

CLASSIFICATION OF FAMILY VEGETABLE GARDENS

CLASIFICAREA GRĂDINILOR DE LEGUME FAMILIALE

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Abstract. *Urban expansion has led the population to create small green spaces around their homes, and the desire to consume fruits and/or vegetables grown according to their own principles, convinced them that a vegetable garden is beneficial, in terms of both food and aesthetics. The data gathered from the specialized scientific literature allowed making a classification of the family vegetable gardens, taking into account the following: the purpose, the style of the design, the functionality and the way of construction. Depending on the purpose, there are vegetable gardens for utilitarian purposes, vegetable gardens for therapeutic purposes and vegetable gardens for culinary purposes. Depending on the style, there are vegetable gardens designed in a geometric style, vegetable gardens arranged in a free style and those arranged in a mixed style. Taking into account the functionality are the ecological, educational, cultural, aesthetic-recreational and sanitary vegetable gardens. In addition, depending on the construction method are the vegetable gardens at ground level, on raised beds, the vegetable gardens in pots and containers and the vegetable gardens on wicker beds. This classification helps to achieve the concept of designing the vegetable garden for decorative purposes and, in this way, can be integrated into the overall design of the property.*

Key words: urban garden, edible landscape, vegetable garden, raised beds

Rezumat. *Expansiunea urbană a determinat populația să își creeze mici spații verzi amenajate în jurul locuințelor, iar dorința de a consuma fructe și/sau legume crescute după propriile principii, i-au convins că o grădină de legume este benefică, atât din punct de vedere alimentar cât și din punct de vedere estetic. Datele din literatura științifică de specialitate ne-au permis să realizăm o clasificare a grădinilor de legume familiale, luând în calcul următoarele: scopul, stilul de amenajare, funcționalitatea și modul de construcție. În funcție de scop sunt grădinile legumicole cu scop utilitar, grădinile legumicole cu scop terapeutic și grădinile legumicole cu scop culinar. În funcție de stil sunt grădinile legumicole amenajate în stil geometric, grădinile legumicole amenajate în stil liber și cele amenajate în stil mixt. Luând în calcul funcționalitatea putem întâlni grădinile legumicole ecologice, educative, culturale, esteticorecreative și cele sanitare. În funcție de modul de construcție grădinile legumicole pot fi la nivelul solului, pe straturi înălțate, grădinile legumicole în vase și containere și grădinile legumicole pe straturi-fitil. Această clasificare ajută în realizarea conceptului de amenajare a grădinii de legume cu scop decorativ putând fi astfel integrată în amenajarea de ansamblu a proprietății.*

Cuvinte cheie: grădină urbană, grădină utilitară, amenajare, straturi înălțate

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INTRODUCTION

Family vegetable gardens are a special category because they are designed according to the available space with dimensions from 40 to 500 m² and are located in individual private gardens (Mihai and Hoza, 2012).

For developing and designing these types of vegetable gardens, the cultivation technology (planting distances, care works, etc.), the type of crop (secondary or basic) and, last but not least, the decorative elements of the chosen species must be taken into account and respected (Creasy, 2010).

As this type of garden is aimed at the private sector, other aspects must be taken into account, such as the personality and the field in which the owner works, so that they are a place of relaxation, respectively the time needed for them to take care of it.

According to the appearance of the garden and the way the plants are placed, Larkcom (2005) considers family vegetable gardens to be conventional or ornamental. But this classification can be developed and family vegetable gardens can be classified by applying the same principles and purposes as decorative gardens.

MATERIAL AND METHOD

The main research method of this study was documentary study regarding on the method of vegetable gardens classification.

All the information obtained during this study will result in a small simulation of a vegetable garden, which will be located in the horticulture experimental field of „V. Adamachi” farm from Iasi.

The area and location for the design will be assessed and natural factors will be taken into account, such as: water, soil, light and local fauna. The surface to be designed had 37 m² which will be repeated in three modules of the same shape and size, but at different heights from the ground.

The list of plants was carefully made according to their ecological requirements (light, water, soil), the mode of association and succession, the decorative elements (port, shape, color and texture of leaves, flowers and fruits) and the possibility to decorate a longer period of time.

RESULTS AND DISCUSSIONS

The classification of the family vegetable gardens described and presented in this paper was made taking into account their purpose, the design style, the functionality and the construction method. Also, this classification was made carefully analyzing the specialized literature and based on all the studies carried out between 2017-2021 within the doctoral thesis studies.

