farmers are regarded as agro-industrialists who engage in economic activities, and their qualifications are limited by specifying any criteria (scales), whereas ur-

ban farmers are regarded as individuals or groups who enjoy a sort of hobby but are not regarded as agro-industrialists. It is the reason that urban farmers' qualification is not limited to any criteria (scales). This suggests that urban farmers are not included in the category of farmers narrated in the amended *Framework Act on Agriculture, Etc.*

Ernwein (2014) distinguished urban agriculture participants into the public and communities and suggested that communities are specific organizations or groups participating in urban agriculture, while the public includes all potential participants as well as those participating in urban agriculture. This does not distinguish between farmers and urban farmers but divides them into individuals and groups, such as communities and associations, based on how they participate in urban agriculture. Burdine and Taylor (2017) noted that the unspecified public who want to participate, residents adjacent to urban gardens (e.g., kitchen gardens, community gardens), socially underprivileged people with low access to healthy food, or immigrants can become urban farmers. This indicates that anyone can become an urban farmer according to their intent and need to participate.

Jang (2009) reported that participants in urban agriculture include urban residents or farmers; the former has an agricultural type for self-sufficiency or as a hobby rather than commercial production, while the latter has one for commercial production. This suggests that both urban residents and farmers can participate in urban agriculture. In summary, the scope of urban farmers is limited according to the individual or group's intent, method, or need to participate, without distinguishing between farmers and urban farmers. However, in Korea, the scope of farmers or urban farmers is limited according to the presence or absence of economic activities. This context may be due to the close physical distance between rural and urban areas and the small production of most farmers in implementing policies to support farmers and preserve farmland in South Korea. According to the Korean Statistical Information Service (KOSIS, 2022a; 2022b), the farmhouse population in South Korea as of 2022 is 2,165,000, which is 4.2% of the total population of 51,439,000 (Table 1). All provinces and cities have a farmhouse population. In other words, farmers reside in all regions of the country, including major cities,

Table 1. Total and farm population by administrative district in 2022

Administrative district	2022		
	Total	Farm	Ratio (%)
Nationwide	51,439,038	2,165,626	4.2
Seoul Metropolitan Government	9,428,372	14,475	0.2
Busan Metropolitan City	3,317,812	22,423	0.7
Daegu Metropolitan City	2,363,691	51,862	2.2
Incheon Metropolitan City	2,967,314	25,757	0.9
Gwangju Metropolitan City	1,431,050	31,688	2.2
Daejeon Metropolitan City	1,446,072	26,564	1.8
Ulsan Metropolitan City	1,110,663	29,303	2.6
Sejong City	383,591	13,789	3.6
Gyeonggi Province	13,589,432	277,485	2.0
Gangwon-do	1,536,498	144,433	9.4
Chungcheongbuk-do	1,595,058	152,749	9.6
Chungcheongnam-do	2,123,037	242,326	11.4
Jeollabuk-do	1,769,607	183,295	10.4
Jeollanam-do	1,817,697	287,223	15.8
Gyeongsangbuk-do Province	2,600,492	343,741	13.2
Gyeongsangnam-do Province	3,280,493	244,049	7.4
Jeju Special Self-Governing Province	678,159	74,465	11.0

*Source: KOSIS (2023a) and KOSIS (2023b).

and their proportion is very low. This suggests that many farmers live in or near the city when a large part of the country has already been urbanized due to the high economic development in South Korea.

Spatial scale of rural and urban areas

According to Article 3 (definition) of the *Framework Act on Agriculture, Etc.*, enacted in 1999, 'rural community' refers to county and areas within urban areas prescribed by Presidential Decree. Article 3 (definition) of the *Framework Act on Agriculture, Etc.*, amended in 2022, defines 'rural community' as towns ('*eup*' in Korean) and townships ('*myeon*' in Korean), as well as other areas which are publicly notified by the Minister of Agriculture, Food and Rural Affairs (MAFRA) in consideration of the agriculture, industries related to agriculture, farming population, living conditions, etc. of the areas.

