

## **THE PECULIARITIES OF VEGETATIVE PROPAGATION OF SOME *TULIPA L.* HYBRIDS AND CULTIVARS**

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*The analysis of biological peculiarities of some Greigii, Kaufmanniana and Fosteriana sorts of Tulip Groups has been performed. The description of the ornamental qualities and the vegetative propagation peculiarities of the cultivars under research in the cultural conditions has been given.*

**Key words:** *Tulipa L., cultivar, vegetative propagation, reproductive possibility, Greigii, Kaufmanniana and Fosteriana sorts of Tulip Groups.*

One of the principal goals of Botanical Gardens is an enlargement of biological variety of plants when perspective new sorts and grades are implemented. Tulips make up one of the leading trends among bulb decorative plants. This factor is specified by high decorative quality of the plant, simplicity of growth, and stability in landscape planning in early spring period. In greenery planting *Kaufmanniana*, *Fosteriana* and *Greigii* type tulips are extremely decorative and universally used. There is some experimental data in tulip growth in regions of Kharkiv, Bila Tserkiv, Odessa, Byelorussia [1, 2, 3] as well as their biological, decorative and household changes they may undergo when being transformed to new environmental conditions.

The objective of the research focuses on the selection and improvement of tulip assortment best for greenery planning.

Materials and methodological basis of the research.

Hybrids *Kaufmanniana*, *Fosteriana* and *Greigii* tulip sorts of the Lviv Ivan Franko National University Botanical Gardens made up the object of the research. Traditional agriculture technique in plant growth was used [5, 6]. Z. M. Silina's methodology was followed in the second year of vegetative intensity growth [7].

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After a two year growth period the experimental sorts of bulbs were dug out and their reproductivity was determined. Seasonal growth and developing rhythm was inspected using observation method employed in case of long term flower and decorative plants [4].

The results of the research.

In the late century 70-s the tulip collection of the Botanical Garden was set up. The plants were introduced from different places, mostly from Botanical Gardens of Byelorussia Academy of Sciences (Minsk), Russia Federation Botanical Gardens in Moscow, Baltic Republics Botanical Gardens and of late from Wroclaw University (Poland) Botanical Garden. Four genius and 140 sorts, which belong to 15 classes and make up four groups as the International 1981 Holland Register of Tulip Sorts states, make up the collection. Up to 10-30 blossom samples grow in the collection areas.

We mostly focused our attention on a group of tulips with common features and their hybrids and which is class subdivided. They are mostly popular in gardening, as their flowers are bright and large. More than that, most of the sorts are a small height, have appealing view in alpine area, can grow on street flower beds and form attractive groups on lawns.

Kaufmanniana tulips have early blossom terms and a great variety of colour.

Fosteriana tulips have big leaves, they are wide, bright green and mat. Greigii tulip leaves bear decorative bright violet strobiluses. Some hybrids of Fosteriana and Kaufmaniana tulips have inherited these Greigii tulip features.

Introduced plant observations have proved that their growth and blossom period depend on the sort and air temperature mostly.

The initial blossom phase falls on the second half of March. The first to start flowering are Kaufmaniana and Greigii tulips. 10 or 14 days after, Fosteriana type come into blossom. The average blossom time period of the sorts of tulips being researched in Lviv makes up 12-14 days (Graph 1).

Blossom time and ornamental qualities of tulips in Botanical Garden  
cultural conditions

№	Sorts	Early blossom period	Duration time of blossoming (days)	Hight, cm	
				Flower-bearing stem	Floral
Class 12 Kaufmanniana Tulip					
1.	Fashion	14.04	9-11	до 30	7,5-8
2.	Giuseppe Verdi	17.03	до 10	до 35	6-7
3.	Johann Strauss	24.03	10-12	до 30	6-7
Class 13 Fosteriana Tulip					
1.	Passion	17.03	9-10	до 35	7-8
2.	Princeps	5.04	12-14	до 30	7-8
3.	Purissima	29.04	14-15	до 40	8
Class 14 Greigii Tulip					
1.	Cape Cod	29.03	12-14	до 40	7.5
2.	Oriental Beauty	29.03	10-12	до 45	10
3.	Tarafa	17.03	12-14	до 30	7-8

Bulb type plants have not only decoration effect, but vegetative reproduction potential functions as well. A tulip hybrid does not inherit the qualities of the only mother vegetable plant and its biological qualities are not identical. Bulb of III and IV fraction selection are potentially important, as they side out as outsiders and do not have age changes, which are peculiar to the care bulb. Lateral bulbs are younger than parental bulb and their multiplicity enforces stable reproductivity of the sorts.

Vegetative reproduction, that is small lateral bulblets [7] is a principal one, it produces effect in blossom plant production, and support the mother quality effect of the plant. A single mother plant can produce a nest of small lateral bulblets, afterwards the mother plant fades out.

Reproductive coefficient determines the ratio between the number of dug out bulbs and the number of the planted ones. It depends on the sort, conditions of growth, as well as on the mother bulb size.

Tulips of different garden groups have variable vegetative reproduction abilities. Graph 2 reproduces the data of reproduction coefficient size of tulip sorts under research, which is a reliable factor of vegetative reproduction.

Graph 2.

Reproduction coefficient of some researched tulip sorts within classes

№	Sort	Reproduction coefficient
Class 12 Kaufmanniana Tulip		
1.	Fashion	2,2
2.	Giuseppe Verdi	2,7
3.	Johann Strauss	2,9
Class 13 Fosteriana Tulip		
1.	Passion	3,4
2.	Princeps	3,7
3.	Purissima	3,9
Class 14 Greigii Tulip		
1.	Cape Cod	3,7
2.	Oriental Beauty	3,6
3.	Tarafa	3,9

Kaufmanniana Tulip sorts (Graph 2) have the lowest reproduction vegetative coefficient when cultivated it ranges from 2,2 to 2,9 bulbs. Greigii and Fosteriana tulips sorts have the highest coefficient ranging from 3,4 to 3,9.

### Conclusions

1. Reproduction and blossom time period of Kaufmanniana, Fosteriana and Greigii tulips mostly depend on the sort and air temperature conditions. Kaufmanniana and Greigii tulips of our collection are the first to come into blossom. In Lviv this period lasts for 12-14 days.
2. The research has shown that under the conditions of vegetative reproduction of sorts under research the maternal bulb reproduces from 2,2 up to 3,9 bulbs next year depending on the sort. Fosteriana and Greigii tulips turned out to be the most productive .

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**ОСОБЕННОСТИ ВЕГЕТАТИВНОГО РАЗМНОЖЕНИЯ  
НЕКОТОРЫХ ГИБРИДОВ И КУЛЬТИВАРОВ *TULIPA* L.**

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Проанализованы биологические особенности культиваров тюльпанов класов Грейга, Кауфмана та Фостера. Описаны декоративне качества и особенности вегетативного размножения исследуемых сортов в условиях культивирования.

Ключевые слова: *Tulipa* L., культивар, вегетативное размножение., репродуктивная способность, класы Грейга, Кауфмана та Фостера.

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