

RESEARCHES REGARDING THE PRODUCTIVE AND ORNAMENTAL CHARACTERISTICS OF VEGETABLE GROWING IN UTILITARIAN GARDENS

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Abstract

The purpose of this study is to highlight the productive and ornamental value of vegetable growing in order to create a utilitarian and decorative garden. Numerous plants were studied, which have been chosen considering the family need for daily food and the consumption of various fresh vegetables during one year time. The vegetable species have been placed on the field appropriate for this study, in regulate geometrical forms (square, quadrangle, rhombus, etc.), surrounded by alleys covered with turf aimed for circulation, on agro textile sheets. The sequence of cultures has been made according to the technical culture rotation rules, considering also the complete field occupation from spring to fall. The plants used have been the following: pea, radish, onion, garlic, tomato, lettuce, pepper, cucumber, etc. All species registered satisfactory productive results and due to the fact that along the year, depending on the species and period of time chosen, the plants proved ornamental value, this method of production gains popularity in the present family gardens.

Key words: garden utilitarian, ornamental characteristics, vegetable growing

INTRODUCTION

The gardens from individual homes represent a special category of landscape design on small areas, from 40-50 square meters until 400 – 600 square meters, being similar to closed spaces, limited by the surroundings.

The garden can be located differently related to the position of the building, in front or in the back of the house. The front gardens, when they have small or visually penetrable fences, can contribute to the urban aesthetics. Most of the time, these gardens represents narrow strips, which is why small ornamental plants are generally used, together with one or more vertical elements which do not disturb through excessive shadows or over development (Iliescu, 2008).

Often, the back gardens provide intimacy and protection against prying eyes. They serve as a resting place, where one can manifest his passion for gardening depending on the size and wishes of the beneficiary, the garden can include a platform for garden furniture that can be shady due to a pergola, turf, flowers,

ornamental shrubs, a swimming pool, small parcels for cultivating different culture plants, some household amenities (warehouse, small greenhouses, yard, dog house etc., photo 1, 2) and others (R. Bird, 2008).



Photo 1. „Vegetable garden surrounded by walls”
(Richard Bird)

The general arrangement of the individual garden can be free style or geometric, asymmetric, although symmetry is sometimes chosen in case of front garden, when the entrance into the building is centrally located.

One example of a utilitarian garden is the garden from the Villandry Castel from 1536, which has been appreciated since Renaissance (photo 3). Between the vegetable garden and church, the garden of spices can be found, which complies with the arrangement from the Middle Eve.

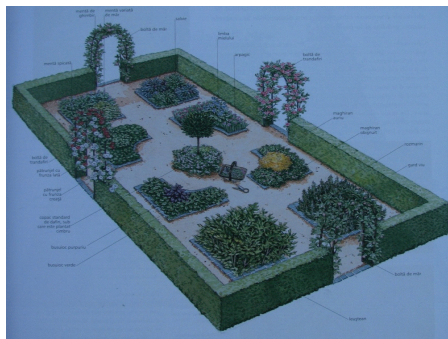


Photo 2. „Formal greens garden” (Richard Bird)

This is where aromatic, medicinal plants and other herbs are cultivated and further used in cooking. The garden contains approximately 30 plant varieties that were considered to be essential for a family during the period when the castle was built.

The vegetable garden is divided into nine rectangular areas, with equal sides, but which have different geometric shapes. These shapes contain different vegetable plants that create a chromatic contrast (blue leek, ornamental red cabbage, green carrot leaves) and leave the impression of a colorful game board.



Photo 3. Vegetable garden - Villandry Castle
(www.gradinamea.ro)

The vegetable garden was created in the Middle Eve, being taken care of by the monks from the nearby monastery. Later on, the pragmatic Dr. Carvallo recreated the

vegetable garden during the Second World War, by adding a number of 2.500.000 plants that nowadays have only an ornamental purpose. The garden used to contain only 40 species of cultivated vegetables. Numerous intersections from the garden remind us of the original monastery gardens. The monks were also the one to plant regular roses in order to embellish the gardens; according to the tradition, the roses were symmetrically planted.

The vegetable species are also used for their remarkable role in ensuring the décor in case of landscape of utilitarian gardens, during different periods of the year (Hoza, 2008). The elements through which these horticultural species manifest their ornamental characteristics are: the plant itself, degree of ramification, color of leaves, color of flowers and color of fruits.

The horticultural plants are characterized through different shapes, as follows:

- Bush: pepper, eggplant, some varieties of squash, dwarf bean, sage, rosemary, etc.
- Leaf rosette: lettuce, spinach, onion and garlic, carrot, dill, parsnips, parsley, celery, cabbage, red cabbage, cauliflower, broccoli, sorrel, patience etc.
- With one strain: tomatoes, cucumber, loofah, winter squash etc.
- Lianas: loofah, spiky cucumber, bitter cucumber, pumpkin, some varieties of squash, climbing bean etc.
- Crawler: pumpkin, squash, cucumber, sweet potato, winter squash etc.

