

## PROSPECTS FOR THE DEVELOPMENT OF CITRUS FARMING IN UZBEKISTAN

U. Khabibullaeva - PhD student of "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University

**Abstract:** Fruit growing as a branch of agricultural production deals with the cultivation of perennial tree fruit species. The main purpose of this industry is the production of fruits and berries, which are the food of the population and raw materials for the processing industry. Citrus fruits are consumed fresh, they are distinguished by high palatability and have healing properties. They include useful for the human body, sugars, acids, mineral salts, vitamins, proteins and essential oils. Among subtropical crops, oranges, lemons, tangerines occupy an important place in terms of nutritional value and dietary value.

**Keywords:** citrus growing, subtropical crops, citrus farming, nutritional value, horticulture, greenhouses, resource-saving technologies.



**Introduction.** In Uzbekistan, there is a significant problem of ensuring food security and import substitution in the horticultural market.

Citrus growing is one of the leading branches of world fruit growing, especially in tropical and subtropical regions on both sides of the equator, reaching 38-44 ° north and south latitudes of the VL. Witkowski, (2003): in the southeast of Asia, in the Mediterranean countries, in America, Africa and Australia.

The earliest mention of citrus plants in our country dates back to the 10th-11th centuries. in the Caucasus. This is also evidenced by centuries-old own-rooted citrus trees on the Black Sea coast of the Caucasus (Batumi region). In 1913, the area under citrus crops was about 160 hectares, at present it has reached 15 thousand hectares.

Citrus crops are also cultivated in Azerbaijan, Dagestan, Krasnodar Territory, Crimea, southern regions of Ukraine, Moldova, Uzbekistan, Turkmenistan and Tajikistan.

Citrus trees (citruses) belong to the genus *Citrus* L., to the rue family ( *Rutaceae* Juss .). In the wild, about 30 species are found in South and Southeast Asia, from where they spread as valuable fruit trees and are bred between 30-40 ° of both hemispheres and to the north. Evergreen trees and shrubs, spiny shoots, dark green leaves, simple, glossy, leathery. The flowers are white or pink. The fruits are a multi-celled berry with several seeds in each nest or seedless. In leaves, fruits and flowers there are developed glands containing essential oils.

Citrus industrial crops - lemon, orange, mandarin and grapefruit - are of great national economic importance. The fruits of citrus crops have very high taste, nutritional and dietary properties. They contain sugars, acids, mineral salts, vitamins C, D, PP. Compared with the fruits of other species, citrus fruits are distinguished by the high strength of the vitamins they contain, not only during storage, but also during the production of juice and canning.

In strengthening human health, an important role is played by fruits that are rich in biologically active substances that improve the vital activity of the body. The production of citrus fruits in the world is more than 100 million tons of T.V. Larina, (2002). The most important citrus crops are sweet orange, tangerine, lemon, pomпельmus from the genus *Citrus* (*Citrus* L.) of the orange subfamily (*Aurantioideae* Engl.) of the rue family (*Rutaceae* juss ) superorder ( *Rutanae* ) GSH. Zhukovsky, (1971).

**Materials and Analysis.** In Uzbekistan, citrus fruits are grown in the subtropical zone of the Surkhandarya region, as well as in greenhouses in the Tashkent and Andijan regions. In the conditions of a difficult ecological

situation in human nutrition, fruits are of great preventive, therapeutic and dietary importance. An increase in their production and an increase in productivity is impossible without knowledge of the whole plant, the characteristics of its root system, the rational use of individual methods of agricultural technology (fertilization, tillage, etc.) and water resources, without taking into account knowledge of biology and the maximum implementation of the genotypic characteristics of cultivated crops. In this regard, the study of the root system of citrus crops through which metabolic processes are carried out is relevant. Citrus fruits are of great nutritional, dietary, preventive and therapeutic value. They serve as raw materials for the production of juices, compotes, jams, essential oils, etc.

