The special place of walnuts in the world market and their transportation (case study of Uzbekistan)

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Abstract. Interest in nuts has never faded, and with it grew interest in the transportation and transportation of dried fruits. In recent years, the nut has become an engine of the economy. Walnut crops are popular all over the world, in connection with this there is an increasing need for proper transportation, delivery of nuts to the consumer, without losing their taste. The topicality of the article is based on the interest of the nut industry in many countries, including the Republic of Uzbekistan. The article reveals the current state of nut plantations in Uzbekistan, the ongoing reforms in this industry and their results. The nut business is analyzed, recommendations on obtaining the maximum profit with the minimum losses are given.

1. Introduction
Uzbekistan has a universal climate, sunny days in the Republic of Uzbekistan are more than 300 days a year. Due to this, different types and varieties of fruits and vegetables are grown here. Due to the fact that sunny days are intertwined with a dry climate, fruits and vegetables grown in the Republic of Uzbekistan acquire the necessary amount of natural natural sugar and have a distinctive taste and aroma[1].

Given all this, it is worth noting that in Uzbekistan there are a lot of fruits and vegetables, and a certain part is converted into dried fruits. Dried fruits in Uzbekistan are incredibly delicious and natural. Drying is done in a natural way, which allows you to save more vitamins and minerals, and also affects the quality, appearance and taste of manufactured goods.

In the Republic of Uzbekistan, three types of drying of dried fruits are mainly used: natural, sunny or shadow. Natural methods do not use stoves, bonfires, caustic soda, and so on.

Nuts have been eaten by people since time immemorial. Nuts occupy a special place in the human diet, they have high nutritional properties, lead to normal cholesterol and blood sugar levels. Nuts contain vitamins A, E, C, B vitamins and more than 20 macro and microelements. Not only are nuts very useful for the human body, but they are also very tasty, and therefore very popular among the population [2].

Prices for different types of nuts vary. Growing nut orchards is a complex process, many nut crops are demanding to the climate and soil. Only 7% of the world's surface can be considered suitable for growing nuts - walnuts, hazelnuts, pistachios and others. Growing nuts is a big risk, and on the other hand is a very lucrative business. It is influenced by many factors, the control of the number of winds, freezing, time, the appearance of the fetus is not subject, but as a result, you can get good profit without further expenses. Renewal of such nut orchards takes place after 40 years.
Every year, a large number of nuts are produced in the world. From the figure, three cultures can be distinguished - pistachios, almonds, and walnuts [3].

![Figure 1](image)

**Figure 1.** Number of nuts are produced in the world.

On the world market such varieties of nuts as pistachios, almonds, walnuts are in great demand. Pistachios give harvest in industrial quantities for the third year, but bringing them to the commodity kind, is quite a complex process. Leaders in the cultivation of pistachios in the world market for a long time are Iran, Afghanistan, Azerbaijan, it is difficult to compete with them. That's why Uzbekistan has chosen a different nut culture [4].

Due to the great demand for walnut crops all over the world, a complex of logistics and transportation is developing. In Uzbekistan, in support of walnut production, on June 1, 2017, the Association of Walnut Producers and Exporters was established. The objectives of the association are the development of walnut growing in the Republic of Uzbekistan, the increase in the production of walnuts, almonds, pistachios, which can compete not only in the domestic but also in the world market.

Another important task is the coordination of the implementation of plans for creating plantations of walnuts, almonds and pistachios in a modern style, the formation and conduct of various research works on adapting walnut, almonds and pistachios seedlings to territorial climatic conditions [5].

The Association of Walnut Producers and Exporters in the Republic of Uzbekistan consists of:

- LLC Scientific Research Center for Nut Growing. It conducts research on the acclimatization and regionalization of problematic varieties of walnuts, almonds and pistachios.
- Walnut Logistics Center LLC. The purpose of this organization is to provide services for the processing and storage of nut products, and to assist in the preparation of customs clearance of products for export.
- LLC MTP Sag agro. It provides services for agricultural events, producers, processors of walnuts, almonds, pistachios.
- Territorial divisions of Engokargo. It provides all types of services and interests of the Association in each region of the Republic of Uzbekistan.
2. Methodology
Research in the nut growing industry is empirical, based on data from its scientific literature and current news sources. The object of study is the walnut culture, its core, shell, partition and wood. The study is conducted in the field of economics. The techniques of logic, dialectics are used in processing the received information [6].

