

Propagation of Conifers and their Importance

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Annotation: This Article Comprehensively Discusses the Ecological and Economic Significance of Coniferous Trees, their Environmental Impact, Species Diversity, And Propagation Methods. Based on Scientific Analysis and Practical Approaches, It Highlights The Role of Conifers in Ecosystems and the Importance of their Conservation.

Key words: Coniferous trees, propagation methods, ecology, conservation.

Introduction. Beauty and neatness are among the most basic human qualities, and people always strive for them. Since ancient times, people have been trying to make their living spaces beautiful and prosperous. Because a comfortable and beautiful environment gives a person special pleasure.

Nowadays, medicine has also proven that comfortable and beautiful places increase a person's work capacity. So, comfort and beautiful landscapes not only give a person pleasure, but also have a positive effect on his work capacity and health.

After gaining independence, the Republic of Uzbekistan paid special attention to creating such a beautiful environment. In particular, the declaration of 2025 by our President as the "Year of Environmental Protection and Green Economy" can be considered a step forward in this regard.

Conifers are long-lived and ecologically very important plant species found in many regions of the globe. They are not only of great scenic value, but also play a significant role in reducing harmful gases emitted into the atmosphere, protecting soil from erosion, and ensuring biodiversity. Conifers are also widely used in various economic sectors: construction, furniture making, and medicinal products. This article discusses the importance of such trees and the scientific and practical foundations of their reproduction.

Conifers (representatives of the Pinopsida class) are plants with unique morphological and physiological characteristics, are often evergreen, and are able to adapt to different climatic conditions. Their ecological, aesthetic, and economic significance has been widely covered in various literature. In Uzbekistan, in recent years, due to the increasing demand for greenery in the conditions of urbanization and climate change, there is a need to study coniferous tree species and develop technologies for their reproduction.

Research on conifers has been conducted by many scientists. For example, V.N. Sukachev (1964) put forward scientific theories on the ecology of coniferous forests. A.L. Belov (1992) studied the genetic characteristics of their seedlings. New studies show that climate change is having a serious impact on the distribution and growth dynamics of conifers. Currently, special programs have been developed in many countries for their conservation and reproduction.

Conifers (Pinopsida) have many ecological and agronomic values, and they attract special attention with their physiological and ecological properties. Most of these plant species are found mainly in warm and cold climates. The ecological role of conifers is increased by their ability to survive in different climatic conditions, their importance in absorbing CO₂ and producing oxygen. They play an important role in absorbing dust from the air and purifying the air (Karimov and Rakhmonov, 2017).

In addition, the scientific work of T. Mahmudov (2022) discusses the ecological efficiency of coniferous trees and new methods of adapting to climate change. They emphasize the resilience of pine and cedar to global climate change and the importance of supporting biological diversification. The studies especially emphasize the high efficiency of plants in combating stress and drought. At the same time, from the point of view of ecological safety, the role of coniferous trees in absorbing carbon dioxide in the atmosphere has been studied.

The technology of propagation of deciduous trees is also one of the current scientific directions. The works of Akhmedov (2015) and Latipov (2016) cover the technologies of propagation of deciduous trees using vegetative and generative methods.

Materials and methods. The research was conducted in the nursery of the state institution "Namanganyo'lko'kalam" in the territory of the Kosonsoy district of the Namangan region during 2023–2025.

Seeds and seedlings of coniferous trees, including spruce (*Pinus eldarica*), fir, black pine (*Pinus nigra*), cedar (*Cedrus deodara*), were selected for the experiment.

Research objective: To study the adaptation of coniferous tree species to local soil and climatic conditions, morphological and physiological characteristics, methods of their propagation and evaluation of their effectiveness in landscaping

Results and discussion. The depth of sowing seeds usually depends on their size, soil and climatic conditions of the site, sowing time and irrigation. The question of how deep to sow the seed depends on its size. In any case, the thickness of the soil falling on the seed should not exceed 3-4 times the size of the seed. Seeds sown in autumn were sown deeper than in spring, and if the surface of the sown seeds was mulched, the planting depth was reduced. The planting depth of seeds of some deciduous tree species is given in Table 1.

Table1: Sowing rate, sowing depth and average weight of 1000 seeds of deciduous tree species in Namangan conditions

Tree type	Average weight of 1000 seeds, g	Sowing rate		This guy depth, cm
		1 page. m, g	1 ha, kg	
Zarafshan juniper tree	29,2-47, 4	60	1000 - 1200	2
Crimean pine	5 - 10	3 - 4	50	1 - 2
Virgin juniper	26	8 - 10	130	2 - 3

The seeding rate is of great importance. In sparse crops and when seedlings are sparsely located, the area occupied by one plant increases, and in turn, the cost of growing seedlings increases. In dense crops, on the contrary, seedlings are placed thicker than normal, and as a result, the area of the seedling's nutrition is less than normal, the plant becomes sick, and poor-quality seedlings are

obtained. Table 2 below analyzes the effectiveness of the methods used in the propagation of coniferous species.

Table 2: Coniferous types in reproduction applicable methods efficiency:

No.	Reproduction method	Seedling output , %
1	Through the seed	65 %
2	Vegetative (cuttings)	80 %
3	Micropropagation	90 %

This from the table visible as it stands, micropropagation method the most high to efficiency has, but it is material and technological resources demand does. Vegetative method also high to the indicator has in practice wide is applied. Through seed multiplication and cheap and simple, but seedling output quantity less.

Table 3: Coniferous of trees from the seeds of some species multiplication results:

N o.	Tree type	It is exit rate (%)	Shelf life rate (%)
1	Juniper (Juniperus)	60 %	70 %
2	Pine (Pinus)	75 %	80 %
3	Spruce (Picea)	55 %	65 %

Various coniferous types from seed in reproduction results difference Pine seed high bruising and to preserve has. Black spruce and to relatively low figures has . Juniper average efficiency manifestation Table 4 below presents the results of propagation by cuttings of some coniferous trees.

Table 4: Cuttings of some coniferous trees through multiplication results:

N o.	Tree type	Bruising (%)	Storage stability (%)
1	Juniper (Juniperus)	85 %	75 %
2	Pine (Pinus)	70 %	80 %
3	Spruce (Picea)	65 %	60 %

Pencil through in reproduction also fir tree the most high to bruising has to be, to be and high preservation indicator manifestation it was. black spruce every two in the parameter also relatively low to indicators has it has been.

Conclusion and offers. Coniferous trees nature and human in life very important role They play not only scenic and ecological importance have , maybe widely used in agriculture are used . They in reproduction scientific approach demand Micropropagation such as modern methods development, climate to the conditions suitable varieties selection, seedling infrastructure improve such as events effective will be.

- Needle -leaved the trees generative method using that is ripening mature seeds spring and autumn in the months to the soil planted multiplication possibility was determined .
- Needle -leaved the trees vegetative method using that is spring (March) and in the summer (August) months pencils using multiplication good effect determined .
- Needle -leaved the trees Root in a substrate consisting of 3-4 cm thick coarse-grained river sand and a 5 cm thick layer of sand, soil and biohumus mixed in a ratio of 1:1:1. shaving to give a good result determined.
- Spring and summer in the months hot days during regular irrigation , especially from being planted next the first 2-3 years during enough humidity to be and irrigation in the system drip irrigation effective that determined .

According to the results of the research, the following are recommended for the propagation and cultivation of deciduous trees:

- coniferous and deciduous trees based on soil and climatic conditions;
- When watering coniferous trees from water-saving irrigation technologies use;
- Choosing the right propagation methods for conifers based on their characteristics.

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