Citrus fruits can be widely used not only fresh, but also processed - juices, compotes, jams and alcoholic beverages. Mineral salts and microelements (iron, manganese, iodine) contained in fruits are of great importance for humans, without which the normal development and vital activity of the organism is impossible. Fruits are of particular value as a source of vitamins (B, B2, PP, C), the absence and lack of which in food leads to serious diseases. Due to the content of vitamins and trace elements, fruits play an important role in the prevention of diseases, and some of them have a generally recognized medicinal value.

Horticulture is one of the most significant branches of the agro-industrial complex with a complex system of connections and interdependencies, with a variety of socio-economic, natural-climatic, biological and technological conditions of production, which play an important role in the balanced nutrition of the population of Uzbekistan. In the early nineties of the last century, citrus fruits appeared in large quantities in Uzbekistan. Every winter, oranges and tangerines are brought here from Iran, and lemons from Tajikistan. However, any citrus crops in Uzbekistan can be grown independently.

The demand for citrus fruits from Uzbekistan is growing noticeably. In 2021, the export of Uzbek lemons reached 5,097 tons, which is 2 times higher than in 2016. Also in the laboratories, work is underway to create new varieties of lemon, tangerine and orange. In this regard, in 2022 it is planned to increase the total area under the cultivation of citrus fruits to 4,218 hectares, which is 3 times more than the area currently occupied. Read about this and much more in our material. The varieties of orange "Uzbekistan", mandarin "Tashkent", as well as about ten varieties of lemon grown in our republic, developed by scientists-breeders of Uzbekistan, have gained great popularity both in the domestic market and abroad. Not only lemon, but other citrus fruits like orange, tangerine, mango, pineapple, etc.,

we need to learn how to grow them under greenhouses, our country loses more than 25 million dollars a year only on the import of these citrus fruits. In addition, citrus oil can be taken from citrus seeds for medicine and various perfumes, shampoo and other substances.

The Agency for Horticulture and Greenhouse Development under the Ministry of Agriculture of the Republic of Uzbekistan is ready to cover 30% of the cost of heating equipment with an alternative energy source to be installed in greenhouses to support farmers who are ready to take on the organization of growing citrus fruits.

There is a rapid growth in the volume of exports and imports of Uzbek lemons. So, if in 2016 Uzbekistan exported 2,431 tons of lemons, then by 2021 this figure has grown to 5,097 tons. There is also an increase in the import of lemons: in 2016 - 64.7 tons, in 2021 - 1,099 tons.

According to the State Statistics Committee, citrus fruits imported to Uzbekistan from non-CIS countries for 10 months of 2020:

- banana - 17.6 million 26.5 thousand tons in the equivalent of US dollars;
- avocado - 30.2 tons in the amount of 21.6 thousand US dollars;
- pineapple - 382.4 tons in the amount of 258.1 thousand US dollars;
- tangerine - 3.5 million 22.4 thousand tons in the equivalent of US dollars;
- orange - 1.7 million 2.7 thousand tons in the equivalent of US dollars;

Analysts compared the wholesale prices for fruits in Uzbekistan at the end of January 2022 with the price level that was recorded a year earlier at the same time. They found that most categories of local fruits have seen significant price increases. At the same time, imported fruits such as citrus fruits and bananas have fallen in price. Obviously, the decline in prices for bananas, oranges and tangerines is due to the decision of the Government of Uzbekistan dated October 21, 2021 to temporarily cancel import duties on a number of fruits. As a result, as of January 28, 2022, wholesale prices for oranges are 22% lower than last year, for tangerines - 23% lower than last year. Over the year, the devaluation of the Uzbek sum amounted to only 3%. It should be noted that real prices fell even more significantly.

Compared with other regions, the Andijan region accounts for the largest share of the total volume of fruits and berries (23.0%). Also, a significant proportion was noted in Fergana (13.0%), Samarkand (12.6%), Namangan (10.4%) and Bukhara (9.2%) regions. At the same time, the smallest share in the total volume of fruits and berries was observed in Syrdarya region (1.5%) and the Republic of Karakalpakstan (2.2%). During this period, high growth rates were noted in the Republic of Karakalpakstan (106.9%), Syrdarya (105.7%), Kashkadarya (105.6%), Surkhandarya (104.9%) and Namangan (104.8%) regions (Figure 1).

