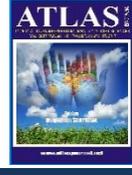




ATLAS INTERNATIONAL REFEREED JOURNAL ON SOCIAL SCIENCES

ISSN:2619-936X



Article Arrival Date:06.08.2018

Published Date:17.10.2018

2018 / October

Vol 4, Issue:13

Pp:1056-1064

Disciplines: Areas of Social Studies Sciences (Economics and Administration, Tourism and Tourism Management, History, Culture, Religion, Psychology, Sociology, Fine Arts, Engineering, Architecture, Language, Literature, Educational Sciences, Pedagogy & Other Disciplines in Social Sciences)

URBAN AGRICULTURE AS A TOOL FOR URBAN SUSTAINABILITY AND ALLOTMENT GARDEN

KENTSEL SÜRDÜRÜLEBİLİRLİK İÇİN BİR ARAÇ OLARAK KENTSEL TARIM VE KİŞİYE TAHSİSLİ BAHÇELER

Işık SEZEN

Atatürk Üniversitesi Mimarlık ve Tasarım Fakültesi, Peyzaj Mimarlığı Bölümü, Erzurum,
isiksezen@atauni.edu.tr

ABSTRACT

Mechanization and industrialization in agriculture, especially in the 1950s, attracted the rural population in urban areas. The increase in human population has consistently forced the physical capabilities world cities in terms of housing, recreation, working and transportation. Cities have long been facing intensifying structured areas in the mentioned process, where they at first grew vertically. The cities, which have reached their vertical limits, begun to expand and sprawl horizontally towards their peripheries.

Urban areas, which have great impacts on the structural changes and transformations of rural areas and thus destructing natural resources and cultural values there, cause rural to be exposed to the housing activities and conflicting administrative authorities.

The cities that develop by swallowing the rural areas and form the fringes cause problems in firstly the destruction of the agricultural areas which are important in their feeding and the feeding of the rapidly growing cities. Urban agriculture is very important for the future of cities and their sustainability.

In the present study, views of forefront architects and urban planners are evaluated on urban agriculture, relationship between urban sustainability and urban sustainability, general overview of urban agriculture in some world cities and a form of urban agriculture "Allotment Garden" are emphasised on.

Keywords: Urban Sustainability, urban agriculture, urban agriculture practices, Allotment Garden

ÖZET

Özellikle 1950'li yıllarla birlikte tarımda makineleşme ve sanayileşme ile kentsel alan kırsal alandaki nüfusu çekmiştir. Nüfus artışı barınma, dinlenme, çalışma ve ulaşım konusunda kentlerin fiziksel kapasitesini zorlamıştır. Kentler bu süreci kentsel alan üzerinde yapı yoğunluğunu artırarak yaşamaya başlamışlardır. Öncelikle kentler dikey yönde büyümüşür. Dikey yönde gittikçe doyunluğuna ulaşan kentler, yatay olarak çeperlerine doğru büyüme ve genişleme eğilimi göstermeye başlamıştır.

Çevrelerindeki kırsal karakterli alanları etkileyerek bu alanların yapısal değişim ve dönüşüm geçirmesinde etkili olan kentsel alanlar, kır kökenli alanlarda doğal kaynakların tahribine, kültürel değerlerin yok olmasına, bunların yanında kırsal karakterli alanların kentleşme süreci karşısında imar hareketlerine maruz kalması ile yönetim açısından da yetki karmaşalarının oluşmasına neden olmaktadır.

Kırsal alanları yutarak gelişen ve saçaklar oluşturan kentler, beslenmelerinde birinci derecede önem taşıyan tarımsal alanların yok olmasına ve nüfusu hızla büyüyen kentlerin beslenmelerinde sorunlar oluşmasına neden olmaktadır. Kentsel tarım bu nedenle kentlerin gelecekte sürdürülebilirliği için oldukça önemlidir.

Bu çalışmada; kentsel sürdürülebilirlik, kentsel tarım, önemli planıcı ve mimarların kentsel tarım üzerine görüşleri, kentsel sürdürülebilirlik ve kentsel tarım ilişkisi, dünyadaki bazı kentlerde kentsel tarımın genel değerlendirmesi, kentsel tarımın bir çeşidi olan "Kişiyeye Tahsisli Bahçeler" kavramı üzerinde durulmuştur.

