Nature and Science

Websites:
http://www.sciencepub.net/nature
http://www.sciencepub.net

Emails:
naturesciencej@gmail.com
editor@sciencepub.net

MARSLAND PRESS
Multidisciplinary Academic Journal Publisher

Territorial Features of Horticultural Development in Agriculture of Samarkand Region

Olimjon Kholboyevich Kuvandikov[1], Toshpulat Djumaboyev[2], Lutfullo Ziyadullayevich Ibragimov[2], Bekzod Murodovich Musayev[3]

[1]Senior lecturer, Department of Socio-Economic Geography, Samarkand State University, Samarkand, Uzbekistan
[2]Associate Professor, Department of Socio-Economic Geography, Samarkand State University, Samarkand, Uzbekistan
[3]Assistant, Department of Socio-Economic Geography, Samarkand State University, Samarkand, Uzbekistan
[*]E-mail: Lutfullobek@mail.ru

Abstract: The geographical aspects of the development of horticulture in Samarkand region were analyzed in this article. In particular, the prospects for the cultivation of all types of fruits are described based on the availability of opportunities for the development of this sector in mountainous and foothill and non-irrigated dry lands, fertile soil, land resources, specific climatic conditions. Every year it is recommended to plant stunted fruit trees with high yields in mountainous and foothill and non-irrigated dry lands.
[Kuvandikov O.Kh., Djumaboyev T., Ibragimov L.Z., Musayev B.M. **Territorial Features of Horticultural Development in Agriculture of Samarkand Region.** *Nat Sci* 2020;18(10):30-34]. ISSN 1545-0740 (print); ISSN 2375-7167 (online). http://www.sciencepub.net/nature. 4. doi:10.7537/marsnsj181020.04.

Keywords: food, fruit crops, intensive horticulture, mountain and foothills, packaged fruits

1. Introduction

Horticulture is one of the oldest branches of the national economy in Uzbekistan. For the future of the republic's agriculture and the increase of the material well-being of the people depends in many respects on its development. In the context of economic reforms, it is necessary to scientifically analyze the natural conditions and opportunities of the regions to provide the population with fruits throughout the year, based on supply and demand, to create products at the level of market demand, to provide the population with agricultural products, including fruits. It consists of the study of the development of fruit growing in Samarkand region and the level of its territorial organization with a scientific approach from an economic and geographical point of view.

2. The Main Part

Agriculture is the most important and now the leading sector of the national economy of Uzbekistan. Agriculture plays an important role in meeting the demand of the population for food products and raw materials for industry. The organization and development of new forms of management in this area, in turn, will lead to a radical change in the attitude to land and property.

As a result of economic reforms in agriculture, the quantity, quality and efficiency of production are increasing. In this regard, farming is becoming the basis of a comprehensive form of management. This sector is becoming important in all sectors of agriculture, including horticulture. As a result, farms specializing in horticulture are being established and various orchards are being multiplied. Especially, the expansion of intensive orchard areas is aimed at increasing the number of high-yielding, early ripening, market varieties, and meeting the demand of the population for fruit products.

Numerous laws and decrees of the President of the Republic of Uzbekistan are being adopted in the regions to meet the demand of industry for raw materials and the requirements of people to agricultural products, as well as to ensure food security. For instance, the Decree of PD-5853 **"On approval of the Strategy of agricultural development of the Republic of Uzbekistan for 2020-2030 years"**. Chapter 2 of this decree states that "the growth of the number of population, increasing demand for land, water and energy resources, as well as drastic climate change are the main factors influencing food security". This is because ensuring food security, the increasing demand for food is also directly related to the further development of horticulture, which is an important branch of agriculture.

According to the information of the Ministry of Health Care of Uzbekistan, it is approved that a person should consume 95-100 kg of berries during a year. At present, fruits and berries grown in the country account for 95 kg per capita, of which 12 kg

are grapes. This figure is 120-250 kg in countries such as the United States of America, Italy, Spain and France. To do this, we need to grow 330-400 g per capita per day or 115-120 kg of fruit per year, including 15 kg of grapes and 10 kg of berries (T.E. Ostanakulov, S.N. Narzieva, B.Kh. Gulomov). Therefore, in order to meet the needs of the population, the main task is to export surplus products abroad, to develop the economy, to improve the structure of industries, the widespread use of new innovative technologies, to improve product quality and efficiency. Because in today's globalization, the economy of any country that uses land, water and labor resources correctly and rationally will continue to grow rapidly. In particular, the gradual development of all sectors in Uzbekistan, including agriculture and its branches, is one of the main tasks. Horticulture is one of the most important sectors of agriculture, providing the population of the city, especially the urban population with wet and dried fruits and berries, supplying industry with raw materials.

