

**FEATURES OF FRUIT OF TIMELESS AUTUMNALE  
(*COLCHICUM AUTUMNALE*) IN CULTURE**

**Begench Kurbanov**

VSU named after P.M. Masherov, Vitebsk, Belarus

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While preserving biodiversity, including such an important component as the flora, the protection of rare and endangered plant species, a huge role belongs to its practical organization: artificial reproduction and dispersal of plants in the natural environment; cultivation of rare and protected plants in botanical gardens and nurseries.

In this case, it is necessary to pay special attention to the study of the processes of plant reproduction. To carry out this work, it is very important to study the characteristics of the fruiting of rare and protected plants, which will make it possible to assess the degree of their reproduction, both in culture and in the natural environment.

Purpose of the work: to study the peculiarities of fruiting of a rare species of the flora of Belarus, the autumn crocus (*Colchicum autumnale*) culture.

**Material and methods.** The object of the research is the representatives of *Colchicum autumnale* L., listed in the Red Book of the Republic of Belarus of the 1st and 2nd editions and currently on the list of plants requiring preventive protection, which are kept in the introduction nursery of the Botanical Garden of the VSU named after P.M. Masherov [1, p. 444].

The studies were carried out in 2020–2021. The introduction populations were established in the botanical garden of the VSU named after P.M. Masherov by the method of S.E. Korovin, Z.E. Kuzmina, N.V. Trulevich. [2].

The initial material was collected in places of natural growth in the vicinity of the villages of Bolshie Lettsy and Knyazhitsa, Vitebsk region in 2005 in the form of seeds.

The study of the characteristics of fruiting, seeds and seed productivity was carried out according to generally accepted methods using methodological guidelines on seed science of introduced species of the Main Botanical Garden of the Russian Academy of Sciences [3].

Statistical data processing was performed using the Microsoft Excel software package.

**Findings and their discussion.** The following indicators were studied: the number of shoots on a plant and fruits on a shoot, fruit size, productivity of the fruit, shoot and plant. We see that in different years of observation, the data on the number of shoots per plant, fruits per shoot and on the plant as a whole change. This can be explained by the fact that the corms increased in size, the plants became more powerful and with greater vitality.

The observation results are entered in the table for each year of observation (Table 1).

Table 1 – Quantitative indicators of the generative shoot and fruit of *Colchicum autumnale* L. in the conditions of the botanical garden of VSU named after P.M. Masherov

Year	Fruit height, cm	Fruit width, cm	Number of shoots per plant, pcs.	Number of fruits on the shoot, pcs.	Number of fruits per plant, pcs.
2020	4,11 ± 0,17	1,75 ± 0,13	2,92 ± 0,78	3,26 ± 0,69	9,5 ± 4,04
2021	3,63 ± 0,09	2,09 ± 0,07	5,58 ± 1,62	2,87 ± 0,34	16 ± 5,04

The number of shoots per plant is from  $2.92 \pm 0.78$  to  $5.58 \pm 1.62$ . The number of fruits per shoot ranges from  $3.26 \pm 0.69$  to  $2.87 \pm 0.34$ . Accordingly, the fruits on each plant are from  $9.5 \pm 4.04$  to  $16 \pm 5.04$ . Such a wide spread is explained by the content of autumn crocus in one place for 3 years. During this time, daughter corms of different numbers and sizes are formed. Therefore, the statement one plant is only true for the first year of growing. In subsequent years, we have a community of daughter corms from one mother. Therefore, all statements related to an individual plant actually refer to a collection of daughter corms. The data for a single shoot, fruit and a set of shoot fruits are consistent with the definition.

We have determined the real seed productivity of *Colchicum autumnale* L. in the conditions of the botanical garden of VSU named after P.M. Masherov (data in Table 2).

Table 2 – Real seed productivity of *Colchicum autumnale* L. in the conditions of the botanical garden of VSU named after P.M. Masherov

Year	Seed productivity of the fruit, pcs.	Seed productivity of the shoot, pcs.	Seed productivity of a plant, pcs.
2020	82,68 ± 10,29	269,46 ± 43,38	785,92 ± 445,69
2021	63,98 ± 4,63	187,11 ± 33,32	1122 ± 387,56

Seed productivity of fruit and shoot in 2021 is lower than in 2020, but the total productivity of the aggregate of daughter corms (“plant”) is higher in 2021 due to the higher number of fruits on the plant.

**Conclusion.** Based on the data obtained, we can draw conclusions: the number of shoots on one plant is from  $2.92 \pm 0.78$  to  $5.58 \pm 1.62$ , the number of fruits on one shoot ranges from  $3.26 \pm 0.69$  to  $2.87 \pm 0.34$ , respectively, fruits on each plant from  $9.5 \pm 4.04$  to  $16 \pm 5.04$ ; the seed productivity of the autumn crocus fruit in the conditions of the botanical garden of VSU named after P.M. Masherov was  $63.98 \pm 4.63$ , shoots –  $187.11 \pm 33.32$  and plants –  $1122 \pm 387.56$ .

1. Red Data Book of the Republic of Belarus: Rare and Endangered Species of Wild Plants / editorial board L.I. Khoruzhik [and others]. – Minsk: BelEn, 2005. – 456 p.
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3. Guidelines for the seed science of introduced species. Moscow: Nauka, 1980. – 64 p.