Article 6 of the *National Land Planning and Utilization Act* (hereinafter referred to as *National Land Act*) defines 'urban areas' as areas requiring systematic development, maintenance, management, conservation, etc., as the population and industries are concentrated or such concentration is anticipated therein. Article 36 of the act divides urban areas into residential, commercial, industrial, and green areas. The *Urban Agriculture Act* states that the term 'urban area' means an area prescribed by Presidential Decree, among urban areas and control areas as defined in Article 6 of the *National Land Act*. According to the enforcement decree of the *Urban Agriculture Act*, 'an area prescribed by Presidential Decree' refers to residential, commercial, industrial, green, and planned control areas under the *National Land Act*: 'planned control areas' refer to areas requiring planned and systematic control that are expected to be integrated into an urban area, but intended for restricted utilization and development in view of the natural environment.

In the *Framework Act on Agriculture, Etc.*, enacted in 1999, typical rural areas (rural communities) are narrated as counties, and include areas prescribed by Presidential Decree within urban areas. In the *Framework Act on Agriculture, Etc.*, amended in 2022, they are narrated as towns and townships, and include other areas, which are publicly

notified by the Minister of Agriculture, Food and Rural Affairs in consideration of the agriculture, industries related to agriculture, farming population, living conditions, etc. of the areas. Comparing the *Framework Act on Agriculture, Etc.* enacted in 1999 and the amended act in 2022, the scale of rural areas has been reduced from counties to towns and townships in terms of administrative districts; and other areas included in the rural areas are specifically narrated as special-purpose areas other than residential, commercial, and industrial areas, and parts of green areas, based on the zoning system criteria. As a result, the spatial scale of typical rural areas (rural communities) was reduced and more clearly defined based on the purpose of use. On the other hand, in the acts related to urban agriculture, the spatial scale of urban areas is designated according to the criteria of special-purpose areas in the zoning system and includes residential, commercial, industrial, green, and planned control areas. As a result, the spatial scale in the laws related to urban agriculture is defined depending on the standards (scales) of the zoning system, while rural areas are designated based on the spatial scale, such as towns and townships in terms of administrative districts.

Ernwein (2014) argued that urban areas should not be regarded as a pre-existing spatial reference that all actors refer to: urban agriculture activities may well be located in urban places or have functional relations to them through informal exchanges of things or within formalized market relations. Mougeot (2000) and Mougeot (2005) argue that rural and urban spaces are connected and hybridized, and that the most important feature that distinguishes urban agriculture from other agriculture is not its physical location, but the fact that it constitutes part of the urban economy, urban ecosystem and social system. Matos and Batista (2013) classified the spatial types of urban agriculture into the concepts of allotment gardens, continuous productive urban landscape, and urban countryside. They noted that urban countryside connotes a duality between ecology and identity, and constitutes an urban rurality in which agricultural rurality inevitably coexists in urban areas. Putting these narratives together, the spatial scale includes urban areas, areas connected to urban areas, and areas in which urban and rural contexts are hybridized.

In South Korea, some researchers suggested that the spa-

tial scale where urban agriculture occurs in cities, around cities, and some agricultural areas, while others limit the spatial scale within urban administrative districts.

Jang (2007) stated that urban agriculture generally refers to the general agriculture in and around the city, and has the character of encompassing agriculture operated by agricultural areas close to large-scale consumption areas, urban productive green areas, and citizen farms. This limits the spatial scale of urban agriculture to urban and suburban areas and agricultural areas near large-scale consumption areas. Considering the current status in Table 1, the agricultural area near the large-scale consumer area, narrated by Jang (2007), will be much wider than all actors have been recognized. Jang (2009) limited the spatial scale to places that encompass all types of agriculture in urban administrative districts and defined that based on the actors, some farmers can take self-production, and others can take commercial production. Generally, most urban citizens will take a type of farming-based hobbies and gardening in daily life. In addition, Na (2010) reported that the Presidential Committee on Green Growth defines urban agriculture as all agricultural activities that incorporate multi-functional public benefits of agriculture within urban administrative districts. Jang (2009) and Na (2010) specifically limited the spatial scale of urban agriculture to urban areas based on administrative districts. Choi et al. (2018) stated that in terms of distance traveled, agricultural activities in existing allotment gardens are conducted in downtown and suburban areas and rural areas, whereas those in community gardens are mainly in downtown and suburban areas. To sum up these narratives, the spatial scale is narrated to be limited to urban administrative districts. However, it actually includes downtown, suburban, and rural areas connected to urban agriculture.