Uzbekistan is one of the countries specializing in the cultivation of various fruits due to its geographical location. Due to the continuation of hot days in the country, the fruits grown here play an important role in the import of other countries due to their sweetness and transparency.

The rich and diverse flora of Uzbekistan differs from the flora of Turkmenistan, Afghanistan and Iran with its uniqueness in many respects. According to Uzbek botanist scientists, 3,500-4,000 species of plants grow in our republic. Shrubs and trees in the mountainous regions of Central Asia are diverse; with more than 100 species of them can be found. The mountainous regions of Uzbekistan are very rich in Greek walnuts, apples, cherries, pistachios, almonds, chestnuts, hawthorn, barberry, grapes and others from wild fruits and berry fruit plants.

N.I. Vavilov (1960), M.G. Popov (1929), V.P. Drobov (1950), R.R. Shreder (1929), P.A. Baranov (1940), G.P. Sumnevich (1942), S.N. Kudryashev (1950), I.T. Vaselenko (1959, 1963), S.S. Komikov (1956, 1973), V.V. Kuznetsov (1971), M.B. Dashanov, A.A. Khaknazarov (1974), M. Abdullaev (1974), M.M. Mirzaev (1982) and others were engaged in the introduction of wild fruits and viticulture in the mountainous regions of Uzbekistan.

In the mountainous regions of Uzbekistan, wild fruits are mainly distributed according to the geographical location of plants, depending on the altitude of light, heat, soil moisture, precipitation and others how high above the sea level. Shrub-trees located in the upper part of the mountain is walnut, apple, cherry, chestnut, currant, barberry and others, which are resistant to climate, moisture and cold, are widespread mainly on the eastern and north-eastern slopes. Relatively low, from 1000-1500 m above sea level, low-precipitation, coastal-resistant plants, such as almonds, hawthorn, monkeys, and even below, in the foothills grow thorny almonds, pistachios and mountain grapes.

Here is a brief description of some of the bio-ecologically distributed wild fruits and berries in the territory of Uzbekistan.

Greek walnut. This plant is mainly widespread in the mountainous regions of Central Asia and is abundant in Western Tyanshan (Kyrgyzstan and Uzbekistan), Pamir-Alay (Tajikistan) and Kopet-Mountain (Turkmenistan). There are basically walnut forests in 5 regions of Central Asia, including Fergana, Chatkal, Piskom-Ugam, Gusar and Kopet-mountains.

According to V.I. Zapryagova (1964), walnut forest areas are distributed in Central Asia as follows: 44,600 hectares in Tyanshan, 15,000 hectares in the Pamir-Alay, and 100 hectares in the Kopet Mountains. However, today walnut plantations in many lands in these areas have shrunk as a result of human activity. Nuts are cut for furniture, wood, and burned as firewood. Large areas of walnut groves in Uzbekistan are distributed in Bostanlik, Parkent, Akhangaron districts of the Western Tyanshan mountain range, Zarafshan Mountains, Nurata and Hisar mountains, as well as in some mountainous areas of Samarkand and Surkhandarya regions. In the south of our republic, walnut groves are located in Kashkadarya region, Zevar and Sangardak forests of the Western Hisar Mountains and in the Tupalangdarya, Obezarang, and Koshtag mountains.

In Samarkand region, walnut groves are widespread in the mountains and foothills, as well as in the plains. In one part of Kushrabot, Nurobot, Bulungur, Urgut districts of Samarkand region, which are part of the mountainous and foothill areas, walnut groves are widespread, mainly in the part of the mountain up to 1000-15000 meters. On the slopes of Qoratepa, Chaqlqalan, Omonquton mountains of Urgut district, Gubdun mountain of Bulungur district, Oktepa Mountains of Kushrabot district, walnuts are fruit-bearing plants for many centuries, the height of trees are 30-35 meters, the sword of trunk is 2 meters and the root spread is 12-16 meters.

