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CULTIVATION OF *MALVA SYLVESTRIS L.* SPECIES IN THE GANJA-KAZAKH ECONOMIC REGION IN RECENT YEARS

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Abstract. The article describes the study of changes in the height, development and aerial part of the plant during the cultivation of the forest mallow in the Ganja-Kazakh territory. Conditions have been created for the normal development of plants and seeds. It has been established that the productivity is very low in the phase of stem formation and high in the period of fruit development.

Keywords: *Forest cover, forage quality, plant development phases, plant height.*

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1. Introduction

It is known that traditional plant breeding is not able to fully solve the problems (Shadid *et al.*, 2021; Bilen *et al.*, 2019). Therefore, it is necessary to find non-traditional sources of plant raw materials that can not only compete with existing cultivated plants, but even surpass them in terms of bio-ecological sustainability and valuable economic indicators. By now, many achievements have been achieved in the cultivation of plants in agriculture in the Republic of Azerbaijan. In particular, when cultivating individual species and adapting them to local conditions, a number of studies were carried out in order to create or classify a system for cultivating species according to their main features (Asgarova & Hasanova, 2022; Hasanova, 2015; Jayalakshmi *et al.*, 2011).

Despite this, in our opinion, a certain system or classification of forage animals has not yet been fully developed in the republic. Numerous studies have been carried out on both trees and shrubs and herbaceous plants used in the landscaping of Azerbaijan, and the changes that occur in their ontogenesis during acclimatization and adaptation to the environment have been studied. Nevertheless, in our opinion, the republic needs new feed, medicines a specific system or classification for the cultivation of plants with different traits has not been fully developed. Interesting studies of cereal and leguminous plants have been carried out on wheat, corn, and hundreds of varieties have been created. More than 25 varieties of C.A. Aliyev wheat are grown annually in the regions. The development of such research on other useful plants is considered one of the important issues of the day. Cultivation, as you see, is carried out in one way or another in the natural and cultural flora. This, in turn, creates conditions for plants to enter the natural flora or both natural and agro-phytocenoses. Cultivated plants

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reproduce in two ways - in open and closed conditions, but in wild flora, the process proceeds only in open conditions. It should be noted that, as a rule, regulated conditions for plant life should be created in protected areas. *Malva sylvestris* is a type of forest honeysuckle cultivated in the Ganja-Kazakhstan territory. It should also be noted that the cultivation of farm laborers was carried out for the first time in our republic.

2. Objects and research methodology

The studies were carried out in 2011-2013. The seeds of a forestry worker were taken as a material and grown on an experimental plot of the Ganja landscaping department. Monitoring was carried out for three years using well-known guidelines (Aliyev *et al*., 2011; Babaev *et al*., 2011).

3. The discussion of the results

According to the method of Sveshnikov and Moroshi, the distance between the rows of one-year-old workers is assumed to be 45, 50, 60, 70 cm (Hasanova, 2015; Nasirova *et al*., 2022). However, since this species is biennial, and taking into account the growth of the next year, the row spacing is only 60-70 cm.

In order to determine the dynamics of plant growth, observations were made every 10 days. Phonological observations were carried out on the basis of Beidman's atlas and determinants. Lapin's methods were used (Hasanova & Mammadova, 2021).

Phonological observations and the formation of true leaves, the beginning and end of shoot development, flowering, fruit formation, maturation, etc. were recorded. The agro technical rules proposed by the Russian BBI are the basis for seed and vegetative propagation. They are easily propagated by seeds and root cuttings. In early spring, when the plant is taken out with soil and planted anywhere, it grows and develops easily. Seeds germinate in May - June. When harvested and sown in the ground in autumn and early spring, ripened seeds germinate in 15-22 days. A plant germinated from seeds is ready for use in 50-60 days. The planted plant grows rapidly within 2-4 years. Subject to agrotechnical rules, it forms an abundant ground mass. Given that this mass remains green for a long time is a valuable medicinal, vegetable and fodder plant, it is advisable to widely plant and cultivate it on lands abandoned by agriculture and subjected to erosion.

