

Association of annual flowering plants in a flower bed in the Municipality of Timisoara and results during vegetation in 2011

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Abstract Choosing plants can be one of the highest pleasures of a landscapist, but it can also engender dilemmas. The number of cultivated flowering plant species and varieties is so large and varied that it is almost impossible to say the decision we have made for a planting sketch is the best.

In the present paper, we study a few annual plants used to decorate green areas in parks and gardens; the research result is the choice of the most suitable plant combination for the climate conditions of the municipality of Timisoara.

To get the best results, we monitored the evolution of plants during the vegetation period from the point of view of plant height, diameter, blooming period, and compatibility with other plant species. Measurements were made in 2011, at different plant development stages, aiming at achieving the best flowering plant combinations.

Annual plants are indispensable in window decoration, in making a balcony look joyful, or in embellishing a terrace. Annual plants provide a summer decor at any time. Each of them displays, during the hot season, an impressive mass of flowers and colours. They do not winter and therefore need to be replaced every year. Nothing is forever with them. They allow a change of decor and environment every year (**Le guide creative du Jardin- Jardiland- Editions Eugen Ulmer 2009**).

Annual flowering plants have a wide range of uses: they are used to decorate gardens, to embellish balconies and windows, to be planted along house walls, potted for early blooming in spring or as cut flowers.

Annual flowering plants are a delight for the sight and make landscapes charming; they make a smooth shift from the lawn to the shrubs and trees due to their abundant, long-lasting blooming. Due to the variety of shapes, colours, and sizes, the feeling of monotony is annulled, making room to harmony and gayety, which confers quietness and good humour.

As for the beauty of the shapes, for the intensity of colours, and particularly for the duration of blooming, many annual flowering plants are richer than other groups of flowering plants (**G. E. Kiselev-Floricultura- Editura Agro-Silvica de stat-Bucuresti 1956**).

Plants are crucial elements in almost all landscaping projects; however, their importance is often ignored. Choosing plants, even by experimented landscapists, is often inappropriate: the result is “bad”

Key words

annual plants, flower bed, combinations

compositions of plants that purely and simply do not develop or, worse, of plants that wilt or even die. The plants in a composition can be inappropriate for the environment or for the plants chosen for the composition (**Tony Lord, Andrew Lawson- Encyclopaedia of planting combinations- 2008**).

In choosing plant combinations, we need to take into account plant behaviour and evolution during the vegetation period, as well as their suitability with each other if we want to produce a fine view during the entire vegetation period. Grouping plants in a flower bed should be done taking into account plant size, flower colour, their leafage, as well as their blooming period and soil covering ability (**Ana Felicia-Iliescu- Arhitectura peisagera- Editura Ceres 2008**).

Materiale and Methods

Depending on the decorative element, on the period they bloom, and on the duration of decorating features, flowering plant species can be used in landscaping to make up and decorate flower beds, rebates, kerbs, spots (**Maria Bala- Floricultura generala si speciala, Editura de Vest- 2007**). They are also used to decorate alpine gardens and flowered walls, and they can be cultivated in flower stands, vases, and terraces.

The present study was carried out in the Alpinet Park, in the Municipality of Timisoara.

For the study, we have chosen to plant the flowering plants along a kerb.

- Planting nursery transplants was done in May, after the risk of late frosts is gone.
- Planting distance of nursery transplants was established depending on plant size upon maturity, so that the plants do not suffocate each other, but creates a compact spot with the kerb.
- We established plant groups large enough to make up colour and texture masses.
- We aimed at obtaining a balanced composition and avoid loading the different sides of the kerb with too much of a certain colour.
- To make up the decoration of the kerb, we chose plants that are decorative due to both flowers and leaves. Here are the annual flowering plant species we chose for our landscaping:

- *Begonia semperflorens*;
- *Cinararia maritime*;
- *Coleus citron*;
- *Gazania splendens*;
- *Heliotropium hybridum*;
- *Iresine lindenii*;
- *Petunia hybrida*;
- *Salvia splendens*;
- *Tagetes erecta*.

The kerb chosen for our trial was 0.90 m wide and 11.6 m long, i.e. a total area of 10.44 sm.

The plant species were planted taking into account their colour, their compatibility, and the possibility of creating a floral mosaic in accordance with the chromatic wheel of **Johannes Itten**.



Fig 1. Planting scheme

Table 1

Estimate costs (vegetal material)

| No. | Plant name | Amount | Price/piece | Value (RON) |
|-----|------------------------------------|--------|-------------|----------------|
| 01 | <i>Begonia semperflorens</i> (red) | 105 | 2.9 | 304.50 |
| 02 | <i>Cineraria maritima</i> | 57 | 2.9 | 165.30 |
| 03 | <i>Coleus citron</i> | 36 | 2.9 | 104.40 |
| 04 | <i>Gazania splendens</i> | 24 | 2.9 | 69.60 |
| 05 | <i>Heliotropium hybridum</i> | 124 | 2.9 | 359.60 |
| 06 | <i>Iresine lindenii</i> | 102 | 2.9 | 295.80 |
| 07 | <i>Petunia hybrid</i> | 66 | 2.9 | 191.40 |
| 08 | <i>Salvia splendens</i> | 100 | 2.9 | 290.00 |
| 09 | <i>Tagetes erecta</i> | 101 | 2.9 | 292.90 |
| | TOTAL without VAT | | | 2073.50 |

Results

Due to the fact that the area we chose to decorate was a kerb and the design of the planting was a mosaic, we could study a large number of plants that

we planted in different patterns, so that the results to be as relevant for our study as possible. Results show that we can choose viable combinations for the landscaping of green areas in the conditions of Timisoara.