Anahtar Kelimeler: Kentsel sürdürülebilirlik, kentsel tarım, kentsel tarım uygulamaları, Kişiyeye Tahsisli Bahçeler

1. INTRODUCTION

Urban areas being effective on the structural change and transformation by influencing rural/suburban areas caused deterioration of natural resources in rural, loss of cultural values, in addition, exposure of rural areas to urban development movements also caused administrative conflicts. In addition to urban effects on rural areas, cities also developed by enlarging and sprawling on rural areas, destroyed agricultural lands which are vitally important for the nourishment of urban people causing also problems in feeding urban people (Kara, 2004).

1.1. Urban Sustainability

In the world, where cities turn out to be dominant, urban sustainability came to the world agenda. It was emphasized in the entire process which began in Rio de Janeiro with Agenda 21 and going on with 100-page Habitat Agenda signed by 180 countries at Habitat-II Conference, Istanbul in 1996 that human settlements should be planned, developed and improved in full convenience with Sustainable development principles and components.

In addition, in the same document, it was also focused on the protection of opportunities of generations next and respecting carrying capacity of ecosystems. It is stated in the same document that science and technology play vital role in forming sustainable human settlements and sustaining dependable ecosystems.

It is strictly known today that cities consume excessive natural sources and produce excessive wastes. Ecological footprints of cities destroy habitats of many species. Urban effect has gone far beyond their own physical borders. In addition, cities face consistently increasing human population. Such a situation means increasing number of people to be nourished. Together with several other initiatives and actions, urban agriculture is of vital importance for the sustainability of cities in the future (Deelstra and Girardet, 2000).

1.2. Urban Agriculture

Urban agriculture (UA) defines the propagation, production or processing of various food or products out of food in (interior part of) urban areas at small, medium or metropole cities using human, material, product and service resources in or around urban areas and providing inputs in the same urban areas (Mougeot, 2000; Brown and Jameton, 2000)

In fact, UA practices have long been an occupation formally at every term for farmers in or around cities. What changed in time is that the size of occupation expanded and informally everybody started to perform such an activity nearly 30 years ago. It is known that cultivation of urban areas by humans was caused by some concerns like food security and income production (Brown and Jameton, 2000)

In developing countries, UA may be the addresses of food insecurity (Zezza and Tasciotti, 2010). UA is the production of plant and animal products in urban areas.

UA expresses a wide range of agricultural activities conducted in urban borders. In the scope of these activities, as an example, in the USA diversity has reached through Community Gardens such an extent that even family members are granted rights to own small plots to make agricultural production individually in the plots given to whole family. In addition, in school curricula there are lessons related to agriculture to make agricultural production at school gardens simultaneously with theoretical lessons.

Due to legislative reasons in the US, UA is confined mainly to horticultural practices and related industries. It rarely includes large scale livestock farms and animal product processing facilities or fishery farms however; such facilities can be seen in other countries. Even though

some UA practices in the US are at large scales even in industrial sizes while others are carried out in pocket gardens in farther abandoned parts of cities. In addition, UA involves backyards, windows sills and roof gardens (Brown and Jameton, 2000).

1.3. Views of Prominent Planners and Architects on Urban Agriculture

The concern of food production has long been questioned by modernist planners and theoreticians. The first approach attracting attentions is Ebenezer Howard's garden city theory. All city propositions of Howard involve agricultural activities in the ratio of 5/6. Ideal city of Howard was seen in his book *Garden Cities of Tomorrow* published in 1902 and diagrams he drew (Rasouli, 2012). According to Howard, a green belt composed of agricultural lands and open spaces will surround city and serve as a buffer by preventing city from expansion.

Importance of agriculture was generally emphasized by theoreticians, designers and planners during the First and Second World War. Adopting fully different approach, Frank Lloyd Wright combined agriculture with his Broadacre City involving low population density. In 1922, Le Corbusier proposed in his *Contemporary City* approach to divide city into three different food production parts and also a model to manage and control land.