1. The purpose of family vegetable gardens

- Utilitarian purpose

The utilitarian vegetable garden consists of several plots composed of beds on which are cultivated several types of vegetable plants. In the private sector it is

small in size and is usually found in an unused and low-traffic area of the property, a hidden area (fig. 1. A) (Hangan *et al.*, 2020; Pripș, 2013).

- Therapeutic purpose

In this type of vegetable garden, the aromatic, spicy and medicinal plants are cultivated in order to create a meditation area (fig. 1. B) (Hangan *et al.*, 2020).

- Culinary purpose

Vegetable gardens for culinary purposes are a mix between utilitarian and therapeutic vegetable gardens (fig. 1. C). Vegetable species are combined with aromatic, spicy and decorative plant species to enhance the aesthetic effect of the garden. Ornamental varieties of utilitarian plants can also be used (Galea *et al.*, 2015; Pripș, 2013; Sima, 2009; Kourik, 1986).



Fig. 1. Types of vegetable gardens depending on the purpose

A. Utilitarian purpose; B. Therapeutic purpose; C. Culinary Purpose (*various authors*)

2. The design style of family vegetable gardens

Given that vegetable gardens can be also designed as a decorative garden, the major general creative styles can be also applied to them (Dumitraș *et al.*, 2008).

- Geometric style

This style is divided into formal and informal geometric style. The formal geometric style is most often used in classical gardens and a large space is needed to create visual perspectives, points of interest, and the whole design is composed on the principle of symmetry and axially (fig. 2. A). Also, the texture and color of the plants used have a very important role in the whole design. The informal geometric style is used in modern, contemporary designs (Sima, 2017; Dascălu and Cojocariu, 2016).

- Free style

The visual impact in this style is provided by the strong focal points and the small details throughout the design. Curvy, natural shapes and lines are used (fig. 2. B) (Sima, 2017; Dascălu and Cojocariu, 2016).

- Mixed style

The two styles presented above can be combined, thus taking the form of the mixed style. There can be geometric design plans with beds of the same shape but with the placement of plants in a free and natural way (fig. 2. C). This gives dynamism to the whole design (Sima, 2017; Dumitraș *et al.*, 2008).



Fig. 2. The design style of family vegetable gardens

A. Geometric style; B. Free-style; C. Mixt style (*various authors*)

3. The functionality of family vegetable gardens

In the concept of edible landscaping the functionality of vegetable gardens have a major impact. Just as in a landscape design there is the same functionality in the vegetable gardens (Hangan *et al.*, 2020):

- Ecological

By combining vegetable and decorative plants, it contributes to the enhancement and conservation of local biodiversity (Sima, 2017).

- Educational

Informing the younger generation about food sources and understanding cultivation technologies contributes to consumers understanding of producers' efforts to obtain plant products (Megan *et al.*, 2016).

- Cultural

Certain vegetable species are specific to certain cultures, so certain specific gardens can be created (Sima, 2017; Narayanan and Panda, 2011).

- Aesthetic-recreational

By combining vegetable and ornamental species, it can be created relaxation spaces both indoors and outdoors (Megan *et al.*, 2016).

- Economic

In addition to the decorative effect that vegetable species offer, they also contribute to food by reducing the budget allocated to its purchase (Sima, 2017; Ghosh, 2014).

- Sanitary

By setting up, maintaining vegetable gardens and harvesting edible species, humans perform certain physical activities beneficial to their body. It can also control the culture technology adopted by reducing or even eliminating the consumption of chemicals (Hangan *et al.*, 2020).

4. The construction of family vegetable gardens

- At ground level

In most vegetable gardens, planting is done directly in the existing soil and at ground level. This way of planting and setting up does not require special maintenance and the investments are minimal (fig. 3. A) (Kourik, 1986).

- On raised beds

The raised beds garden is created on beds above ground level with various shapes and can be delimited by curbs of different materials such as wood, stone, concrete or metal (fig. 3. B). The height can vary from 20 cm to 40 cm or even 60 cm above ground level (Hangan *et al.*, 2020).



Fig. 3. Family vegetable garden at ground level (A) and in raised beds (B) (*original*)

Although the investment is relatively large, this type of garden has many advantages. Being above ground level, it will not be trampled on and in this way, the soil will not compact and the roots will develop properly. Another advantage is the possibility of positioning the plants as close as possible to each other, a planting method that will create a microclimate in which weed growth is suppressed and humidity is preserved (Hangan *et al.*, 2020).

Raised beds family vegetable gardens can be:

- Built with added substrate

They can be with commercially purchased substrate or with existing substrate improved with manure and compost (Gache *et al.*, 2018).