3. Result
Peeled walnuts are the most expensive export goods from Uzbekistan. According to information provided by the Directorate of the International Fruit and Vegetable Fair, it became known that the price per ton of peeled walnut of the first grade ranged from $ 4,500 - $ 5,600 [7, 8].

The head of the Republic of Uzbekistan, analyzing the situation with dried fruits on the world market, noted that Uzbekistan, having a great potential for growing walnuts, lags behind other countries.

Walnut orchards have been growing for more than 150 years, and bring profit to the first and second generations of the dynasty. Walnuts have different breeding species, with different maturation period, oil content, yield, etc. [9, 10].

3.1. Unique walnut
Walnuts have a special nuance that not many people know about. When growing walnuts, you can dispose of all the waste, and make the business waste-free. Everyone knows that the walnut kernel is exported, ready for use, but the walnut obtained from the tree consists not only of the kernel. Almost half of the weight of the nut is the shell, there is also a partition.

The shell can be disposed of in various industries, pharmaceuticals, in the form of fertilizer, animal feed, or environmental fuel. It is the most popular shell in the pharmaceutical industry. The walnut shell contains many useful substances, amino acids, alkaloids and many others. Tinctures, ointments with anti-inflammatory, antibacterial, and general strengthening properties are made from shells.

An interesting application of walnut shells as an ecological fuel. Fuel briquettes are made from the shell, which have a high density, long burning. In the EU countries, these briquettes are in great demand, because of their environmental friendliness. In Uzbekistan and neighboring countries, few people know about these fuel briquettes. Walnut shell fuel briquettes leave little ash after combustion, thereby minimizing environmental damage. Specialists conducting research in this area claim that one ton of such fuel corresponds to 6 cubic meters of ordinary wood.

The walnut partition also is not thrown into the trash. Various ointments and tinctures are made from the walnut partition, due to the high content of iodine, vitamins, pectin, etc. The partition is used not only in medicine, but also in cosmetology.

Unripe fruits or green fruits are also used in medicine and in the food industry. Green fruits are rich in vitamin C, and many other beneficial macro and micro elements. Various medical preparations are made from them. Also, in recent times, food factories began to produce jam from green fruits of walnuts, the jam turns out to be especially tasty, and is gaining popularity among the population not only by its taste but also by its beneficial properties.

Walnut leaves also have many healing qualities. The properties of walnut leaves in folk medicine are widely known. It is used to make teas and lotions that can anesthetize wounds and improve metabolism.

Walnut wood is used in the furniture industry. It has a smooth, durable texture. Easy to process and polish. It has an interesting beautiful structure, after making furniture or musical instruments, it is simply covered with a tinting substance.

3.2. The current state of the nut market (in The Example of Uzbekistan)
Do not forget about the financial attractiveness of the nut industry. The President of Uzbekistan Sh. Mirziyoyev analyzed the world experience, noted that the walnut business has great prospects. On
June 1, 2017, the President of Uzbekistan adopted Resolution No. PP-3025 "On the Creation and Organization of the Activities of the Walnut Producers and Exporters Association". The decision aroused great interest in the nut culture and gave an impetus to the active development of this industry, and the creation of a business in this area.

**Table 1.** Programma of measures to further increase the production of walnuts for the period 2017-2020.

| Stage 1 | 2017-2019 | Planting seedlings |
| Stage 2 | 2018-2019 | delivery of rootstock for grafting walnut; |
| Stage 3 | 2020 | laboratory production of high-yielding walnut seedlings, taking into account its adaptation to the climatic conditions of the corresponding region; |
| Stage 4 | 2018-2020 | production and sales of walnuts in the domestic and foreign markets. |

When opening nut plantations, cultivation sites were carefully selected, since the soil for the culture should be special, Andijan, Kashkadarya, Jizzakh, Namangan, Samarkand, Surkhandarya, Tashkent and Ferghana regions were selected.