1.4. The Objectives of Urban Agriculture

According to Brown and Jameton (2000) and Deelstra and Girardet (2000), the objectives of Urban Agriculture;

- ✓ Urban agriculture (UA) guarantees food security in cities.
- ✓ UA is effective in fighting hunger and enable healthy and efficient nutrition.
- ✓ UA has favourable effects on physical and psychological public health since it allows physical movements and provides occupations for people.
- ✓ UA involves useful applications for environmental health.
- ✓ UA practices help remove toxic materials and harmful bacteria in urban soil.
- ✓ Since agricultural products are produced in cities, at small distances to consumers; great amount of time and money are saved caused by transportation.
- ✓ Ugly, dangerous and abandoned areas are turned out to be beautiful gardens.
- ✓ UA practices increase biodiversity in cities.
- ✓ UA practices help prevent erosion and water table pollution.
- ✓ UA can prevent both soil pollution through their roots and air pollution by absorbing materials causing it.
- ✓ UA practices raise environmental awareness and increase value of lands.
- ✓ UA practices moderate urban climatic conditions by increasing relative humidity, balancing temperature, reduce wind velocity and block excessive solar radiation.
- ✓ UA practices minimise wastes in cities improve and make food chain work better. They also enable to process and recycle urban solid waste and wastewater.
- ✓ UA contributes to water management.
- ✓ UA provides oxygen and carbon monoxide balance and reduce carbon footprints.

1.5. Urban Sustainability and Urban Agriculture

Millennium development goals focus on environmental sustainability. UA may be a useful tool for sustainable urbanisation since this practice make cities connect their surroundings. Poor hygiene conditions, unsafe water reserves, uncollected wastes and polluted rivers, anthropogenic activities causing environmental deterioration reduce the human quality of life, increase cost of living and cease socioeconomic development. Production of trees, shrubs, flowers, ornamental plants and food plants can decorate and make cities beautiful, moderate climatic conditions, prevent erosion absorb air pollution and odour (Deelstra and Girardet, 1999).

1.6. An Overview of Urban Agriculture in Some Cities in The World

In western cities, after Second World War lands started to be left for urban food production. Over the last four decades, economic understanding has directed people to purchase not to produce. However, imbalance between incomes and job opportunities caused some people to face starvation and a different system alternative to present one was inevitably needed. One good alternative may be in this respect urban agriculture.

In cities where industry was decentralised, urban food production approach is a good planning choice for idle workers and abandoned lands. For example, in American cities (Detroit and New York etc.), thousand acres of lands were granted to the unemployed to produce their food. In Great Britain, urban farms were supported financially through projects in 20 cities. In Germany, former mining zones remaining (surrounded by) in urban areas (like Essen) were left for urban agriculture practices (Deelstra and Girardet, 2000).

China is known for its highly intensive urban agriculture production systems. So far, many big Chinese cities have turned out to be self-efficient in food production by using agriculture lands in and around or periphery of cities. For instance, Beijing today manages an extended agricultural land around the city with a population above 10 million.

In Shanghai, only 20% of urban land is structured and 80% of the area is urban periphery given to agricultural production. This means that the urban part of the city can produce enough amount of vegetable, rice, pork, chicken, duck etc. to feed its population. Chinese cities with their unique set up and systems, use extended arable lands in their close proximities for agricultural production and in this situation, they seem to be self-efficient (Deelstra and Girardet, 2000)

In Manhattan New York, recyclable materials are used to produce agricultural products in Riverpark Farm covering an area of 15000 square kilometre. In Sky Green Farm, Singapore, nature friendly solutions have been developed. It is the first low-carbon dioxide floor system vertical urban agricultural project in the world to produce agricultural productions. Sky Green consumes less energy and water compared to other traditional agricultural production methods and cover less surface area (Duysak, 2014).

In Turkey, a developing country, in the first years of modern republic, the country had self – efficient cities in feeding themselves even produced more than their needs. After especially 1950s, these cities turned out to be nearly self-efficient due to mechanisation in agriculture, governmental policies and urbanisation effects. In especially metropolises, sprawling growth form changed and transformed the structure in peripheries and rural areas by turning the production areas of regions to feed their people into consumption zones (Kara, 2004).

Yedikule Bostanları (gardens) dating back to 1500 years before 1500 with their UA functions are only example of inner city agricultural lands dropping from Ottoman and Byzantine periods (Anonymous, 2013; Koca, 2014).

Boğazköy Kuzguncuk vegetable garden with a 700-year past in Istanbul, evaluated to be urban agriculture land for ages and known to be public space where urban dwellers meet each other, socialise, get in communication has wanted to be opened for housing in every 10 years from 1990s. In 2011, a private school tried to be constructed in the area.