The ramification degree is a species character and differs from one species to another. The vegetables like some species of cucurbitaceous (spiky and bitter cucumber, winter squashes) naturally form a large number of shoots, which allows using them for creating “green walls”, with a reduced manual labor effort.

The color of the leaves is an element present during the entire year, with maximum effects during certain time periods, depending on the species. During spring time, the green color of the leaves awakes the nature and has a good disposition effect.

Thus, there are varieties of lettuce with different colors, as follows: yellowish green,

shiny dark green, purple red, with different intensity.

The sweet potato has leaves colored in dark green, light green and ruby red, which can be used either separately or grouped directly in the garden or in flower pots.

The mangold, through the different colors of the leaf petiole (while, ruby red, orange), is an extremely decorative plants, allowing to the associated with other vegetable plants or flowers from the summer decor.

The aspect of the leaf is very important, being the most exposed element for some species. Thus, the lettuce can have whole leaves or curled, wrinkled or oak shaped leaves, depending on the species. A simple association of the varieties with different aspect and differently colored leaves can ensure a pleasant décor. Moreover, Savoy has embossed leaves, associated with a very intense green color; the leaf cabbage has wrinkled light green leaves, covered in wax, which can found in the upper part of the plant, ensuring a palm tree aspect. The leaves that have many sections, such as the leaves from carrots, parsley, celery, are pleasant for the view, especially if they are associated with the shine found at parsley, celery etc.

The color of the flowers is a very important aesthetic element for some vegetable species. The beauty of the leaves is much more obvious for some species of onion, which have purple leaves, such as: chives – blooms in April and lasts for a month-a month and a half; winter onion – has cream-colored inflorescences on a background of shiny green leaves; rhubarb – inflorescences that at the beginning have a light greenish-red tone, but later become white. Furthermore, the very vigorous inflorescences that form from a big leaf rosette give a feeling of greatness and dominance in the garden. Later on, white leaves begin to form for peppers, yellow for tomatoes, loofah, cucumbers and pate, purple for eggplants, artichokes, and cardoons etc.

The color of the fruits represents an important ornamental element during the maturation

period. For this purpose, we remember the tomatoes with small or big fruit (different tones of red, yellow, orange, spotted, white etc.), peppers (red, yellow, purple, black and green) and eggplants (green, white, purple).

MATERIAL AND METHOD

The experiment was conducted in Ilfov County, Dridu common, Sitaru village, north-east from Bucharest. The experiment represented the design of an ornamental and utilitarian vegetable garden in order to highlight the remarkable ornamental role of vegetables and to create a balance between the aesthetic and practical functions. The area of the experiment was 74,58 useful square meters (approximately for 2 persons), plus 46,42 square meters of grassed alleys. The style chosen for the design of the garden was a formal style, geometric, which allows the rotation of culture and the maintenance of plants (support, irrigation by dripping etc.).

The sketch of the garden is similar to a square with a 11 cm side (figure 1), inside which the following are found: 2 trapezes with concave top, 4 rectangular triangles with concave top, o rectangular strip which surrounds the garden, one circle in the middle of the garden and rectangular alleys that limit the previously mentioned shapes.

The structure of the culture was established in order to satisfy the needs of a family, wand the rotation of the cultures was established for four years.

RESULTS AND DISCUSSIONS

The ornamental and utilitarian vegetable garden with two previous cultures and one main culture created a balance between the aesthetic and practical functions of the plants, after corresponding design and maintenance works were applied. The plans for the garden, both for the previous and main culture, can be seen in photo 4.

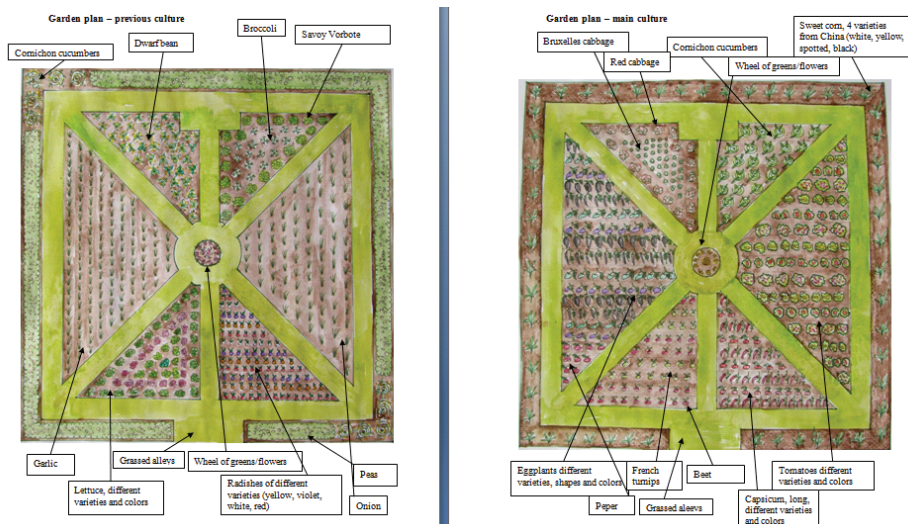


Photo 4 Plans for garden - previous and main culture

In what concerns the production for the cultivated species, varieties and hybrids, it is

considered to be good and very good, except for some species and varieties (Table 1, 2).