- Lasagna type

The layers built in this way are positioned on the existing soil and are composed of several layers of organic materials. The materials may vary but are usually cardboard, hay, compost, green waste, organic fertilizers, etc. (Hangan *et al.*, 2020).

- In pots and containers

This cultivation method is recommended for small spaces in gardens but also inside homes or balconies (fig. 4.). For the cultivation of vegetable species in balconies or terraces in the city must be taken into account the degree of pollution. It is recommended to be placed in sunny locations and protected from heavy traffic arteries (Hangan *et al.*, 2020; Gache, 2020).



Fig. 4. Family vegetable garden in pots and containers

(<https://balconygardenweb.com/13-tips-to-create-a-decorative-container-vegetable-garden/>)

Depending on the space available and the desired effect, the pots and / or containers can be placed on the floor (in the garden, on the terrace, on the balcony or indoors) or can be suspended.

- On wicker beds

Wicker-beds vegetable gardens are a combination of raised layers and containers. The wicker-beds are built of large containers or are containers containing a water tank at their base. The water flows through the capillary in the container from the bottom to the top (Hangan *et al.*, 2020).

According to the classification criteria set out, the purpose of the designed vegetable garden in this research is culinary and is designed in an informal geometric style with the placement of plants in free style. The design of the entire vegetable garden design can be seen in figure 5.

The design and planning of a small urban vegetable garden is very important, because in this way the area allocated to it is used to its maximum

capacity to provide sufficient decoration and production for family use. Its purpose is to combine the utilitarian function with the aesthetic one.



Fig. 5. Aerial view of experimental variants (*original*)

Culinary gardens look better designed in a free style, but can be organized according to a mixed or geometric scheme as the style adopted in the present study.

The vegetable garden is created from eight modules with different shapes: four rectangular modules and four L-shaped modules. They are placed symmetrically according to an axis OX , OY , with equal distances between them. Thus, secondary alleys were created between the modules to provide access to the side alleys and a free space took shape in the center of the arrangement that can be used for relaxation and meditation.

The basic functions are the following and can be observed in figure 6.: aesthetic-recreational, educational, ecological, economic and sanitary.

The space created can be arranged with a table and chairs to be able to dine outdoors, sunbeds can be placed for relaxation or it can be used as a focal point by placing a statuette or a piece of water, thus becoming a space with recreational functionality.

It is an ecological garden due to the fact that the principle of crop rotation was used, the principle of companion plants was used and an ecological cultivation system was adopted.



Fig. 6. Basic functions: aesthetic-recreational, educational, ecological, economic and sanitary
(original)

The educational function is due to the fact that the family's children can learn the path that a plant goes from the seed stage to the consumption stage. They can also learn how to care for a plant in order to survive and provide shelter for other insects.

The garden with raised layers is suitable on sloping terrains or on soils that are not favorable to plant cultivation. Although the costs of setting them up are higher at the beginning, the investment is amortized over time. In fact, if the land allows, they can be set up at ground level, thus setting up costs are lower.

The sanitary function is provided by its space. Plant maintenance works providing the minimum movement every day for an adult human. Being a private vegetable garden, the owner can minimize or completely remove phytosanitary treatments from the treatment scheme and can use natural fertilizers and companion planting.

The ornamental value of the entire design is offered mainly by the color of the leaves, petiole and flowers. Throughout the design, the eye is attracted primarily by the bright orange color of the French marigold flowers. These plants are found in most compositions, as can be seen in figure 7. These plants provide protection against certain pests, but also provide orange accents throughout the warm season until late autumn.



Fig. 7. Details of plant composition (*original*)

With the onset of the cold season, the vegetable garden design continues to be decorative due to kale, mangold, leek and perennial species. At low temperatures, mangold and kale species intensify the color of their leaves, thus having a very high visual impact.

CONCLUSIONS

1. Family vegetable gardens are designed and built according to the purpose for which they are proposed;
2. Depending on the information gathered, the following classification criteria resulted: the purpose, the design style, the functionality and the construction;
3. A family vegetable garden can have mixed functions and criteria. There can be a family vegetable garden at ground level with a mixed style having a culinary purpose and being ecological, esthetic-recreational, economic and sanitary. Another example of a family vegetable garden can be built on raised beds and at ground level with added pots with only therapeutical purpose and in a geometric style;
4. According to the study, the designed family vegetable garden is built on raised beds with a geometric style but with a freestyle planting design, having a culinary purpose and with a multitude of functionalities (ecological, educational, aesthetic-recreational, economic and sanitary).

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