The decree opened up many opportunities and conditions for the nut business. Concessional loans of up to $ 50 million were allocated for the creation of walnut plantations. On January 1, 2020, state privileges were created for members of the association to import custom-made equipment for drip irrigation, specialized equipment, seedlings, stock, scion, and breeding material not produced in our Republic.

The decree began to take effect. The President of the Republic of Uzbekistan on December 13, 2018, visited the Kashkadarya region, he paid special attention to the plantations of Sag agro Yakkabog LLC in the Yakkabag region, planted with walnuts and almonds. On 700 hectares, varieties of nuts “Chendler”, “Cisco” and almonds of the varieties “Avijor”, “Guara” grow. These varieties easily adapt to the climate of Uzbekistan, water, soil. The fruits of these varieties are fully consistent with international standards, they are large, the shell is thin, the kernel of the nut is white. This walnut plantation is planned to expand and sow an additional 440 ha. Their plan includes harvesting in the amount of 7 thousand tons per year, 60% of the resulting products will be exported.

4. Conclusions

Uzbekistan is taking great confident steps towards the world market of nuts and will be able to take its place in this industry. Promising markets are China, India, and Arab countries. In the world market, there is a great demand for peeled fruits, ready for consumption. The remaining components can also be turned into profit.

Take 1 ha of land with a planting scheme of 10 * 8. Since the nut begins to bear fruit for 5-6 years, it is advisable to plant a pear between the rows in parallel, since the pear begins to bear fruit in the 2nd year, and the pear is protected from harmful effects by the walnut. We will carry out calculations at conditional prices in the Republic of Uzbekistan for 2019.

Initial investment with costs such as preparing the territory, buying seedlings, etc. will be about $ 5,000 - $ 6,000.

In this situation, the pear will begin to make a profit in the second year - $ 7,500, and from the fifth year, when fully bloomed, it will make a profit - $ 45,000. For 10 years, a pear will make it possible to recoup all the costs of creating a walnut garden and even enter into profit. Walnuts begin to make a profit for the fifth year - $ 150, for the tenth year -3750 $, and after 20 years -25 000 $, and will bring more profit for at least 100 years.

At the same time, everyone did not take into account the fact that the shell is also sold and makes a profit.
An important role is played by marketing. In many countries of the European Union, the environmental friendliness of growing a product is important. In order for the product to compete with others, you need to get a certificate that the product is environmentally friendly. In Arab countries, they may not ask for a certificate of environmental friendliness, but in order to compete in the market, you need to get a Halal certificate. Products with this label will sell out much faster. There are even shops where they sell products with only halal products.

Another important marketing move is packaging. It plays a role for manufacturers, forklifts, and end users. For manufacturers, packaging creates additional costs in the form of costs for packaging, core processing, and working hours. For loaders, this creates some kind of additional responsibility for the cargo they carry. Usually not processed nuts, are loaded into loading machines in bags or in boxes. There is a low probability of damage to the walnut, as the shell is very thick and they are not afraid of any impact. And with packaged walnuts, the risk of damage increases. Walnut kernels packaged in containers are shipped in a box, but even with this method of transportation, it is possible that during customs inspection, or in some unforeseen situations, the nuts may crumble and lose their presentation. For consumers, peeled processed nuts appear more attractive than unpeeled fruits. There is more demand for them, and this creates additional profit for manufacturers.

Based on these marketing points, having obtained the necessary certificates, the walnut will be able to compete safely, and it will even be possible to increase the selling price.

In conclusion, we can say that growing walnut orchards is a long process, but once you start, you will make a profit, almost your whole life, and you can leave it to your successors. With the support of the state, you can develop a business and export walnuts to different countries of the world.

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