Choi (2015) mentioned that urban space practically does not exist as an objective and physical entity, but is formed and defined as a result of social activities and processes. It seems that the spatial scale of cities cannot be physically fixed since it has the context of various social relations, including policies, plans, and culture. Also, urban and rural areas are constantly changed interactively by social relations, and both of them cannot be physically separated from each other and fixed. Farmland within urban areas can be

transformed into residential, commercial, or industrial areas if it acts as a barrier, while conversely, in shrinking cities like Baltimore in the United States, the land may be transformed in the opposite direction (Anderson et al., 2019). In Korea, the area of farmland in the city is decreasing as a whole (Lee, 2012). Given a city is accepted as a space created by social relations, urban agriculture's spatial scale will also be limited by various social ties such as policies, plans, and culture. Therefore, the social system, including laws and institutions, tries to fix urban agriculture's spatial scale as physical spaces to implement specific plans and practices. Still, as shown in the laws above, the spatial scale of urban agriculture cannot be physically limited based on administrative districts.

Rescaling urban agriculture

The trends of urban agriculture analyzed by academic literature show that the public has gradually recognized the multi-dimensional functions and values of urban agriculture and demanded its realization or achievement. Thus, it is necessary to expand the goals of urban agriculture and re-scale the scale accordingly. The earliest laws related to urban agriculture in South Korea include *Gwangju Metropolitan Government Ordinance on the Operation and Management of the Suburban Agriculture Promotion Fund*, enacted in 1980 (Fig. 4). This was enacted for the purpose of financial support for income increase and agricultural development of low-income farm households in suburban rural areas. Recently, laws that generally have been recognized as a scale of urban agriculture in South Korea include the *Ordinance of Gangdong-gu, Seoul on the Promotion and Support of Eco-Friendly Urban Agriculture*, enacted in 2010. This was enacted to provide healthy and safe food to residents by promoting eco-friendly urban agriculture, foster personal emotions, reinforce a weakened sense of community, and stipulate the matters necessary to create a sustainable eco-city through the expansion of eco-friendly green spaces. The *Urban Agriculture Act*, enacted in 2011 and amended in 2017, aims to develop a nature-friendly urban environment, and to contribute to harmonious development of cities and rural communities by raising urban residents' understanding of agriculture. The first narrative

was plotted to protect farmers and farmland in the suburbs of Gwangju Metropolitan City; the second narrative was plotted to provide healthy and safe food to residents of Gangdong-gu, Seoul, revitalize the local community, and create a sustainable eco-city; the third narrative was plotted to develop a nature-friendly urban environment, enhance urban residents' understanding of agriculture, and contribute to urban-rural coexistence development. It seems that the major goals of these narratives have shifted from support for conventional agricultural activities of typical farmers residing in cities to support for urban residents' healthy food production activities, and then to improvement of urban residents' understanding of agriculture. One of the critical objectives that has been kept in the process, but not

directly exposed, is to minimize disadvantages to typical farmers' economic activities that may be caused by urban agriculture, while supporting or protecting agriculture in connection with urban agriculture.

