



## Technology of Adaptation and Cultivation of Catalpa Plant in The Conditions of Sirdarya Region

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### ABSTRACT

Today, globalization and integration processes are increasing all over the world, and Uzbekistan is no exception. Not only in international relations, but also in the domestic environment, in building a stable and prosperous society, the greening of residential areas, recreation avenues, parks, district and city areas with decorative trees, bushes, which have a positive effect on the environment, Great attention is being paid to the breeding of ornamental trees.

### Keywords:

"Green space", Catalpa Bignoniaceae, Catalpa ovata, catalysis, vegetative, substrate

Every year, the scope of creative works in Uzbekistan is increasing, the appearance of our cities and villages is changing, reconstruction works are being carried out on a large scale. The main part of the assortment of green plants used in landscape construction is divided into ornamental trees, because ornamental trees have a scenic appearance and are distinguished by continuous flowering. Tree care is also easy. Among the landscape trees, more attention is paid to evergreen and long-lasting flowering species.

In 2021, our president Shavkat Mirziyoyev announced the nationwide project "Green Space". As part of the project, it is planned to plant 200 million ornamental trees and shrubs in the territory of our republic. These ornamental trees purify the air by absorbing carbon dioxide and instead producing O<sub>2</sub> that humans can breathe. Trees also protect the environment from noise.

Man has been enjoying the beauty and blessings of nature. It is closely related to man and nature. Primitive people used the plants growing around their habitat and tried to find plants that could cure diseases. Wrapping nature in a variety of clothes, colorful leaves

and branches of plants and flowers unfolding in it are in harmony with the changes in their body structure. Flower gardens and meadows attract and enchant humanity with their colors and fragrances. Interest in flowers is characteristic of humans and is a sign of innate love for nature passed down from generation to generation. Beautiful landscapes and flower gardens raise a person's mood, invigorate the spirit and give aesthetic taste. Besides, being able to enjoy these beauties, feeling them deeply and forming the right attitude towards them is a sign of human culture and aesthetic criteria. Plants are one of the inexhaustible treasures of nature. When we talk about plants, we see before our eyes colorful, wonderful scenes of nature that are difficult to express in words. If you carefully look around, you will notice that plants play a huge role in our life and are a rich source of energy. In any part of the world, be it in the north, be it in the south, be it in the east, be it in the west. grasses and several other plants, lawns and herbs can be seen. Currently, not all of these plants are used, but most of them are successfully used in the national economy. Life on earth cannot be imagined without plants. Their importance in

improving the sanitary-hygienic condition of people and the environment is diverse and very great. Plants reduce the force and noise of the wind, control the temperature regime, clean the air from various wastes and dust. All these are important for health. Green spaces are the best environment for recreation in urban areas and residential areas. The role of decorative plants is also important in urban architecture, and the importance of decorative plants in the formation of microclimate in populated areas is significant. In any season of the year, air temperature, amount of precipitation, air and soil moisture, wind regime, atmospheric pressure, air openness - all these characterize the climate of this place.

Landscape plants are not only aesthetically important, but also neurologically important. Colors, the smell of flowers, the rustling of leaves - all this has a positive effect on the human mood and nervous system.

Since the climate of Uzbekistan is a hot country, it is impossible to create comfortable conditions for the population without ornamental plants. Plants improve the sanitary-hygienic condition of the environment, reduce the force of the wind, reduce noise, clean the air, and moderate the temperature. One medium-sized tree produces enough oxygen for three people in one night.[3]

Planting of ornamental trees takes the main place among the greening of residential areas. Planting of ornamental plants in squares, children's sports fields, school grounds, kindergartens, and entrances to buildings is highly developed. If in the past there were issues of increasing green areas by planting fast-growing species suitable for our conditions in a short period of time, now, according to the needs of the times, highly ornamental deciduous and coniferous trees and bushes with beautiful flowers are being cultivated and planted. Therefore, the spartium plant, which is one of the decorative plants, was studied. Spartium is a light-loving plant, resistant to moisture, drought, wind, cold, and urban conditions. Spartium likes warm places with strong light. It is mainly grown as a decorative plant. Spartium gives an evergreen decorative illusion.