Table 1 Production from the previous culture

Species	Variety	Production/plant(kg)	Production per sm(kg)	Average weight (g)
<i>Lactuca sativa</i>	Lollo rosa	0.440	2.80	440
	Lollo bionda	0.290	1.80	290
	Smile	0.480	3.12	480
	Great Lakes 118	0.550	3.57	550
<i>Raphanus sativus</i> <i>conv. sativus</i>	Viola	0.022	1.76	22
	Reisenbutter	0.025	2.00	25
	French Breakfast 3	0.027	2.16	27
	Zalta	0.022	1.76	22
	Icicle	0.029	2.32	29
<i>Allium cepa</i>	local variety	0.055	5.50	55
<i>Brassica oleracea</i> <i>convar. botrytis</i> <i>var. italica</i>	Calabrese Natalino	0.100	0.040	100
<i>Brassica oleracea</i> <i>convar. capitata</i> <i>var. sabauda</i>	Vorbote 3	1.100	4.40	1100
<i>Phaseolus vulgaris</i> <i>convar. nanus</i>	local variety	0.025	3.33	5
<i>Allium sativum, ssp. vulgare</i>	local variety	0.018	1.25	18
<i>Pisum sativum</i> <i>ssp. sativum</i>	local variety	0.020	1.00	4
<i>Cucumis sativus</i>	Libelle F1	0.400	1.60	60

Table 2 Production from the main culture

Species	Variety	Production/plant(kg)	Production per sm (kg)	Average weight (g)
<i>Beta vulgaris</i> var. <i>conditiva</i>	Detroit 2	0.200	1.80	200
<i>Brassica oleracea</i> conv. <i>gongylodes</i>	Gigant	0.600	2.10	600
<i>Capsicum annuum</i>	California Wander	0.500	1.75	150
	Opal	0.950	3.33	180
	Cosmin	1.080	3.79	165
	Cornel	0.140	0.49	90
<i>Cucumis sativus</i>	Libelle F1	-	-	-
<i>Brassica oleracea</i> var. <i>capitata</i> f. <i>rubra</i>	Red Amager	0.526	1.84	526
<i>Brassica oleracea</i> var. <i>gemmifera</i>	Long Island	0.270	0.81	15
<i>Solanum melongena</i>	China (black ovals)	0.366	1.46	300
	China (long)	0.490	1.96	270
	China (green ovals)	0.465	1.86	340
	Rodica	0.805	3.22	390
<i>Zea mays</i> convar. <i>saccharata</i>	China (white)	-	-	-
	China (black)	-	-	-
	China (spotted)	-	-	-
	China (yellow)	-	-	-
<i>Lycopersicon esculentum</i>	Buzău 1600	1.060	4.24	75
	Yellow prunis (local variety)	1.916	7,66	25
	China (yellow)	1.142	4.57	80
	Cherry	0.916	3.66	22



Photo 5 Tomatoes fructification



Photo 6 – Three lettuce varieties



Photo 7. Tomatoes and yellow pepper



Photo 8 Rouge pepper



Photo 9 General review



Photo 10 Onion and lettuce

CONCLUSIONS

The studied species, varieties and hybrids of vegetables, through the remarkable colors of the leaves, their shapes, habitus and fruits (photo), ensured an extraordinary decor within the garden, for a long period of time from spring to late autumn (cabbage varieties), which demonstrates that vegetables can be used in landscape design.

Planting the vegetable species in different parcels, according to the botanical families, based on culture rotation, allowed the creation of centers of interest within the garden, for a long period of time within the year, due to seasonal successions and longevity of the morphological characteristics.

The formal style, with geometric shapes, allowed the installation of an efficient irrigation system and also enhanced the rotation of the cultures.

The grassed alleys or access paths represent "natural reserves" for local edaphic flora and fauna, which, through migration, contribute permanently to the rehabilitation of the underground balance from the cultivated area. Thus, this is a method to help restore the natural soil fertility within the garden.

The cultivated vegetable species reached their ornamental and productive potential and are recommended to be used in landscape design for utilitarian and ornamental vegetable gardens, because these gardens represent a mix between their aesthetic and practical functions.

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