On the other hand, according to Article 5 (Formulation of Comprehensive Plans) of the *Urban Agriculture Act*, the Minister of Agriculture, Food and Rural Affairs shall formulate a comprehensive plan for advancement and support of urban agriculture every five years through consultation thereon with the heads of related central administrative agencies. The vision of the 1st Comprehensive Plan (2013-2017) is the enhancement of urban-rural coexistence and quality of life by vitalizing urban agriculture (MAFRA, 2013) (Fig. 5). The goals include 1,500ha of

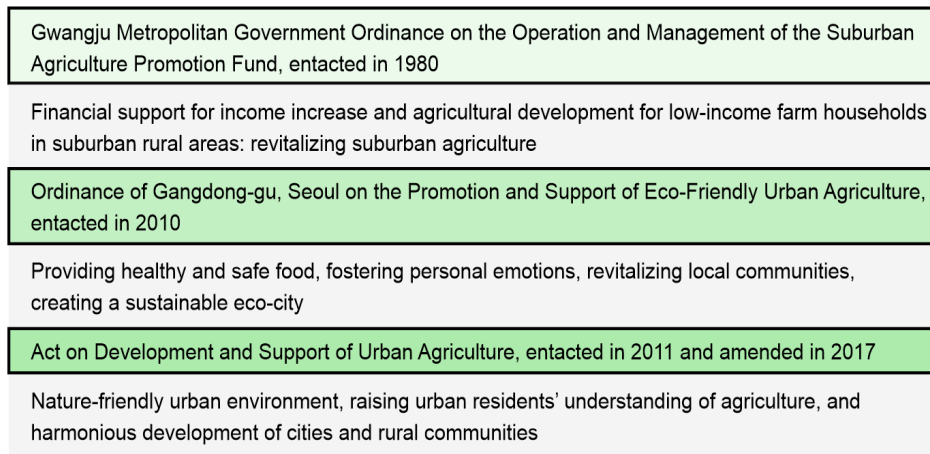


Fig. 4. The goals of enactment narrated in the relevant laws and ordinances enacted in the early days of urban agriculture in South Korea.

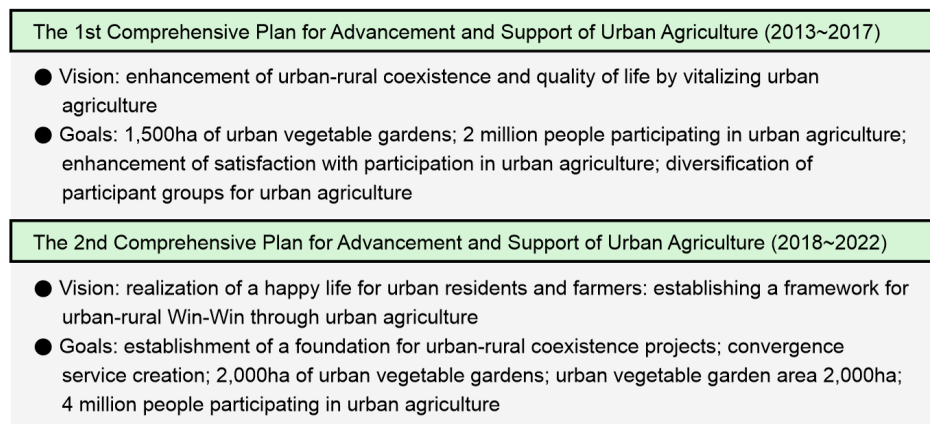


Fig. 5. The vision and goals of the 1st and 2nd comprehensive plans for advancement and support of urban agriculture (MAFRA, 2013: p.13; MAFRA, 2017: p.13).

urban vegetable gardens, 2 million people participating in urban agriculture, enhancement of satisfaction with participation in urban agriculture, and diversification of participant groups for urban agriculture. The vision of the 2nd Comprehensive Plan (2018-2022) is the realization of a happy life for both urban residents and farmers: establishing a framework for urban-rural Win-Win through urban agriculture (MAFRA, 2017). The goals include establishment of a foundation for urban-rural coexistence projects, convergence service creation, 2,000ha of urban vegetable gardens, and 4 million people participating in urban agriculture. The narratives in the visions of the two plans were urban-rural coexistence or win-win. The narratives in the goals suggest that the focus has shifted from increasing the area of urban vegetable gardens and the number of participants in urban agriculture to the urban-rural coexistence projects and convergence service creations. The context is implied by the narratives that appear in the assessment of the implementation of the 1st Comprehensive Plan (Fig. 6). The 2nd Comprehensive Plan points out the lack of consensus on urban and rural coexistence (Win-Win) between urban agriculture participants and farmers: specifically, there is always a negative perception that urban and conventional agriculture compete with each other in production activities (MAFRA, 2017: p.11). Thus, the 2nd Comprehensive Plan suggested that it is necessary to promote urban agriculture with farmers to overcome difficulties in agriculture and rural areas, including full-scale agricultural market opening and a decrease in rural labor, and to form a social consensus among urban residents, who account for more than 90% of the total population, on ur-