As of January 1, 2019, a total of 3,212.8 hectares of land were planted with walnuts in Samarkand region, of which 76% or 2,435.7 hectares were harvested and the remaining 24% or 777.1 hectares were young walnut orchards. This year, a total of 20002.6 tons of walnuts were grown in the region, with an average yield of 111 quintals per hectare. 29.3% of the total walnut area in the region belongs to Payarik, 23.3% to Kattakurgan and 17.7% to Jambay

districts (the largest percentages) and 0.05% to Samarkand, 0.06% to Nurobot and Pakhtachi, 0.08% to Taylak districts (the lowest percentage).

In recent years, Samarkand region has been intensively establishing annual walnut orchards. In 2011-2018 years, a total of 2103 hectares of land in the region were intensively planted walnut orchards. These gardens cover 485 hectares in Jambay, 480 hectares in Bulungur, 350 hectares in Samarkand, 250 hectares in Koshrobot, 210 hectares in Payarik, 150 hectares in Urgut and 100 hectares in Pastdargom districts. In Ishtikhon and Narpay districts, only 35-40 hectares of walnut orchards have been planted. On the contrary, in the remaining five districts, these processes are neglected. However, in Nurabad and Kattakurgan districts the chances of establishing walnut groves are much higher than in other districts.

The literature states that nuts have a variety of properties, energizing, medicinal even when ripe and unripe, fruiting for at least 3-4 centuries, the ability to remove solid wood from the body and more. Nuts are resistant to an average of 27-28 C in the cold and 37-40 C in the heat. In mountainous areas, a single walnut can yield up to 2-50 kg and in the plains it is possible to get 2.5-7.5 times more harvest than in mountainous areas. A single walnut planted in large areas can yield up to 75-100 kg or 120-150 kg from one root and up to 300-500 kg if the climate is good. Nuts are distinguished by their dimensions, fat content and taste. One walnut weighs an average of 5 grams to 16.3 grams, the kernel is from 34 percent to 56.7 percent and the fat content of the kernel is 67-75 percent. Some walnut shells are soft, moderately hard and hard.

Pistachios. Most of the wild pistachios consumed grow in Uzbekistan, Tajikistan, Turkmenistan, and partly on the southern mountain slopes of Kyrgyzstan and Kazakhstan of Central Asia. The total area of pistachios in Central Asia is 100,000 hectares, of which 20-25% is in Uzbekistan.

The largest number of pistachios in Uzbekistan is in the Babatag, Hisar, western Zarafshan, the northern slopes of the Turkistan Mountains and the Fergana Mountains. (Kalmikov, 1956; Abdullaev, 1976; Popov, 1977).

Pistachios are coastal resistant. It grows mainly in the desert lowlands, hills and 600-1700 meters of dry mountain slopes and in areas with less than 150 mm of precipitation. It is very rare at higher altitudes, and in some cases it can grow between fir-trees. Pistachios grow well in soils rich in lime (23%) and sulfuric acid, chloride salts. In contrast, it grows slowly in poorly developed stony and red sandy soils and does not bear fruit. Pistachios are mostly woody and shrubby. It is a long-lived plant with an average age of 60-100 to 300 years, pistachios adapted to a convenient area up to 5-7 meters in height, the roots are strong. Pistachio trees love heat and light. Under natural conditions, there are 100-150 trees per hectare. It is also a type of heat-resistant plant. It is resistant to high temperatures of 40 C and above in summer months and resistant to cold temperatures of -32-33C in winter. It is obvious that this plant should be planted in the conditions of Uzbekistan, including in the mountainous and foothill areas of Samarkand region, in the open fields, which are rarely used. Pistachios begin to bear fruit after 10–12 years and in this respect it bears fruit much later than other fruits. Productivity is not very high, that is to say, 1-2 kg can be harvested from one tree. The fruit tree blooms in late July and early August.

Harvesting lasts until late August and mid-October. The average weight of pistachio fruits is 0.5-0.6 g and up to 1700 nuts per 1 kg. Its core contains 55-60 percent of fat and 12-13 percent of sugar. 40-45% of the fruit makes up its surface shell. It has the ability to energize the human body but is required to be consumed in moderation level.