Today, Uzbek specialists pay special attention to the cultivation of new varieties of citrus seedlings in open and closed ground, as well as the organization of mother liquors (plants from biennial crops selected for seed purposes) and the fight against pests and diseases. Scientists in laboratories and specialists in greenhouses are working to develop varieties of lemon, orange and mandarin that will be suitable for export and transportation of fruits to other countries. In accordance with the Decree of the President of the Republic of Uzbekistan dated February 19, 2020 No.

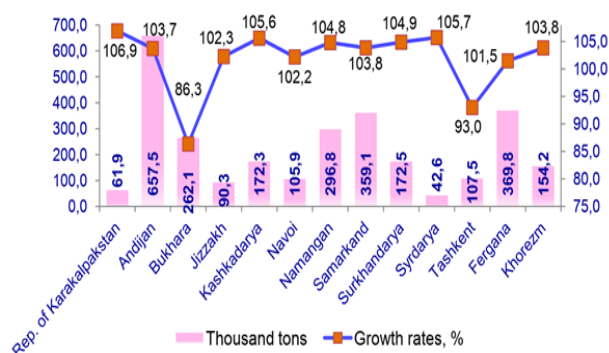


Figure 1. Total volume of fruits and berries

PP-4610, the Association of Producers and Exporters of Citrus, Subtropical and Tropical Plants was established at the Research Institute of Horticulture, Viticulture and Winemaking named after Academician M. Mirzaev. The Association was established with the aim of developing the sphere of lemon growing in the republic, expanding the scale of scientific research, increasing the production of high-quality industrial and export-oriented citrus fruits based on the use of advanced and modern resource-saving technologies.

Scientists of the Research Institute of Horticulture, Viticulture and Winemaking named after academician M. Mirzaev introduced and studied the morphological features of local varieties, highlighting the most high-yielding and export-oriented varieties.

For planting citrus trees on the territory of Uzbekistan, scientists of the Institute have already developed varieties for their inclusion in the State Register. Among them are:

- two high-yielding varieties of lemon "Meyer" and "Uzbekistan". They are recommended to be grown in greenhouses and ditches. Varieties give early yields;
- variety of orange "Gamlin". The fruits ripen in November. Productivity is good, fruit is transportable;
- Mandarin variety "Clementine". Ripens in November and gives a good yield.

Also, the specialists of the institute continue research work on lemon varieties: "Meyer", "Uzbekiston tungichi", "Uzbekiston khosildori", "Toshkent"; oranges: "Gamlin", "Washington Navel", "Pear-shaped wren", "Gludkory", "F1 29221" and tangerines: "Clementine", "Cavanaugh Wase", "Okitsu Wase", "Ponkan". It is interesting that, for example, in Georgia, the Meyer lemon variety, which is so popular in the countries of Central Asia, is best adapted to climatic conditions. It is also grown in Tajikistan. The volume of production is about 12-15 thousand tons per year.

**Conclusion.** Uzbekistan can strengthen its position among the world leaders in the export of citrus fruits. To do this, we need to work on improving the quality and safety of products, create a more modern set of varieties, improve the approach to storage, cooling, refinement and packaging. All these complex works should lead to an increase in the harvest, an increase in exports and the development of agriculture in general.

Currently, the country's horticultural industry does not provide the population with citrus fruits in full, which is primarily due to the fact that industrial horticulture is developing weakly and inconsistently. This is mainly due to the lack of a proper citrus nursery base that produces the amount of citrus planting material necessary to ensure

the renovation of perennial plantations.

Among the determining factors in the development of domestic horticulture and citrus nursery on an industrial scale, the decisive role belongs to the organizational and economic mechanism. It is its purposeful, balanced

functioning that allows the maximum use of intra-industry technological, organizational, technical and other factors to increase the efficiency of the production of planting material and the final product of the horticulture industry - citrus fruits.

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