The biology of *Malva sylvestris* was studied by observing the cultivated plant. This species produces seeds every year, and the next year gives rise to new individuals, which is important both for landscaping the alleys and for food. Grown and used for food by the Egyptians and Greeks. At present, this work is continued by all Caucasian peoples. At first glance, you can see that it is beautiful. It was recommended by us for use in landscaping to decorate parks and alleys in the Ganja-Gazakh region. Currently, the plant is cultivated in several places in the city of Ganja for the purpose of landscaping on our recommendation. This plant is also a valuable fodder plant. It is of great importance in the development of animal husbandry. When growing a forest plant, the height, development and aerial part of the plant were taken as the basis. They even took care of the normal development of the seed. Therefore, they prepared wide rows and paid attention to agro technical rules. The large distance between plants (60-70 cm) created conditions for good nutrition and it was concluded that we could harvest 106 tons per hectare. In the first stages of development, the growth and development of this

plant is more intense. In parallel with the study of the processes of growth and development, attention was also paid to the number of leaves and the dynamics of development. At this time, the formation of the main leaves was observed 5-7 days after the primary leaf. After 5-10 days, these leaves are more appropriate to use for food purposes. The table below shows the number of leaves and branches of a forest plant during development (Tables 1, 2).

Table 1. Phenology of growth and development of *M. sylvestris L.*, (cm) 2011-2013

Years	Development phases					
	The first real leaves	Stem ripening phase	Budding	Flowering	Fruit processing	Full ripening
2011	4,8	39,5	65,9	98,1	118,0	119,0
2012	4.2	46.7	60.8	110,64	116.5	119.4
2013	5,6	51,8	56,9	113,4	118,0	120,6
Medium	5.2	45.65	61.4	105.75	118	119.8
Standard deviation	0.57	8.70	6.36	10.82	0	1.13
CV, %	11.0	19.1	10.4	10.2	0	0.94

Table 2. Dynamics of the number of leaves and branches of the main stem during the development of the species M. sylvestris (in numbers) 2011-2013

Development phases					
The first real leaves a) number of leaves	Stem ripening phase a) number of leaves	Budding a) number of leaves	Flowering a) number of leaves	Fruit processing a) number of leaves	Full ripening a) number of leaves
1	9	13	12	20	14
b) number of branches	b) number of branches	b) number of branches	b) number of branches	b) number of branches	b) number of branches
-	-	2-3	3-4	4-5	7-9
Stem diameter (mm)					
Development phases					
Body-processing	Budding	Flowering	Fruit processing	Full ripening	
5	7	9	13	11	

Table 3. Productivity of the above-ground part of the species *M. sylvestris L.* (c/ha) 2011-2013

	Development phases			
Years	Stem ripening phase	Budding process	Blooming	Fruit processing
2011	7.45	24.93	36.29	49.89
2012	7.14	25.6	40.37	54.59
2013	7.23	23.74	39.75	52.7
Average score	7.27±0.269	24.76 ± 1.588	38.80±3.76	52.39±3.987

As can be seen from the table, during fruiting, the number of leaves predominates, and in an adult plant, the number of branches. The leaves produced on the side branches are also important for food and medicinal purposes. The stem diameter reaches its maximum in the fruiting phase. On the contrary, at full ripening, shrinkage was

observed. Along with all this, the two-year productivity of the plant was determined in all phases. The results obtained are reflected in table number 3. When cultivated, the plant did not lead a biennial lifestyle and behaved like an annual plant. In 2012, the seeds supplied last year were sown again. It should also be noted that 10-12 seeds are buried in each nest. Seeding depth 3-5 cm. (Table 3).

4. Conclusion

The yield in the stem ripening phase was very low (7.14-7.45 c/ha - 0.269 on average). The highest yield (49.89 - 54.59 c/ha, on average 3.987) was observed during fruit ripening. The aerial part of the *Malva sylvestris* should be considered as a valuable fodder, food and medicinal plant, and it is recommended to grow it not only in large plantations, but also in the yards of kindergartens, nursing homes, boarding schools and boarding schools. At this time, it can be used in landscaping and landscaping.

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