Large areas remain bare in the mountainous and foothill areas of Samarkand region from 600 to 1700 meters. These areas correspond to Urgut, Qushrobot, Bulungur, Nurobot, Payariq districts. Land, soil, climatic conditions are suitable for the organization of pistachio fields in these areas. By organizing pistachio fields, it will provide the population with a new source of income. In particular, the use of its fruit not only through the organization of pistachio fields, but also serves to improve the ecotourism of the regions, to prevent the consequences such as land plots, floods, soil erosion. Today, the average price of 1 kg of pistachios in Samarkand markets is more than 150,000 sums. If we organize pistachio fields in the region, we will be able to meet the demand for it and control the price and increase the income of the population.

In Samarkand region, horticulture has long been one of the most developed industries. This is due to the peculiar climatic features of the oasis, the adequate level of soil and water supply. It is known from history that Sahibkiran Amir Temur in his time created twelve garden fields around Samarkand and named them. This is because these gardens are suitable for the conditions of Samarkand.

Horticulture is widespread mainly in the mountainous and foothill areas of the region, such as Urgut, Taylak, Bulungur, Samarkand, in the plains of Jambay, Pastdargom, Akdarya, Kattakurgan districts with fertile soil and sufficient water resources. On the contrary, Narpay, Pakhtachi and Ishtikhon districts are highly specialized in cotton growing, Kushrabad and Payariq districts are specialized in viticulture and animal husbandry and Nurabad district is specialized in animal husbandry. However, in these districts there

are some branches of horticulture, including fruit stone-dealing directions. The economic and geographical location of the region's processing industry sectors, population and labor resources are also important in the development of horticulture. At the same time, the Zarafshan River and its surrounding canals as well as the presence of irrigation facilities are clearly reflected in the territorial location and development of agricultural sectors in the region, including horticulture.

According to the Main Department of Statistics of Samarkand region, as of January 1, 2019, there are a total of 36,498 hectares of orchards in the region, of which 75% or 27,311 hectares are fertile and the remaining 25% or 9187 hectares are young orchards. Of the total orchards in the region, 51% are apples, 11% are cherries, 8.8% are walnuts, 7.2% are peaches, 6.5% are apricots, 3.8% are plums and the remaining 11.7% are other orchards. Horticulture is well developed in Samarkand, Bulungur, Kattakurgan, Nurobot, Jambay, Pastdargom, Payarik, Taylak and Akdarya districts of the region, which accounted for 88% of the total fruit grown.

As of January 1, 2019, a total of 421,362 tons of fruit was grown in the region, with an average of 154 quintals per hectare of land. 85% or 358.2 thousand tons of fruits were sent for domestic consumption, 8% for processing and storage, 5% for the city of Tashkent and fairs; about 1% for budget organizations and only a little more than 1% for 5053 tons for export.

In order to further increase horticultural production in the region, special attention is paid to the establishment of small and semi-small (intensive) orchards in Jambay, Samarkand, Bulungur, Akdarya districts. This is due to the fact that the seedlings of fruit trees in these gardens are characterized by rapid yields and high yields per unit area. However, due to the small size of the trunks of intensively cultivated trees, it is convenient to shape them and pick the fruit. In addition, such gardens have a clear taste, color, appearance of ripe fruit, as the base and trunk of fruit trees are easily exposed to sunlight and good air circulation. The advantage of intensive gardens is the efficient use of land and water. While 250-300 fruit seedlings per hectare of ordinary orchards can be planted and up to 2200-2800 stunted seedlings per hectare can be planted in intensive orchards. In intensive gardens, trees are watered by drip irrigation. In this process, only 70-80 cubic meters of water are used to irrigate 1 hectare of land at a time, while 1000 cubic meters of water are used per hectare when irrigating ordinary gardens with a ditch. The advantage of intensive orchards is that, in addition to saving land and water, it is possible to obtain higher yields due to the early ripening of fruit trees. If the agro-technical measures in intensive orchards are carried out in a timely, complete and high-quality manner, of course, these orchards will be harvested from the second year and can yield up to 5-7 tons per hectare. Beginning from the fourth to fifth year, these orchards can yield up to 80-90 tons per hectare. Intensive orchards are important in that they produce 4-5 times more harvest than local orchards. There are enough opportunities to organize intensive gardens in other districts of the region. It would be expedient to organize such garden plots in Kushrabad, Ishtikhon, Payarik, Pakhtachi, Narpay, Urgut districts, as well as to study the possibilities of the regions through test experimental plots. It is said that “Who is afraid of sparrows does not plant millet”.