Atatürk Forest Farm was thought to be an urban farm focused on cultivation by referring to its establishment aims and activities performed in its past. Established based on the term “cultivation”, Atatürk Forest Farm provides several environmental, economic and social benefits (Anonymous 2017). With such properties, Atatürk Forest Farm is included in urban agriculture area. Açıksöz and Memlük (2004) is on the evaluation of Atatürk Forest Farm in terms of urban agriculture.

However, people in and close proximity of the area claimed that they use the area as agricultural land, green area, meeting and sharing point, play grounds for children, recreational area for the elder and others and a social area and rejected the private school project. After that, the Ministry of Environment and Urbanisation Board of Nature Conservation gave up the project planned to be constructed in the area due to the reason that such a project may harm the architectural tissue and structural characteristics of its close proximity (Koca, 2014).

1.7. Allotment Garden as a Component of Urban Agriculture

AG takes place in the community garden category constituted nearly 200 years ago in many European countries. As a part of urban culture, Allotment Garden (AG) is among urban development dynamics. However, the number of such gardens started to decrease between 1950 and 1960s because the chance of establishing these gardens in place of housing, education, transportation and industrial uses reduced to a very low level (Macnair, 2002; Holmer et al., 2003). In Figure 1 an example of AG is given from Munich.



Figure 1. Allotment Garden in Munich

AGs are the concentration of several hundreds of 200-400-square meter land parcels assigned to individual or families. Their examples are seen in European countries mainly Germany and their functions are not only the production of plants but also recreation and social activity. AGs are the areas preventing the convergence of urban ecosystem and contributing to urban ecology (Barthel et al., 2010).

They have many social, cultural and economic functions for especially the elder. Such areas can offer occupancy to the elder in their retirement period in addition to the possibility of cheaper vegetable consumption (Tei et al, 2009).

As an opinion, AG was developed first in 1864 by Allotment Gardeners Association in Germany. In industrialisation period in Europe, large number of families moved from villages to cities to work in factories. Such people lived then in lower income and socioeconomic conditions as those in Philippines cities today. Gardens for the Poor or in its changed name Allotment Gardens were offered as contribution to the poor. The first half of 20th Century began to be important for food security. After the World Wars I and II, nourishment and socio- economic conditions of people were very poor. It became harder and harder to send rural agricultural products to urban markets or people had to buy them for extremely high prices. As a result, food production, especially fruit and vegetables in cities, house gardens and AGs became vitally important to survive. (Kasch, 2001; Holmer et al., 2003). Warriston Allotment which is constructed in 1932 in Scotland to help poor people is had shown in Figure 2.