ban-rural coexistence (MAFRA, 2017: p.12). In addition, Kim (2023), chairman of the National Council of Urban Agriculture Citizens, a non-profit organization, mentioned that urban agriculture and rural agriculture are not in a competitive relationship but in a Win-Win relationship, which reveals the social problems that farmers with small-scale agricultural production overlap with urban farmers. There are evident differences between agricultural activities that require labor for livelihood and urban farming activities that pursue multidimensional agricultural values, such as health and hobbies. However, agriculture continues to change and expand in response to human wants and needs. Agriculture in the past was an economic activity of typical farmers with years of experience, but in today's information society, it has already been expanded to ordinary people's activities to realize multidimensional values because of the availability of documents and video information via the Internet, artificial intelligence and the Internet of Things. One of the expanded agricultural activities is urban agriculture. With all its controversies and dilemmas, urban agriculture is essentially a type of agriculture that produces food. In the Ministry of Agriculture, Food and Rural Affairs (MAFRA), the Science & Technology Policy Division is in charge of The *Urban Agriculture Act*, and the Rural Policy Division is in charge of the *Framework Act on Agriculture, Etc.* Although we cannot say for sure, the government and MAFRA would have faced a dilemma in the process of narrating the scale-framing (or scale-fixing) that defines "farmer" and "urban farmer" in the laws: they sought to enact and implement rational laws to support farmers and preserve farmland; however, they would have

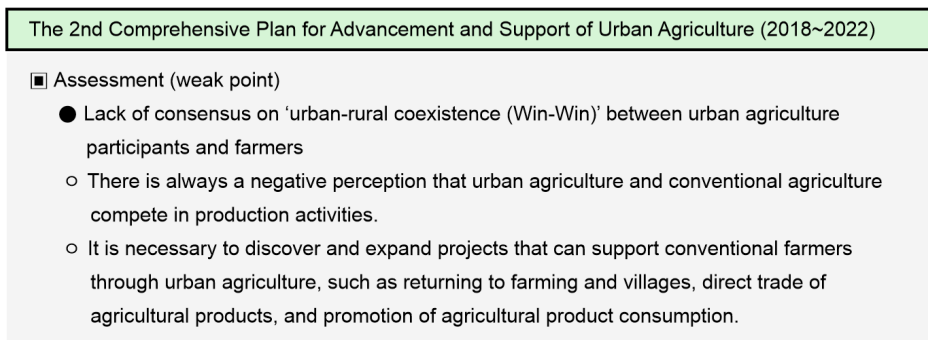


Fig. 6. A part of the assessment of the implementation of the 1st comprehensive plan described in the 2nd comprehensive plan for advancement and support of urban agriculture (MAFRA, 2017: p.11).

been afraid to grant urban farmers the legal status of farmers because it would excessively expand the scale of support and cause conflicts and confusion with other ministries in the preservation and management of urban farmland. Nevertheless, it would be desirable to define urban agriculture participants as the public that participates in or has an intention to participate in urban agriculture, including both urban residents and farmers.