All regions of our republic are suitable for growing a variety of fruits due to their natural conditions. Over the next ten year, fruit and berry production increased 3 times. Nevertheless, there are many untapped opportunities for further development of horticulture in the regions and many recommendations are being developed and implemented in the near future. Especially in mountainous and foothill and steppe zones, horticulture requires the planting of fruit seedlings resistant to various climatic conditions on the basis of innovative technologies and the work aimed at obtaining high yields from them. Consequently, there are a lot of lands located at an altitude of 500-1000 meters above the sea level and above and it is necessary to use these lands to grow fruits. Due to rainfall on the mountain slopes, many fruits, including apples, cherries, pears, mountain cherries, walnuts, almonds, grow as the wild. However, the average yield of wild fruits is only 1-1.5 quintals per hectare. Therefore, today, on the basis of recommendations developed by scientific organizations, the work on the introduction of a sharp increase in yield by culturing wild fruits by grafting is being carried out intensively. The introduction of fruit-growing technologies with wide use of intensive methods in low-yielding steppe zones is of great importance today. It is known that the fruit contains a lot of medicinal substances necessary for the human body. For example, ripen fruit contains sugars, organic acids, proteins, fats, preservatives, mineral salts, enzymes and vitamins. These substances break down food in the human body and serve for easy digestion and strength. Therefore, the use of fruit products in the treatment of any person, especially patients, is beneficial. At the same time, there are enough opportunities to provide the population with fruit products throughout the year. For example, the first strawberries from the fruits ripen in May in our region, followed by cherries, raspberries, peaches, currants, apricots, plums, grapes and apples and in September-October, winter apples,

pears and quinces ripen. Autumn fruit varieties can be stored until April-May next year or until fresh fruits ripen. Some dried fruits have a higher chance of being stored even longer and exported abroad. Nowadays, the fruits are being exported wet and dry to Eurasian countries, including Russia, Ukraine, Belarus, Korea, Japan, China, Poland, Germany and other countries. Scientists of the Medical Institute of the Republic of Uzbekistan recommend the population to increase the norm of consumption of grapes by 25 kg and to consume an additional 10-11 kg of dried fruits. Therefore, we need to use all available opportunities wisely and correctly to stabilize the food security of the population and to increase the level of fruit consumption.

3. Conclusion

It should be mentioned that the horticultural development measures in Samarkand region is to determine the needs of the population in fruit products and their export to different parts of our republic, taking into account the needs of canneries, as well as to increase the export capacity of dried and packaged fruits to foreign countries. It is expedient to carry out large-scale of work in the field of horticulture in the regions, to create conditions for more efficient use of this sector, to fill the domestic consumer market with fruit products and to create new jobs by building small businesses and developing family businesses.

Corresponding Author:
Lutfullo Ziyadullayevich Ibragimov
Department of Socio-Economic Geography
Samarkand State University
Samarkand, Uzbekistan
Telephone: +998979286842
E-mail: Lutfullobek@mail.ru

10/4/2020

References

1. Resolution of the President of the Republic of Uzbekistan No PR-2460 dated December 29, 2015 "On measures to reform and develop agriculture in 2016-2020 years."
2. Decree of the President of the Republic of Uzbekistan No. PD-4947 dated February 7, 2017 "On the strategy of actions of further development of the Republic of Uzbekistan."
3. Resolution of the President of the Republic of Uzbekistan No. PR-3025 dated June 1, 2017 "On the establishment of the Association of Walnut Producers and Exporters and organization of its activities".
4. Decree of the President of the Republic of Uzbekistan No PD-5388 dated March 29, 2018 "On additional measures for the accelerated development of fruit and vegetable growing in the Republic of Uzbekistan."
5. Decree of the President of the Republic of Uzbekistan No PD-5853 dated October 23, 2019 "On approval of the Strategy of agricultural development of the Republic of Uzbekistan targeted for 2020-2030 years."
6. Borozdin R. G. Issues of the development of horticulture and viticulture in Uzbekistan. T. 1992.
7. T. E. Ostonakulov, S. Kh. Narzieva, B. Kh. Gulomov. Fruit-growing basics. T. 2010.
8. D. N. Saidova, I. B. Rustamova, Sh. A. Tursunov. Agrarian policy and food security. T. 2016.
9. The department of Statistics of Samarkand region. 2011-2019 years.
10. Internet sites: http: press-service.uz.