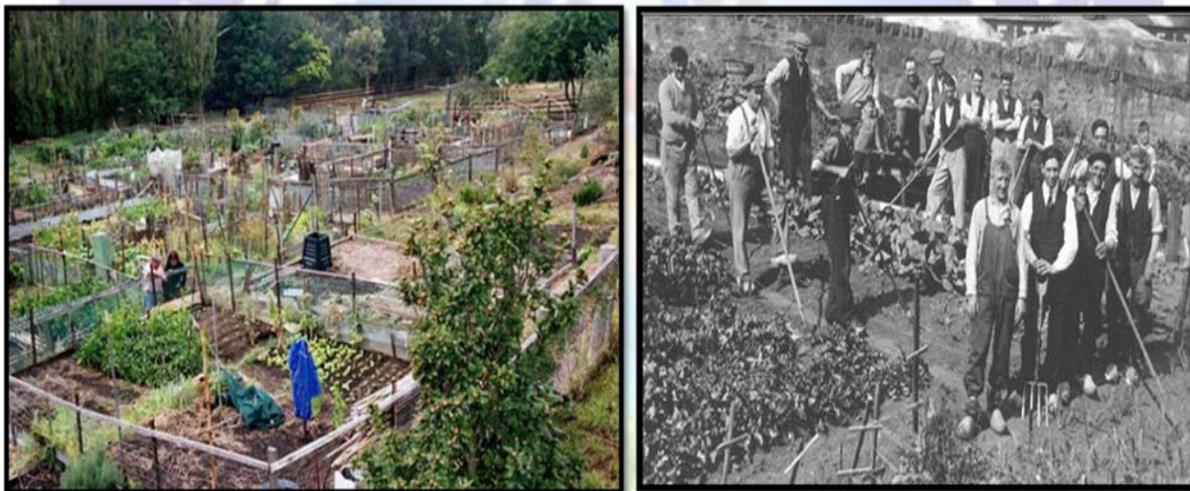


Figure 2. Warriston Allotment, İskoçya, 1932

Views about AGs changed in time in Germany. Increase of crises and poorness from 1850 to 1950 AGs functioned to provide food support and security but today they function as recreational areas and socially attractive spaces. In the old days it used to be a full – time job to work in AGs it is now an enjoyable hobby to millions of people (Crouch, 2000; Drescher, 2001; Holmer et al, 2003). After the 2nd World War in Germany, 200 thousand AGs were planned. Today, 80 thousand of them are still in use. Workers in these gardens pay very little rent price. Organic agriculture applications are performed in the gardens and the use of pesticide is totally forbidden.

AG (Figure 3) is defined to be the part of green belts open to public (Crouch, 2000; Drescher, 2001; Holmer et al, 2003).



Figure 3. Examples of AG as a part of public green belt areas

Since AGs are evaluated to be green areas in cities, they have positive effects on human health. They take people away from stress (Armstrong, 2000; Twiss et al., 2003; Van den Berg et al., 2010).

People have the opportunities of plant production and meeting their needs with vegetables they produce in the gardens planned near low-income-housing complexes. These gardens play important roles in the reduction of urban environmental problems (Irvine et al., 1999).

Biodiversity increases thanks to natural plant species growing in AGs. Fruit, vegetation and cut flower produced in AGs are used officially by local authorities for society. Conservation of these gardens in cities is important today. Two-third of gardens are planted vegetation and one-third is left for flower production and recreation (Drescher, 2001).

AGs have favourable effects on human health since they are evaluated to increase the rate of green spaces in cities and on urban ecosystem since they increase biodiversity in urban areas. These gardens play important role in decreasing urban environmental problems.

Allotment Gardens (AG) are inevitable part of UA practices in UK. They supply healthy and fresh food in addition, they can also provide the possibility of entertainment and recreation activities. AGs also can offer possibilities for a very wide range of functions such as open green spaces and wild life areas (Garnett, 1996). However, AGs are also under threats and have been facing disappearing threat for 20 to 30 years due to urbanisation and development pressure (HoC, 1998; Perez-Vazquez et al., 2002).

2. RESULT

When UA practices are considered from past to present, it is seen that they have been applied for ages in a combined way with cities.

Valuation of lands in city centres with industrialisation and low income from agricultural activities caused lands in the city centre and periphery to be given to the activities with higher economic incomes (Tomar, 2013).

UA has the potential of being a dynamic economic sector with easily and quickly adaptable to rapidly changing urban conditions and demands. UA activities can combine rural and urban periphery since they provide open green spaces through cultivation activities.

If UA lands are planned accurately and integrated into urban design, such practices can increase comfort of urban dwellers. Green areas around apartment blocks and abandoned spaces can contribute to mitigation of urban climate. Vegetation can increase humidity, decrease temperature, give pleasant smell, through leaves it can catch dust and gases, reduce wind velocity, block solar radiation can form shadowy and canopy layers and spaces.

The most important obstacle to prevent UA from developing in cities is the limitation in the presence of land to grow plants.

In order to increase the rate of UA lands in urban area, it is necessary to place urban gardens in parks or wild life corridors and evaluate these lands as a complete green area for cities. It is also a requirement to solve problems such as ownership / user situation of lands and legal and administrative matters like easy and cheap access to water. UA lands increase the amount of urban open green spaces.

Land use planning in the scope of UA practices can provide a complementary structure together with other specialist groups, occupational disciplines in cities and their socioeconomic and spatial aspects. Therefore, in cities, in planning and design agricultural lands should be placed in cities by considering social, economic, environmental, physical extents (Rasouli, 2012).

REFERENCES

Açıksöz S, Memlük Y (2004). Kentsel Tarım Kapsamında Atatürk Orman Çiftliği'nin Yeniden Değerlendirilmesi. *Tarım Bilimleri Dergisi*, 10 (1): 76-84.

Armstrong D (2000). A survey of community gardens in upstate New York: implications for health promotion and community development. *Health Place*, 6: 319-327

Anonim (2013). Arkeologlar derneği İstanbul Şubesi Bülteni, Eylül-Kasım 2013, Sayı:01.

Anonim (2017). Kent Düşleri 9. Atatürk Orman Çiftliği Alanları Değerlendirme Projesi. <http://www.mimarlarodasiankara.org>

Brown KH, Jameton AL (2000). Public Health Implications of Urban Agriculture. *Journal of Public Health Policy*, Vol. 21, No. 1. (2000), pp. 20-39.

