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PERSIAN GARDEN PRINCIPLES IN CONTEMPORARY URBAN EDIBLE LANDSCAPE DESIGN

REN Xiaoxuan[1,2], BULHAKOVA Tetiana[1]
[1]Kyiv National University of Technologies and Design, Kyiv, Ukraine
[2]Shaanxi University of Science and Technology, Xi'an, People's Republic of China
xiaoxuan2021@yeah.net, bulgakova.tv@knutd.com.ua

Persian gardens integrated productive and ornamental functions, offering precedents for contemporary edible landscapes. This research identifies their key design principles by examining historical evolution, which reveals a spatial shift from peripheral exclusivity to integrated public amenities, with microclimate regulation and multisensory design as enduring features. Synthesizing these insights with sustainability criteria yields recommendations for spatial-aesthetic design and plant selection, demonstrating how historical wisdom can guide urban agricultural landscapes that advance social equity, environmental resilience, and experiential richness.

Key words: *Landscape Design, Environmental Design, Edible Landscape, Multisensory Design, Persian Garden*

INTRODUCTION

Throughout history, agriculture and urban settlements have maintained an intrinsically intertwined relationship. Urban agriculture has persistently served as a spatial manifestation of prevailing environmental, socio-economic, and cultural conditions. The integration of edible plants and productive landscapes has been a constitutive element of Persian gardens since their earliest manifestations, offering valuable precedents for contemporary urban design.

Insights derived from historical precedents can establish foundational principles and inspire innovative approaches to contemporary urban agricultural design. The incorporation of urban agriculture and edible landscapes into urban planning represents a significant strategy for enhancing urban sustainability, advancing the Sustainable Development Goals (SDGs), and fostering urban resilience in response to environmental and socio-political challenges.

While the historical evolution of Persian gardens is well documented, their specific edible landscape elements and design principles remain an underutilized resource for modern urban design. This paper addresses this gap by examining the historical evolution, spatial distribution, functional transformations, and landscape elements of edible landscapes within Persian gardens.

PURPOSE

This research aims to identify the key landscape elements and design principles from Persian gardens that historically integrated productive and

ornamental functions. By synthesizing these historical insights with contemporary criteria for sustainable edible landscape design, the study will develop informed recommendations for spatial-aesthetic design and plant selection in modern urban edible landscapes.

RESULTS AND DISCUSSION

The analysis of Persian gardens' historical evolution reveals a sophisticated design language with profound implications for contemporary practice. To bridge the gap between historical precedent and modern application, this discussion distills the findings into three core principles that were central to the success of these productive landscapes. Each principle – Accessibility and Sharing, Microclimate Regulation and Irrigation, and Multi-Sensorial Experience – is examined for its historical manifestation and its potential to inform more resilient, equitable, and enriching urban edible landscapes today.

1. Accessibility and the Sense of Sharing

Prior to the thirteenth century, Persian gardens were primarily located outside city walls. A major spatial shift began in the fifteenth century, particularly during the Safavid dynasty, when rulers integrated expansive gardens into urban development, transforming them into components of civic infrastructure. Accessibility concurrently evolved from royal exclusivity to public use; the Hezar Jerib Garden, created by Shah Abbas I, was freely open to residents and supplied fruit for the entire city of Isfahan [3]. This trajectory – from peripheral to central and exclusive to accessible – demonstrates that Persian gardens increasingly functioned as public amenities, offering enduring lessons for contemporary urban agricultural design.

These historical insights suggest that modern urban agricultural spaces should be conceived not merely as food production facilities but as genuinely public amenities advancing multiple Sustainable Development Goals. Strategic site selection must ensure equitable access across populations, addressing SDG 11 (Sustainable Cities and Communities) and SDG 10 (Reduced Inequalities) through spatial justice. Design approaches should signal invitation and welcome, applying universal design principles to remove barriers to entry and use. Furthermore, programming and management frameworks must institutionalize community access to harvests; the Hezar Jerib Garden's abundant production for all Isfahan's residents historically validates this principle, contributing to SDG 2 (Zero Hunger) by enhancing local food security and community food sovereignty. By embedding "design for all, with edible plants for sharing" at the core of design philosophy, contemporary urban agricultural landscapes can fulfill both their productive potential and their role as catalysts for social and environmental justice [4].

2. Microclimate Regulation and Irrigation

The Paradise Garden described in the Qur'an establishes essential features that profoundly influenced Islamic Garden design: shade, fruits, flowers, and running fountains. This vision of paradise, with its specific references to spatial features and elements, became the foundational design inspiration for formal gardens throughout the Islamic world [3].

Contemporary urban agricultural landscapes can draw directly from this integrated approach to microclimate regulation and water management. Adequate shade structures – whether from trees, pergolas, or integrated architectural elements – are essential for creating usable urban agricultural spaces. Shade moderates microclimates, extends growing seasons, protects workers and visitors from excessive solar exposure, and reduces urban heat island effects [2]. The deliberate placement of shade elements should be integral to design, not an afterthought.