The goal of urban agriculture, narrated in the Urban Agriculture Act, is to develop a nature-friendly urban environment and contribute to the harmonious development of cities and rural communities by raising urban residents' understanding of agriculture. However, the public perceives the multidimensional functions and values of urban agriculture through various information and recognizes the goal of urban agriculture more broadly. Overseas and domestic academic literature presents the functions and values of urban agriculture as multidimensional, first in terms of food, health, and hobbies; second, society and economy; and third, environment, landscape, and amenity (Fig. 7). In World War II, Chicago in the United States led urban food production, with more than 1,500 community gardens and 250,000 home gardens, and served as a model for "Victory Gardens" programs in other cities (Lawson, 2005). Urban gardens in New York have become the object of competi-

tion between community groups and developers over the past decades due to gentrification and high housing demand (Schmelzkopf, 1995; Schmelzkopf, 2002), whereas in Baltimore, which is considered a shrinking city, large vacant lots have been converted into green spaces such as parks and community gardens (Anderson et al., 2019). The functions and values of urban agriculture for food justice, food sovereignty, food security, and food access transcend hobbies. Community gardens can be presented as one of the major solutions to the threats to such functions and values. Those who narrate such scale-framing argue that lack of access to good food is a cause and symptom of structural inequalities that divide society and that it is the public's right to have access to healthy and culturally appropriate food produced sustainably (Alkon and Agyeman, 2011; Alkon and Mares, 2012).

Planning and implementing sustainable landscape creation or regeneration that connects urban agricultural spaces with public green spaces will bring multidimensional ripple effects in social, economic, environmental and landscape aspects in both expanding and shrinking cities, and further strengthen awareness of the values of urban agriculture. As a result, it can realize economic, cultural, and environmental Win-Win between urban and rural areas and foster a sense of community. For example, in Lisbon, Portugal,

Food, Health, and Hobbies
Increase food justice, sovereignty, security and access; supply of safe, fresh and diverse agricultural products; promotion of leisure and health through cultivation activities; cultivation of personal emotions; reduction of obesity and diabetes; nature-friendly or ecological life
Society and Economy
Food self-sufficiency; cost reduction by minimizing agricultural products transportation; revitalization of local economy; forming, restoring or revitalizing local communities; resolving social issues such as low birth rate, aging population, multiculturalism, and weakening social community; job creation (creating small jobs in unemployed and aging societies); support for farmers' economic activities, such as direct sales of agricultural products; urban-rural coexistence through urban-rural exchanges; improving the quality of life of urban residents and farmers; improving the value of residential real estates; diversification of agricultural management; conservation of agriculture and agricultural production
Environment, Landscape, and Amenity
Urban regeneration through local environment improvement; expansion of green infrastructure and conservation of ecosystem; reduction of carbon footprints by minimizing agricultural products transportation; natural resource saving and circulation; energy saving and reducing greenhouse gas and urban temperature; sustainable city (sustainable landscape, landscape urbanism, urban countryside, etc.); climate change mitigation; resolving other environmental problems

Fig. 7. The multidimensional functions and values of urban agriculture perceived from literature reviews (Alkon and Agyeman, 2011; Alkon and Mares, 2012; Anderson et al., 2019; Battle, 2011; Choi et al., 2018; Clarke et al., 2019; Donadieu, 2006; Matos and Batista, 2013; Lee, 2012; Shim and Lee, 2012; Taylor and Lovell, 2012; Viljoen, 2005; Voicu and Been, 2008).

urban agriculture was planned and implemented with the concept of 'continuous productive urban landscape (CPUL)' to connect urban allotment gardens and parks (Matos and Batista, 2013; Viljoen, 2005). The sustainability of allotment gardens is strongly linked to the development of sustainable cities that ensure food safety and productivity, and healthy environments (Battle, 2011). The urban agricultural space that creates a CPUL also involves the concept of 'urban countryside' (Donadieu, 2006; Viljoen, 2005). This means keeping urban fields, which are similar in concept to gardens that evoke agricultural images without producing, or having urban allotment gardens without conventional agriculture (Matos and Batista, 2013). In response to the phenomenon of shrinking cities or local extinction, rural and urban spaces can be connected and hybridized and appear as urban countryside (Anderson et al., 2019; Mougeot, 2005).