One such plant is Catalpa, a species of ornamental trees and shrubs in the Bignoniaceae family. For many, this plant was an exotic miracle ten years ago, but today it is actively cultivated in many regions of southern Russia, Ukraine, Belarus. Catalpa - a natural habitat for representatives of both sexes. Pictures and descriptions of catalpa leaves, flowers, and seed pods help identify different tree species. The most recognizable feature of catalpa trees is their long, thin seed pods that appear in fall and persist through winter or even spring. Catalpa is a genus of flowering trees that grow in warm regions of the world. The two species Northern catalpa and Southern catalpa are native to North America. Another common type of catalpa tree is the Chinese catalpa (*Catalpa ovata*), native to China. The largest distribution of plants is in China, Japan and India. It grows in the wild and is cultivated in all Asian countries. In fact, catalpa is grown for decorative purposes, but it is used in traditional medicine, it is used to obtain valuable wood, which is used in the production of luxury furniture. [4]

Many catalpa gardeners often think it's time to get a pair of these trees. After all, they decorate their houses and gardens throughout the year and do not face any difficulties. In such cases, you can only buy cuttings from flower shops and fairs, or you can try to get a few additional plants growing on your land.

You can grow catalpa in two ways: vegetatively, that is, by grafting, or using seeds. According to the list below, prepare the planting substrate and start propagating the plants.

Sowing in soil for catalada seeds and cuttings:

- ☑ a part of river sand;
- ☑ five hundred grams of leaf soil;
- ☑ two hundred and fifty grams of peat;
- ☑ seven hundred and fifty grams of hummus.

Catalpa needs a lot of moisture. About 20 liters of water is needed per week. In the dry season, you need to moisten twice as often. If there is a lot of precipitation, reduce the number of watering to 2 times a month. Even if it rains daily, you should water your trees at

least once a month. This prevents stagnant moisture. Trees are fed with decayed organic matter, mineral compounds. About 2 times a month in spring and summer, you can pour a bucket of liquid solution of cow manure under the roots. It is recommended to use nitrogen fertilizers in April, add a mixture of phosphorus and potassium salts before placing the buds. In the early years, only frozen and diseased branches are cut. Do this at the end of March. With the appearance of full skeletal buds, crown formation can begin. Usually, catalpas open their body up to a height of 120-180 cm, cut their branches to the desired shape and have a decorative appearance. You can't be overzealous, because plants recover very slowly. After each watering, it is recommended to loosen the soil around the hole in combination with weeding. Catalpa gives people a good mood, district and city streets with its scenic appearance and beautiful appearance. Therefore, it is considered a decorative plant object. This is due to the adaptation and cultivation of varieties to the territory of Uzbekistan in recent years.

90% of the land of Syrdarya region is saline, and the climate is sharply continental, which distinguishes it from other regions. In particular, in our region, various types of ornamental trees are planted every year for the purpose of beautification in cities and districts. Despite the ongoing landscaping works, the proximity of groundwater, soil salinity, and the development of planted ornamental tree seedlings have a negative impact. As a result, trees planted in parks and avenues established by planting saplings brought from regions with very good soil and climate conditions (special nurseries) are not greening, causing excessive cost and time consumption.

In this case, it is appropriate to plant trees suitable for the natural climatic conditions of our region. In this place, Catalpa attracted attention as an ornamental tree. The ornamental catalpa tree can adapt well to stress conditions, is resistant to soil salinity, and is important for obtaining high-quality wood for forestry companies, private companies and local residents who are engaged in greening. Catalpa tree is different from other

ornamental trees as it adapts to the environment very quickly. It is considered one of the plants resistant to any conditions, which gives people aesthetic pleasure and creates a unique infrastructure.

However, for the development of greening and forestry work in our region, it is appropriate to select varieties of Catalpa tree in specific soil and climate conditions and establish nurseries.

This project contains information on the establishment of catalpa tree nurseries from seeds in the conditions of Syrdarya region, the cultivation of quality seedlings, and their use in greening.

In order to find a solution to the above problems, this project has set the following goals and objectives.

The purpose of the project:

Selection of Catalpa tree varieties suitable for the conditions of Syrdarya region and establishment of a nursery.

Project tasks

Establishment and cultivation of catalpa tree nursery;

Development of a method of rapid reproduction of the catalpa plant;

Establishing the use of catalpa tree seedlings in landscaping;

Preparation and publication of recommendations on the cultivation of catalpa tree seedlings and their use in landscaping.

Organization of a service for the cultivation of catalpa tree seedlings.

The problems solved in this project are inextricably linked with the implementation of the decision of the President of the Republic of Uzbekistan on October 26, 2019 "The concept of forestry development in the Republic of Uzbekistan until 2030".

Scientific novelty of the work:

For the first time, a catalpa tree nursery will be established in the saline soil conditions of Syrdarya region;

For the first time in the conditions of the Syrdarya region, the methods of breeding the Catalpa tree are determined;

In the conditions of the Syrdarya region, the use of the Catalpa tree in greening and agroforestry is on the way;

Catalpa saplings are grown for forest farms, private companies and local residents engaged in greening in the conditions of Syrdarya region.

A service for planting and raising catalpa seeds, seedlings and seedlings will be organized.

If the project is implemented, a green area suitable for the natural conditions of Sirdarya region will be created.

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