Reliable water sources for irrigation are fundamental to agricultural productivity. The Persian Garden tradition demonstrates that water features can serve multiple functions simultaneously: irrigation supply, microclimate cooling, aesthetic enhancement, and sensory experience. In contemporary contexts, this translates to integrated water systems that incorporate rainwater harvesting from surrounding built surfaces, greywater recycling where appropriate, stormwater management that treats water as a resource rather than waste, and irrigation systems that distribute water efficiently while creating visible water features that enhance public experience [1]. This integration transforms urban agricultural spaces from isolated production sites into multifunctional environmental infrastructure.

3. Multi-Sensorial Experience

Persian gardens were conceived as immersive sensory environments engaging all human faculties. The Royal Gardens of Ashraf near Amol and the Summer Palace of Barforush exemplify this approach [3]. The deliberate orchestration of sensory stimuli – the visual beauty of blossoms and form, the fragrance of flowers and herbs, the taste of fresh fruit, the sound of water moving through channels and fountains – created immersive experiences that engaged visitors physically, emotionally, and spiritually.

Contemporary urban agricultural landscapes should similarly be designed as multisensory environments. Visual experience derives from spatial structure, seasonal change, color sequences, and formal composition, demonstrating that productive landscapes can achieve high aesthetic standards. Olfactory experience is enriched through inclusion of fragrant species – herbs, flowers, and aromatic foliage – strategically positioned near seating areas, pathways, and entry points. Gustatory experience engages taste as an integral component through direct access to edible produce, with design facilitating appropriate harvesting while protecting plant health. Auditory experience benefits from water features adding sonic dimension, wind through trees, birds attracted to productive habitats, and the sounds of human activity contributing to layered acoustic environments. Tactile experience invites physical engagement through varied textures – from smooth tree bark to rough stone, from soft herbs to crisp leaves.

The multisensory richness of Persian gardens demonstrates that productive landscapes need not sacrifice experiential quality; rather, productivity and sensory engagement can be mutually reinforcing design objectives.

CONCLUSIONS

The Persian Garden tradition offers enduring lessons for contemporary urban agricultural design across three key dimensions. First, the evolution from

exclusive peripheral gardens to accessible public amenities – exemplified by Hezar Jerib Garden – demonstrates that productive landscapes can advance social equity and SDG targets through spatial justice and community access to harvests. Second, the integration of shade structures and multifunctional water systems illustrates how microclimate regulation and irrigation can transform production sites into environmental infrastructure. Third, the deliberate orchestration of sensory stimuli confirms that productivity and experiential richness are mutually reinforcing, not mutually exclusive.

As cities confront food security, climate adaptation, and social cohesion challenges, these historical principles offer timely guidance for designing urban agricultural landscapes that nourish both body and spirit while building sustainable and resilient communities.

REFERENCES

1. Sustainable Urban Agriculture / K. Al-Kodmany et al. Boca Raton : CRC Press, 2024. 261 p. DOI: https://doi.org/10.1201/9781003359425 .

2. Balkrishna A. Sustainable Agriculture for Food Security: A Global Perspective. Boca Raton : Apple Academic Pr Inc, 2024. 406 p.

3. Khalilnezhad M. R., Russo A., Kheirollahi M. Edible landscapes in Persian gardens: a historical perspective from ancient Iran to the present day. *Landscape History*. 2024. Vol. 45, no. 2. P. 121–140. URL: https://doi.org/10.1080/01433768.2024.2407196.

4. The 17 Goals. *Sustainable Development*. URL: https://sdgs.un.org/goals (date of access: 10.03.2026).

ЖЕНЬ С., БУЛГАКОВА Т.

ПРИНЦИПИ ПЕРСЬКИХ САДІВ У СУЧАСНОМУ ДИЗАЙНІ МІСЬКИХ ЇСТІВНИХ ЛАНДШАФТІВ

Перські сади поєднували продуктивні та декоративні функції, створюючи історичні прецеденти для формування сучасних їстівних ландшафтів. У дослідженні визначено ключові принципи їхнього проєктування шляхом аналізу історичної еволюції, яка засвідчує просторову трансформацію від периферійної ексклюзивності до інтегрованих громадських просторів, збереження функцій регулювання мікроклімату та мультисенсорного формування середовища як сталих характеристик. Узагальнення цих історичних положень у поєднанні з сучасними критеріями сталого розвитку дозволило сформулювати рекомендації щодо просторово-естетичної організації та добору рослин, демонструючи, як історична спадщина може слугувати основою для створення міських агроландшафтів, що сприяють соціальній рівності, екологічній стійкості та багатству просторового досвіду.

Ключові слова: *ландшафтний дизайн, дизайн середовища, їстівний ландшафт, мультисенсорний дизайн, перський сад.*