As such, overseas and domestic trends suggest that urban agriculture is all farming and gardening connected to cities and is performed by the public, including urban residents and farmers, to realize multidimensional functions and values; the attempts to connect and expand to various industries are continuously being made; the concept of 'processing and service' of the secondary and tertiary industries will be introduced and expanded in the direction of complex industrialization. It will also be connected and expanded to interact with various areas, including urban, park, and recreation plans. On the one hand, in the future, productive agriculture responsible for our food will be conducted within urban areas. The differences in participants, goals, spaces, and activities between urban agriculture and agriculture will be ambiguous, overlapped, and hybridized (Fig. 8). Although the importance of agriculture is increasing, agricultural production will become less dependent on the workforce, and more people will be involved in realizing agriculture's multidimensional functions and values. When more agricultural production occurs in urban areas, rural areas will be transformed into spaces that realize agriculture's multidimensional functions and values for health and environmental improvement and will become settlement spaces equipped with nature and amenities. Parts of urban areas will become urban agricultural production spaces with vertical farms and plant factories. A series of

phenomena like these will lead to the expansion of urban agriculture. In the future, urban agriculture participants will overlap with small farmers. As urban fields and countryside are created and expanded in shrinking cities, urban agriculture will expand the space and include self-sufficient farmers for their own consumption and small farmers who sell some surplus from their farms to urban residents. As a result, small farmers aiming at urban-connected production will be able to be included in urban agriculture participants in a broad sense.

It is necessary to define urban agriculture broadly that corresponds to urban agriculture trends and prospects. The scales of urban agriculture need to be rescaled with the basic narrative plot shown in Fig. 9 focused on goals, participants, space, and activities, which are the main factors presented in Fig. 1. First, the goals are to realize or achieve multidimensional functions and values for the public. Participants are the public who have participated in or intend to participate in urban agriculture, including farmers, urban farmers, and communities. Space includes urban agricultural areas, spaces linked to urban agriculture (e.g., villages with urban-rural exchange projects), and spaces with the context of urban agriculture (e.g., urban field). Activities involve agricultural production activities of ur-

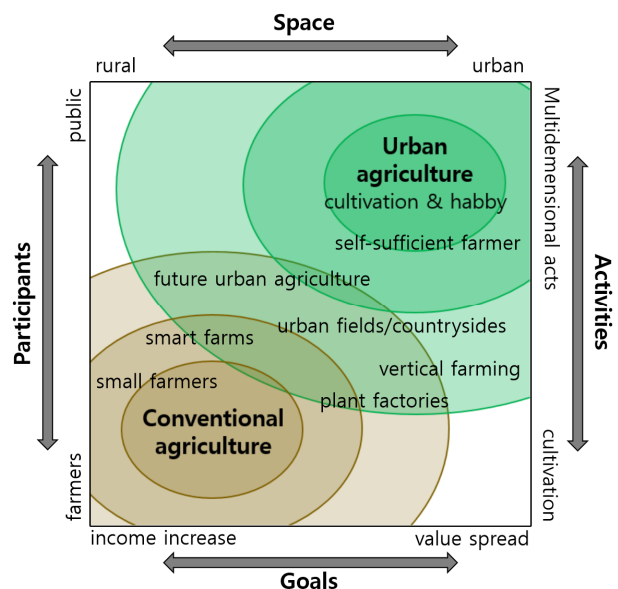


Fig. 8. The expansion, overlap, and hybridization of urban farming and agriculture for the spread of multidimensional functions and values.

Scale of urban agriculture	
Goals	For the public, realize or achieve the multidimensional functions and values for food, health, and hobbies; society and economy; environment, landscape, and amenity
Participants	Public who have participated in or intend to participate in urban agriculture, including farmers, urban farmers, and communities
Space	Urban agriculture areas; spaces linked to urban agriculture (e.g., villages with urban-rural exchange projects); spaces with the context of urban agriculture (e.g., urban field)
Activities	Agricultural production activities of urban agriculture participants and secondary and tertiary agricultural industries related to urban agriculture (e.g., education programs of urban agriculture)

Fig. 9. A basic narrative plotted for rescaling urban agriculture to implement the multidimensional functions and values perceived from literature reviews.

ban agriculture participants and secondary and tertiary agricultural industries related to urban agriculture. If the mentioned scales are plotted as a narrative for scale-framing of urban agriculture, it is like the following: a broad definition of urban agriculture is agricultural production activities and secondary and tertiary agricultural industries related to urban agriculture, which are conducted by the public in urban agriculture areas, spaces linked to urban agriculture, and spaces with the context of urban agriculture to realize or achieve the multidimensional functions and values of urban agriculture.