We noticed that some plants develop very well during vegetation, preserving their aesthetic features until the cold season. Other plants proved to be improperly chosen because of the conditions in Timisoara.

Incompatibility between certain plants was obvious in poorly developed plants or in dead plants in the vicinity of other certain plants, compared to the

same plants, normally developed and beautiful, but planted in the vicinity of other plants. We demonstrate these effects later, through laboratory analyses.

In order to determine the plants with the best development, we monitored their evolution during the entire vegetation period measuring such features as plant height, bush diameter, debut of blooming, and end of blooming.

Table 2

Measurements on the plants during the entire vegetation period

| Plant | Date | Height (cm) | Diameter (cm) | Flowers |
|------------------------------|--------------------|-------------|---------------|--------------------------|
| <i>Begonia semperflorens</i> | 02. 06. 2011 | 15 | 14 | bloomed |
| <i>Cineraria maritima</i> | | 17 | 7 | decorates through leaves |
| <i>Coleus citron</i> | | 12 | 10-11 | decorates through leaves |
| <i>Gazania splendens</i> | | 13-14 | 15 | buds |
| <i>Heliotropium hybridum</i> | | 10-14 | 8-10 | debut of blooming |
| <i>Iresine lindenii</i> | | 13-15 | 8-10 | decorates through leaves |
| <i>Petunia hybrida</i> | | 30 | 14-17 | bloomed |
| <i>Salvia splendens</i> | | 17-20 | 13-15 | bloomed |
| <i>Tagetes erecta</i> | | 21-24 | 10-12 | debut of blooming |
| <i>Begonia semperflorens</i> | 20. 08. 2011 | 12 | 15 | bloomed |
| <i>Cineraria maritima</i> | | 21 | 14 | decorates through leaves |
| <i>Coleus citron</i> | | 14 | 12-13 | decorates through leaves |
| <i>Gazania splendens</i> | | 24-27 | 25-26 | bloomed |
| <i>Heliotropium hybridum</i> | | 17-22 | 20 | bloomed |
| <i>Iresine lindenii</i> | | 15-17 | 11-14 | decorates through leaves |
| <i>Petunia hybrida</i> | | 34-39 | 25-28 | bloomed |
| <i>Salvia splendens</i> | | 19-24 | 15-16 | bloomed |
| <i>Tagetes erecta</i> | | 32-36 | 21 | 100 % bloomed |
| <i>Begonia semperflorens</i> | 20. 10. 2011 | 12-17 | 16-20 | 40% wilted flowers |
| <i>Cineraria maritima</i> | | 17-22 | 13-15 | decorates through leaves |
| <i>Coleus citron</i> | | 17-22 | 13-15 | decorates through leaves |
| <i>Gazania splendens</i> | | 30-35 | 30-35 | 30% wilted flowers |
| <i>Heliotropium hybridum</i> | | 27-36 | 30-35 | 50% wilted flowers |
| <i>Iresine lindenii</i> | | 18-20 | 13-15 | decorates through leaves |
| <i>Petunia hybrida</i> | | 36-50 | 30-40 | 20% wilted flowers |
| <i>Salvia splendens</i> | | 37-42 | 17-30 | 20% wilted flowers |
| <i>Tagetes erecta</i> | | 53 | 30-33 | 50% wilted flowers |



Fig. 2: Heliotropium hybridum; Begonia semperflorens, Gazania splendens



Fig 3: Coleus citron; Salvia splendens



Fig.4: Salvia splendens; Heliotropium hybridum; Tagetes erecta



Fig.5: Gazania splendens; Begonia semperflorens; Petunia hybrida



Fig.6: Salvia splendens; Petunia hybrida; Iresine lindenii; Coleus citron



Fig.7: Iresine lindenii; Cinararia maritima; Begonia semperflorens; Heliotropium hybridum



Fig.8: *Tagetes erecta*; *Heliotropium hybridum*; *Iresine lindenii*; *Coleus citron*



Fig.9: *Salvia splendens*; *Petunia hybrida*; *Coleus citron*; *Heliotropium hybridum*

Conclusions

There was, among the plant combinations we made, a difference in development: some of them developed well during the entire vegetation period, while others turned anaesthetic;

Cineraria maritima is one of the most resistant plants in the conditions of the Municipality of Timisoara: it decorates well from transplanting to frost, no matter their “neighbours”;

Coleus citron also developed well, in compact bushes: it decorates through its leaves whose green-yellowish colour enlighten the flower bed;

Petunia hybrida develops well and blooms until frost, but it tends to spread and invade neighbouring plants: it is good in combination with *Tagetes erecta*, which is tall enough;

Tagetes erecta is one of the plants that does not develop well because of its multiple ramifications and flower wilting starting with September: it proved to be the first to dry completely, while the rest of the plants decorate well until November;

Iresine lindenii, with its red leaves, decorate well; its leaves start drying in September: the plant group is not as compact as *Coleus citron* or *Cineraria maritima* (it produces small clearings);

Begonia semperflorens is a very sustainable choice: it blooms from May to the first frosts, and its red flowers

and green leaves decorate well, no matter the neighbours;

Heliotropium hybridum with its purple flowers is also a successful choice: it is a very friendly flowering plants species;

Salvia splendens enjoys a special rusticity: it decorates with its red flowers the flower bed starting with May and ending with the first frosts: in its company, such flowering plant species as *Tagetes erecta* and *Petunia hybrida* do not develop well.

As for *Gazania splendens*, it blooms well until October: after the flowers shed, it continues to decorate due to its greyish leafage.

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