Barthel S, Folke C, Colding J (2010). Social-ecological memory in urban gardens-Retaining the capacity for management of ecosystem services. *Global Environmental Change*, 20 (2): 255-265

Crouch D (2000). Reinventing allotments for the twenty-first century: the UK experience. *Acta Hort.* (ISHS), 523:135-142.

Deelstra T, Girardet H (2000). Urban Agriculture And Sustainable Cities. In: N. Bakker Et Al., Eds., *Growing Cities, Growing Food. Urban Agriculture On The Policy Agenda*, Pp. 43-66. Feldafing (Germany): Deutsche Stiftung Für Internationale Entwicklung (DSE).

Drescher W (2001). The German Allotment Gardens-A Model For Poverty Alleviation and Food Security in Southern African Cities? *Urban Agriculture Notes*: <http://www.cityfarmer.org/germanAllot.html>

Duysak İ (2014). Kentsel Tarım. <https://prezi.com/4wltchuts4pp/kentsel-tarim/>

Garnett T (1996). *Growing Food in Cities: A Report to Highlight and Promote the Benefits of Urban Agriculture in the UK*, National Food Alliance, London

HoC (1998) *The future for allotments: Minutes of evidence*. Environment, Transport and the Regions. Session 1997-98, House of Commons, London

Holmer R J, Clavejo MT, Dongus S, Drescher A (2003). Allotment Gardens for Philippine Cities, *UA-Magazine*

Irvine S, Johnson L, Peters K (1999). Community gardens and sustainable land use planning: A case-study of the Alex Wilson community garden. *Local Environment: The International Journal of Justice and Sustainability*, 4(1): 33-46.

- Kara E (2004). Kentsel Tarım Alanlarının Kentleşme Süreci Karşısında Değişimi ve Dönüşümü: İstanbul MSGSÜ Mimarlık Fakültesi Şehir ve Bölge Planlama Bölümü Lisans Bitirme Tezi, İstanbul, 2004
- Kasch G (2001). Deutsches Kleingärtnermuseum in Leipzig: Deutschlands Kleingärtner vom 19. zum 21. Jahrhundert. Band 4, Sächsische Landesstelle für Museumswesen, Chemnitz, Germany.
- Koca A (2014). İstanbul'un Yaşayan İki Bostanı Neden Yok Edilmek İsteniyor? Yapı 386, 58-63.
- Macnair E (2002). The Garden City Handbook: How to Create and Protect Community Gardens in Greater Victoria. Polis Project on Ecological Governance. University of Victoria, Victoria BC, Canada
- Mougeot LJA (2000). Urban Agriculture: definitions, presence, potentials and risks. In: Bakker et al. (Eds.), Growing Cities, Growing Foods Urban agriculture on the Policy Agenda, 1-42 ed.
- Perez-Vazquez A (2002) 'The future role of allotments in the south east of England as a component of urban agriculture', Imperial College, Wye, UK. PhD dissertation
- Rasouli S (2012). Kent topraklarının tarımsal amaçlı kullanımı: Kentsel Tarım <http://www.skb.org.tr/kent-topraklarinin-tarimsal-amacli-kullanimi-kentsel-tarim-s1238k/>
- Tei F, Benincase P, Farneselli M, Caprai M (2009). Allotment Gardens For Senior Citizens In Italy: Current Status And Technical Proposals, II International Conference on Landscape and Urban Horticulture
- Tomar A. (2013). Kentlerde Yoksulluk Ve Atıkların Değerlendirilmesinde Kentsel Tarım. TMMOB 2. İzmir Kent Sempozyumu, 28-30 Kasım 2013
- Twiss J., Dickinson J., Duma S., Kleinman T., Paulsen H., Rilveria L. 2003. Community gardens: lessons learned from California healthy cities and communities. Am J Public Health 93: 1435-1438
- Van den Berg AE, Van Winsum-Westra M, De Vries S, Van Dillen SME. 2010. Allotment gardening and health: a comparative survey among allotment gardeners and their neighbors without an allotment. Environmental Health, 2010:1-12.
- Zeza A, Tascitti L (2010). Urban agriculture, poverty, and food security: Empirical evidence from a sample of developing countries. Food Policy, 35: 265-273