Conclusion

To realize or achieve the multidimensional functions and values of urban agriculture that have recently been widely recognized, this study aimed to rescale the scales of urban agriculture by analyzing and assessing scale narratives described in related laws, plans, and academic literature. This is because narratives in scale-framing present certain norms (scales) and affect actors' attitudes and behaviors. Scales are arbitrarily or intentionally fixed tools used to understand the world and create knowledge. They do not pre-exist, but are created and rescaled. In addition, socially required new scales are plotted through the connection and expansion of existing scales. Therefore, it is important to understand scale narratives.

The scales and narratives of urban agriculture created

from 1980 to 2022 were collected. The major factors that plotted the scales of urban agriculture were regarded as the goals, participants, space, and activities. Regarding the definition of urban agriculture, the difference between farmers and urban farmers, and the spatial scale of rural and urban areas, scale narratives plotted in laws, plans, and academic literature were assessed. In addition, the multidimensional functions and values of urban agriculture and the related activities were analyzed, and the scales of urban agriculture were rescaled accordingly.

First, in domestic laws, the definition of urban agriculture in terms of activities is narrated as the act of cultivating crops, trees, or flowers, or raising insects for hobby, leisure, study, or experience purposes within urban areas. In overseas literature, urban agriculture is narrated as the production, processing, and distribution of agriculture, animal husbandry, and aquaculture in or out of cities (in areas with urban context), including urban gardening. In domestic academic literature, urban agriculture is narrated as all agricultural activities in urban and suburban areas and spaces with urban contexts that are conducted to improve the quality of life and solve urban problems.

Regarding the difference between farmers and urban farmers in domestic laws, there is a tendency to continuously expand the scale of qualifications for farmers due to the diversification of the agricultural industry. However, farmers are industrial workers engaged in economic activity, but urban farmers are not regarded as industrial workers. Since urban farmers in domestic laws are regarded

as hobbyists, the laws do not stipulate any scale by specifying qualification criteria (scale) for them. As a result, the scale of farmers and urban farmers in domestic is limited depending on whether agricultural activities are carried out as economic activities. On the other hand, the difference between farmers and urban farmers is not narrated in overseas literature. Still, the scope of urban farmers is limited according to the public's intention to participate and their methods or needs for participation.

The spatial scale of rural areas in domestic laws is defined as towns and townships, and includes other areas, which are publicly notified by the Minister of Agriculture, Food and Rural Affairs in consideration of the agriculture, industries related to agriculture, farming population, living conditions, etc. of the areas. According to the overseas literature, the spatial scale of urban areas includes urban areas, areas linked to urban areas, areas with urban contexts, or areas in which urban and rural contexts are hybridized. Domestic literature narrates that the spatial scale of urban areas is ideologically or literally defined as areas within urban administrative districts and includes downtowns, suburbs, and parts of the countryside.

Recently, the perception of the goals of urban agriculture has expanded to the realization or achievement of its multi-dimensional functions and values for the public. Accordingly, the participants should be regarded as the public who have participated in or intend to participate in urban agriculture, including farmers, urban farmers, and communities. The space includes urban agricultural areas, spaces linked to urban agriculture, and spaces with the context of urban agriculture. The activities involve agricultural production activities of urban agriculture participants, and secondary and tertiary agricultural industries related to urban agriculture.

If we put all of these scales together and plot a narrative, it is desirable to expand the broad definition of urban agriculture to agricultural production activities and secondary and tertiary agricultural industries related to urban agriculture, which are conducted by the public in urban agriculture areas, spaces linked to urban agriculture, and spaces with the context of urban agriculture to realize or achieve the multidimensional functions and values of urban agriculture. Finally, the presented narrative is expected to be considered when Urban Agriculture Act will be partially

amended in the future, and additional studies are also expected to be conducted for it.

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